IMPROVING THE DELIVERY OF THE LANDSCAPE SCALE IN POLICY AND PRACTICE: USING AN APPLIED DELPHI FRAMEWORK

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ABSTRACT

The concept of landscape scale exists as an interdisciplinary meeting place outside of traditionally defined disciplines; a potential place in which experts across different disciplinary lenses can develop truly holistic solutions that operate across different spatial and sectoral scales simultaneously. The term has seen a dramatic uptake in use as part of a new vocabulary across multiple disciplines. Still, surprisingly, there is no widely accepted definition of the term and this lack of clarity, combined with increased uptake, has produced various subtle iterations of the concept. In turn this has resulted in cherry-picking for applications and piecemeal approaches that are still referred to as 'landscape scale' despite not fully engaging with all aspects of the concept. Therefore, the research problem stems from the underlying power of the concept to facilitate transdisciplinary holistic solutions falling foul of the same challenges it is supposed to overcome. To address this an expert-led approach in the form of a four-round adapted Delphi Technique was employed to explore, prioritise, develop, and test a landscape scale framework through a series of deliberative rounds. Sixteen interdisciplinary international and national experts were recruited to participate in a prolonged Delphi technique and formed the expert-led panel.

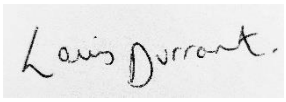
The research project achieved its aim by co-producing a Landscape Scale Framework that outlined five conceptual and operational tools pinpointed by the experts to provide an accessible and consistent framework to establish what is meant by landscape scale. This consists of a definition of landscape scale and its associated terms, the critical ingredients of landscape scale working, and the principles of landscape scale working, it also includes the operational steps and guidance for delivering these approaches and, finally, a proposed template for collecting landscape case studies to begin the process of building a coherent database to share knowledge.

In conjunction with the Landscape Scale Framework, the thesis sheds light upon the variety of limitations and barriers that practitioners delivering landscape scale approaches face daily bringing forward key governance shortfalls around project longevity, information sharing, and the availability of resources. The thesis, in turn, unpacks these issues within a wider research context and attempts to outline potential research and policy recommendations going forward to enhance holistic decision making and, further mainstream landscape scale concepts.

It is hoped the Landscape Scale Framework, co-produced using the expert-led Delphi technique, can aid in the greater operationalisation of landscape scale approaches, facilitating truly holistic and multidisciplinary solutions to address the complex ‘wicked’ problems we face as a civilisation and also draw some light on the barriers and opportunities of such approaches.

DECLARATION

I, Louis James Durrant, confirm that I composed the thesis, that it has not been accepted in any previous application for a degree, that the work is my own, and that all the quotations have been distinguished by original quotation marks and the sources of information are explicitly acknowledged.



21/06/2021

…… ……

Louis James Durrant Date

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It has been a long and challenging journey, which I thought I faced alone, but as I progressed through my research, I realised that this was not the case. A Ph.D. demands so much personal sacrifice that I could not do it alone and at times had to rely on the people around me for support, guidance, and love when the burden became too much.

I would like to thank my supervisors Associate Professor Claudia Carter at Birmingham City University and Professor Alister Scott at Northumbria University. Their guidance has been essential to the project's success, and their continued support throughout the projects, many ups, and downs helped me persevere even when I felt like I could not continue.

I would also like to thank the sixteen panellists for their participation in the project. I am very grateful for the time and effort they dedicated to the work. They are extremely busy people, and their contributions provided a solid foundation for the research project's content and overall outcome.

I also thank my parents for their unconditional love and support over the last five and half years. And to my dear friend Atish, who is always happy to battle through the quirks that plague my writing and provided positive feedback and much-loved meaningful support.

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Je t'aime.

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PREFACE

This thesis is the culmination of a research project spanning almost six years, from 2016 to 2021. The thesis' original focus was an exploration into ‘community-based landscape scale initiatives’ to better understand how these projects operate and identify the common operational elements that could inform multi-scale holistic delivery of landscape scale policies and projects. From the outset, a consistent and agreed definition of ‘landscape scale’ proved elusive, with attempts to elicit core characterisation for applications varying widely across disciplinary lenses and between individuals. Landscape scale essentially means different things to different people, and the current academic literature confirms this with a plurality of implicit definitions.

Consequently, the thesis's focus and scope changed to address this fundamental issue, seeking to develop greater conceptual clarity around the landscape scale concept and maximise its operational impacts. The vast array of landscape scale applications soon became apparent using different, implicit interpretations of the term, providing a comprehensive source of raw data that could be explored to develop a unified landscape scale approach. However, this thesis did not adopt a meta-analytical approach of the vast range of written landscape scale studies, as Pfund (2010) did to elicit the spatial scales of landscape scale studies. Instead, the research took an alternative expert-led approach, working closely with a range of professionals who apply landscape scale in their day-to-day work. An adapted form of the applied policy Delphi technique was designed to explore those experts' knowledge and experiences. This approach created an expert-led project facilitated by the Researcher through several iterative rounds towards a single unified goal.

The following thesis outlines this process from the initial review and consolidation of landscape scale literature and the surrounding literature influencing the approach. It documents the co-production of the ‘Landscape Scale Framework’ from start to finish. It is important to note that while the project drew heavily on the conceptual and theoretical basis for landscape scale working, there was a heavy emphasis on developing a practical research outcome that experts could use to deliver landscape scale projects and approaches.

CHAPTER 1
INTRODUCTION

1.1 Rationale

Our economy, health and wellbeing, society, sense of identity, and, ultimately, future prosperity are dependent on the natural environment. However, human activities have led to decades of degradation across the globe, and the modern scientific community has recognised this issues gravity. As part of this wider recognition, one concept that appears to be gathering increased momentum is the concept of landscape scale. Since the turn of the millennium, there has been an increasing uptake of the term across academic research, government policy, and professional practice (Selman, 2006; Scott, 2011; Pinto-Correia and Kristensen, 2013). In part, this is because landscape scale provides an opportunity to develop larger scale thinking and working, which is better suited to tackling the multitude of issues we face. If scholars and experts can help embed the concept more firmly within a related disciplinary lens, these claims combined with the increasing uptake of landscape scale make it an exciting research topic.

Internationally, the reference to landscape scale is heavily embedded within the broad disciplinary lens of ecology, specifically in the conservation and landscape restoration sectors (see Turner, 2005; Tidwell, 2009; Matterson et al., 2020). Furthermore, it is evident in ecological restoration and habitat preservation research, and applications in research and projects that seek to enhance habitat connectivity across large spatial scales in response to habitat fragmentation and intense farming activities (see; Wyborn, 2011; Fitzsimons et al., 2013; Forsyth et al., 2019). The term also appears within the large-scale management of food and energy crop cultivation (Herzog et al., 2006; Dauber and Miyake, 2016) and forestry management research (Estreguil et al., 2012).

More recently, explicit attention has been given to landscape scale transition in more comprehensive environmental initiatives and overarching policy documents. For example, the Royal Society for the Protection of Birds' (RSPB) produced the 'Futurescapes' concept (see RSPB, 2011), which focuses specifically on wildlife conservation at the landscape scale. Furthermore, the idea of landscape scale thinking is explicit within the Natural England White Paper entitled 'Making Space for Nature' (Lawton et al., 2010), where the mantra of 'bigger,

better and more joined-up', emphasises the need to work more strategically across operational boundaries. This, in turn, aided the creation of Nature Improvement Areas (NIAs): 12 initiatives designed to enhance the ecological resilience and connectivity between ecosystems (Natural England White Paper, 2012).

Furthermore, specific reference to landscape scale working can be found within the concept of ecological networks (Biotani et al., 2008), which represents the biotic interactions of organisms within an ecosystem, as well as how ecological systems are structured and react to perturbation and changes in that network (Watts et al., 2010). Landscape scale thinking provides an opportunity to appreciate the reduction of habitat fragmentation across large ecological networks and a greater understanding of the multiple and integrated scales across the landscape (Watts et al., 2010). These elements have become fundamental in contemporary research, policy development, and practice (Beunen and Hagens, 2009; Landi et al., 2018; Bruder et al., 2019).

Moving away from ecology, the concept of landscape scale working has become evident across an array of environmental disciplines (Harris & Lyon, 2014), including planning, over the last two decades. For example, the term features within the latest revised version of the National Planning Policy Framework (NPPF) within England published in February 2019 and wherein, Chapter 16, paragraph 171, page 49, it is stated that plans should take a:

"[…] *strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries*." (MHCLG, 2019 Pp.49)

The increased uptake of landscape scale thinking across different disciplinary lenses has been attributed to various aspects across the academic literature. Firstly, experts need to develop solutions that operate across larger scales, mitigating the environment's historical degradation and the history of fragmented policies. Secondly, contemporary literature highlights the growing importance of social-ecological systems within natural environment policy and law (Ostrom, 2009; Philippopoulos-Mihalopoulos and Brooks, 2019). This research trend is especially evident in the importance placed on the relationship between people and place, with many avenues of research exploring the various implications of this relationship (Dempsey and Burton, 2011; Kolodziejski, 2014; Degórski, 2014; Counted, 2016).

These researchers build upon the potential value of landscape scale as an approach for the more holistic delivery of projects across different spatial scales. Contemporary research within conservation and environmental governance has highlighted the limitations anthropogenically defined spatial scales have. For instance, Higgins et al. (2012) concluded that it is rarely appropriate for environmental projects or approaches to be confined to administrative parish/neighbourhood, municipality, regional, or national boundaries. This point is further emphasised by Schultz et al. (2019), who states that environmental governance needs to account for scale mismatching between anthropogenically defined boundaries and the environment within policy and practice—pointing out the need for environmental experts to see beyond well-established but potentially damaging anthropogenic boundaries.

Despite the uptake of landscape scale thinking, a few authors have lamented that the concept has no explicit definition (Scott and James, 2007; Wyborn and Bixler, 2013) and that this could result in confusion and slow the transition of landscape scale into practice, or force experts to 'close the gap' between theory and practice implicitly (Bürgi et al., 2017). There are very few reliable sources that provide definitional clarity. However, the following exceptions provide a valuable starting point to examine and better understand the term's specific meaning critically.

For example, Ahern and Cole (2012) refer to the landscape scale in a conceptual sense as a metaphorical "meeting place" outside of traditionally defined disciplines where experts can view problems and develop solutions by perceiving them through the landscape scale lens. Similarly, Selman (2006) addresses the concept of landscape scale within the context of landscape-planning and provides a multi-faceted 'framework' for unpacking landscape and sees it as a pragmatic space for opportunities that can deliver sustainability and related social, environmental, and economic goals. Furthermore, Sayer et al. (2013) postulates greater consideration towards landscape scale approaches and provides a set of core principles to implement and develop them in practice.

All these authors attempt to provide conceptual underpinnings in the from of principles and contextual definitions that define the concept of 'landscape scale'. Several notable authors, such as Buttimer (1998); Terkenli (2005); Everard et al. (2012) and Sayer et al. (2013), have explored the concept and its beneficial implications on policy practice and the research community. The research work highlights the potential of the concept as an attractive research topic and underscores the fact it offers practical solutions that can facilitate more holistic, integrated thinking and cross-sectorial working. This is particularly true when research, policy,

and practice within Planning and other related disciplines seek more integrative, holistic solutions.

These differences in understanding and interpretations of the landscape scale and the associated work led to confusing messages to practitioners and exacerbate the lack of (consistent) communication across academic disciplines. In part, the lack of an explicit definition can be attributed to the fact that one of the strengths of the landscape scale is that the concept means different things, depending on who views/uses it and the context of its application (Scott and James 2007; Ahern and Cole, 2012). Despite this issue being highlighted in academic research, contemporary research has yet to explore it in greater detail in some cases over a decade ago. Therefore, this persisting knowledge gap in definitional clarity and operational requirements became a research opportunity for this PhD project.

The research journey is characterised as follows:

Firstly, the research explored current national and international interpretations of landscape-scale across the most relevant disciplinary lenses within the academic literature, policy, and practical applications. The literature review allowed for the development of a sound conceptual basis for the research project. Furthermore, it orientated the research work within policy, practical work, and academic research.

Secondly, the research identified the underlying themes of the landscape scale concept according to academic literature.

Thirdly, the scoping activities set out above were then used to select an appropriate interdisciplinary panel consisting of experts from various relevant disciplines to formulate the Delphi approach. This approach was designed as a safe space for social learning, encouraging experts to share their landscape scale perceptions to coproduce a robust, relevant, and widely applicable outcome. The aim was to fill the conceptual void identified by Scott and James (2007) and act as a metaphorical ‘touchstone’ for current and future practitioners charged with delivering a landscape scale approach to find concise, consistent, and explicit operational guidance. They can return to ensure that their interpretation of the landscape scale is consistent with other related disciplinary lenses.

The rest of this introductory chapter outlines the specific research opportunity this PhD project addresses and the specific research objectives, which helped guide the project during its development.

1.2 Research Opportunity

The research attempts to take advantage of the diverse and multidisciplinary uptake of the landscape scale concept by selecting an interdisciplinary panel of experts. The experts' experiences, perceptions, and knowledge create a valuable opportunity to explore the term landscape scale's contemporary use in practice. The practical experience combined with pre-existing academic research can aid in integrating landscape scale across different disciplinary lenses.

1.3 Research Aim

To aid in the more effective delivery of landscape scale programmes, policies and projects across different disciplinary lenses by co-producing a framework that improves conceptual understanding to inform policy and practice with supporting operational guidance.

1.4 Research Objectives

1) Analyse the current international and national interpretations of the landscape scale across academia, policy, and practice across the different disciplinary lenses.

2) Identify the core conceptual basis for the landscape scale concept according to academic literature and contemporary practical applications (this then forms the basis for objective 5 and direct input into objectives 3 and 4).

3) Design an applied policy Delphi approach to explore experts' perceptions, experiences, and knowledge and facilitate continued co-production and refinement.

4) Explore the barriers to thinking and working at the landscape scale and develop potential outcomes that can help operationalise the multi-functional landscape scale concept across multiple disciplines, sectors, and interests.

5) Co-produce a research outcome that will provide a set of explicit conceptual underpinnings for the landscape scale and outline some clear operational guidance, or at the very least develop a platform to begin the sharing and development of operational guidance.

1.5 Thesis Structure

This PhD thesis has been deliberately structured in a way considered most appropriate to represent the co-production process and how the Delphi technique's design led to the research outcome throughout the project. While the format may not necessarily be considered conventional, the Researcher considered it to be the most logical way to present the research and its findings. The results chapters have been presented in chronological order of the Delphi Rounds. Following this, the researcher has presented an overarching discussions chapter and a conclusions chapter that considers the entire research project and its outcome within its broader context. Figure 1 summarises the structure as a flow diagram.

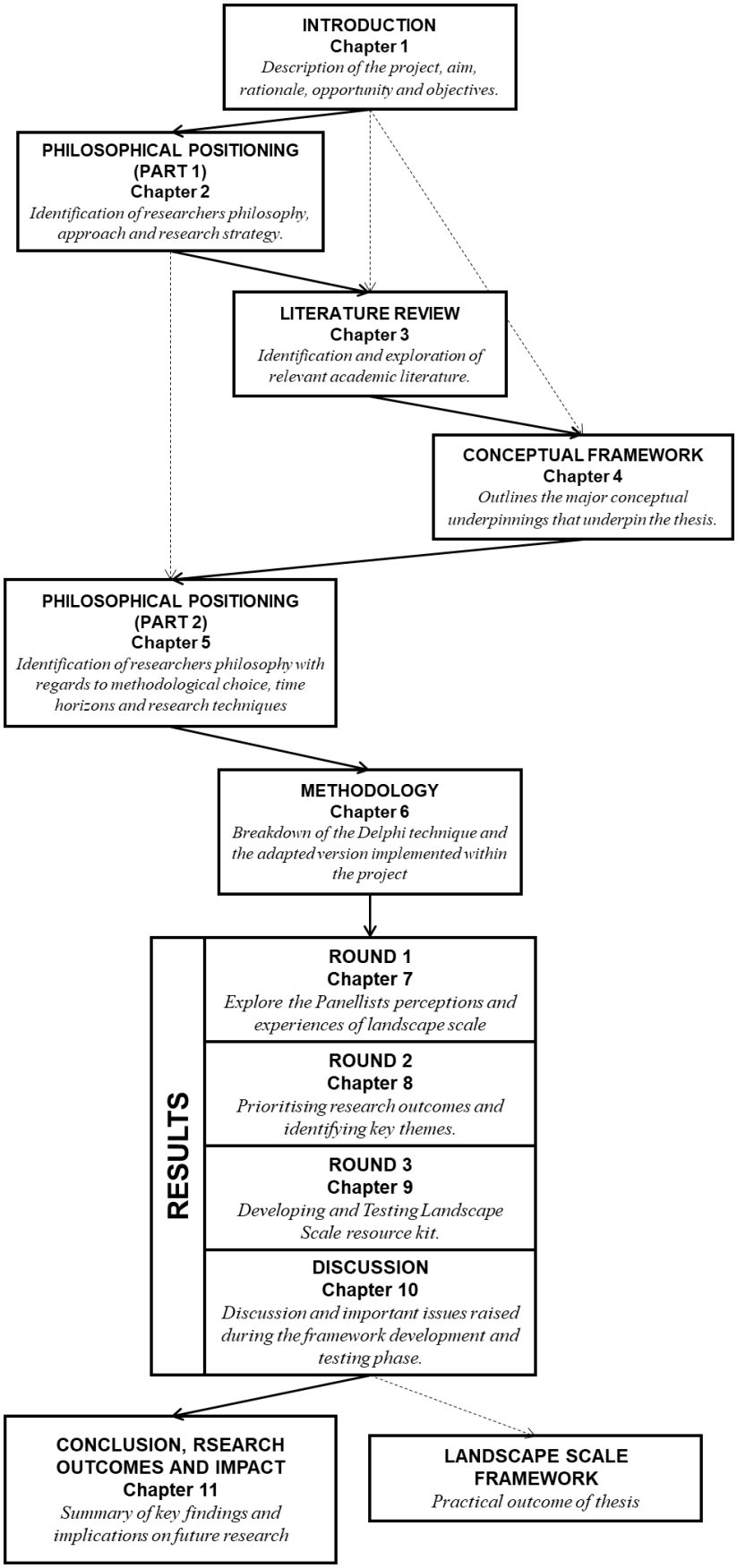

Figure 1 - The PhD thesis structure demonstrating the path through the distinct thesis Chapters in the form of a flow diagram.

CHAPTER 2

PHILOSOPHICAL POSITIONING (Part 1)

2.1 Introduction

The Researcher used the well-established framework referred to as the ‘Research Onion’ developed by Saunders et al. (2007) to describe the stages through which a Researcher must pass to develop a methodology. Although it is possibly an unconventional way to present the development of philosophical positioning within a PhD thesis, the Research Onion provided a structured and accessible framework. The Researcher engaged with the challenging material surrounding the different stages and aspects of the underlying/adopted research philosophy.

However, approaching the chapter this way did raise some structural challenges regarding the written thesis’ logical flow. The first three layers of the onion – ‘Philosophy’, ‘Approach’ and ’Strategies’ – focus on the research approaches overarching philosophical and conceptual elements, which primarily influence the literature review and the formation of the conceptual framework (see Figure 2). On the other hand: layers 4: ‘Choice’, 5: ‘Time Horizons’, and 6: ‘Techniques and Procedures’ directly influence the methodological design and data analysis techniques. Traditionally, these elements within a thesis have been separated into distinct chapters. As a result, the thesis' philosophical positioning and the ‘peeling back’ of the different layers of the Research Onion are presented in two parts. Part one of the philosophical positioning peels back the first three layers of the Research Onion, including the approach and strategies. The final layers of the Research Onion have been peeled back in Chapter 5, which justifies the methodology and informs the specific research techniques and analysis methods used in each round of the Delphi technique.

Figure 2 visualises the Researcher's path through the first three layers of the Research Onion and details the overarching research philosophy, approach, and strategy. However, while there was a defined path through Saunders et al., (2007) Research Onion, it quickly became apparent that the specific distinctions between differing philosophical positions defined by Saunders et al. (2007) could not be considered absolute. The Researcher ‘borrowed’ several different elements from different research philosophies, approaches, and strategies to develop the most

suitable approach to achieve the research objectives. In this regard, the Researcher took an approach to the research more akin to contemporary qualitative research approaches such as Singh (2015). The Researcher created a suitable qualitative research approach by synthesising different perspectives, philosophies, and approaches. Figure 2 has pinpointed a figurative representation of these and explored them in greater detail in the following chapter.

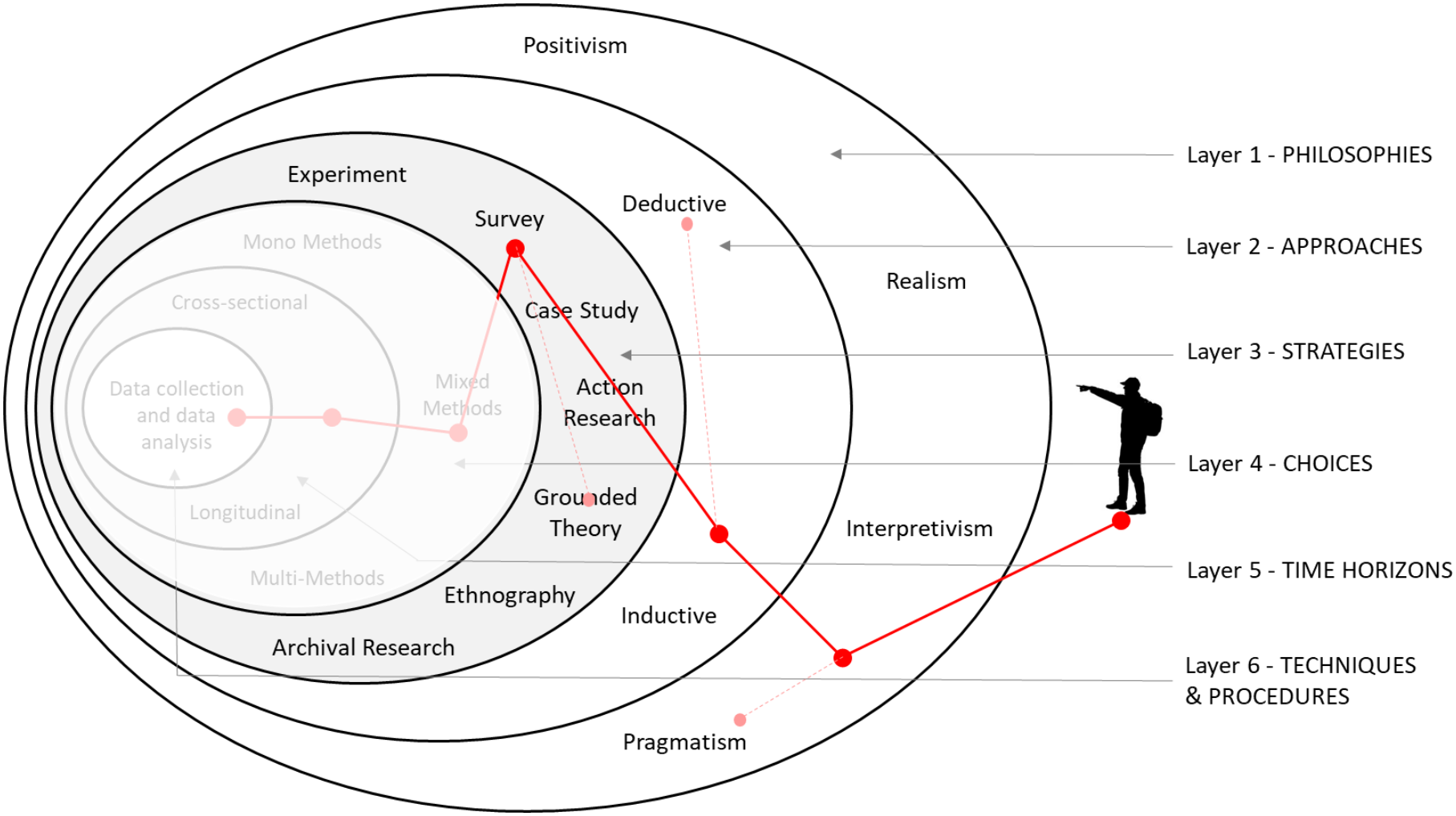

Figure 2 - Adaptation of Saunders *et al.* (2007) research onion to demonstrate the researcher path through the layers of the research onion and the different perspectives 'borrowed' to inform the underlying philosophical positioning.

Sections 2.2, 2.3 and 2.4 will ‘peel back’ the layers of the Research Onion to identify the Researcher’s different philosophical position, the selection of the appropriate methodology, and how that led to the adaptation of the Delphi technique.

2.2 Layer 1 of the Research Onion: ‘Philosophy.’

Interpretivism is a research philosophy based on the assumption that reality is subjective. Interpretivists consider human beings as active agents who not only react to external stimuli but consciously shape the knowledge they gain through their experiences, interactions, and involvement (Crotty, 1998; Elster, 2007). As a result, interpretivists view reality as a product of social context. Because of this relationship, interpretive Researchers believe scientific phenomena must be observed, analysed, and interpreted within their naturalistic setting.

This allows the Researcher to seek experts’ experiences and knowledge of using the landscape scale in their work. As a result, it appears the knowledge that exists around landscape scale is a function of human experiences, with interpretations and practical applications varying within a social context, influenced by epistemologically diverse discourses. Accepting this assumption, an interpretive philosophical positioning would seem well aligned with the research opportunity presented. It recognises internal factors on individual knowledge and perception and considers the issue's complexity (Nudzor, 2009).

Given the importance of context, and insofar as humans are active agents, interpretive research approaches do not formulate definitive hypotheses at the start of a project (Carson et al. 2001). Instead, this type of approach ‘interprets’ reality through a sense-making process, attaching meaning to information and communications in such a way that the Researcher becomes an active participant within interpretivist led research (Ponterotto, 2005; Green et al., 2007). This, therefore, favours approaches in which the Researcher immerses him or herself within a particular setting, gaining insight by understanding the context in which knowledge development is taking place (Greef, 2009). Notably, many interpretive Researchers believe useful interpretation, analysis, and development, require long term observation and analysis (Ponterotto, 2005). Over time, this observation method is necessary because individual perceptions and experiences evolve (O’Reilly, 2009; Manning and Kunkel, 2013; Irshaidat, 2018). At this point, the Researcher began to engage with pragmatic elements as long-term observation was challenging, given the PhD thesis' timeframe. The long-term interactions

would require time, potentially outside the PhD research scope and demand for the experts participating in the project.

The research philosophy of pragmatism is practical here because it allows a Researcher the flexibility to take a pragmatic approach to define the research methods that best suit the research problem (Teddlie and Tashakkori. 2009). According to Creswell and Clarke (2011), a pragmatic research philosophy allows the project to focus on the research's consequences and outcomes, given that the PhD project is very practice-orientated.

In conclusion, therefore, it is possible to determine that an interpretive philosophical position aligns with the perceived research opportunity. The knowledge around the landscape scale can be perceived as a product of individual interpretations and experiences and is therefore heavily reliant on the context or setting in which it is being applied. The philosophical positioning requires analysing, understanding, and developing this knowledge conducted within its naturalistic setting involving participants. However, because the research involves exploring experience and perceptions of landscape scale across various disciplinary lenses with busy practitioners, it would be unrealistic to become fully immersed in their working environments for long periods to analyse their working and learning processes.

2.3 Layer 2 of the Research Onion 'Approach.'

According to Saunders et al. (2007), the second layer of the Research Onion is defined as the 'approach.' In this layer, the research philosophy is used to identify an overarching research approach appropriate for designing an effective strategy for realising the research opportunity. Saunders et al. (2007) distinguish between two subcategories called 'inductive' and 'deductive' approaches. In both cases, theory plays a crucial role in the research. The differences between the two subcategories, however, lies in the fundamental relationship between theory and research.

Inductive approaches sometimes termed 'inductive reasoning,' refers to a research approach that begins with observation (Goddard and Melville, 2004) rather than formulating hypotheses and a theory. Within an inductive approach, the Researcher's role is to identify patterns, themes, and relationships visible within the data before establishing a definitive assumption (and not succumbing to preconceptions) (Lodico et al., 2010; Bernard, 2011). These relationships and patterns are then used to critique, strengthen, or in some way, build upon pre-existing theories

(Goddard and Melville, 2004). Because inductive approaches do not formulate a hypothesis at the outset, the research approach is thought to provide a higher degree of flexibility, leaving the Researcher free to refine the direction of the research project as the patterns and meanings within the data are observed and understood (Goddard and Melville, 2004). Given the limited number of conceptual underpinnings around landscape- scale identified within the literature review (see; Chapter 3), it would be difficult to formulate a hypothesis. As a result, the ability to adapt the approach 'on the go' was beneficial for the research project.

The research aims to develop a tool that will aid in the holistic delivery of the landscape scale concept. With this specific aim in mind, and given the broader context, the Researcher and supervisory team viewed an inductive research approach as providing an appropriate and effective way forward. The apparent lack of definitional clarity of the landscape scale concept has resulted in a limited amount of widely accepted and articulated foundations and little progress towards a robust academic theory, meaning that there is little upon which to base assumptions and reliably develop a valid hypothesis. However, in place of any robust conceptual underpinnings, is a rich vein of practical experience, perceptions, and informed opinions regarding 'landscape scale' working and what kind of 'principles' emerge (e.g., Ahern and Cole, 2012; Sayer et al., 2013). Therefore, the circumstances, exploring and understanding the wealth of information that does exist, seemed the most appropriate approach at the start of the PhD. Although an inductive research approach would appear to be most appropriate in the context of realizing the potential research opportunity, the need for attention to relevant theoretical insights and propositions and the need for empirical data to underpin the formulation of a good research outcome cannot be ignored. Therefore, the research approach also draws on elements of deductive reasoning by using the array of pre-existing material to inform the PhD project.

2.4 Layer 3 of the Research Onion 'Strategy.'

The third layer of Saunders *et al.* (2007) Research Onion considers how to establish the most suitable strategy to explore and collect data on the phenomena being researched. As stated previously, the knowledge around landscape scale depends on human experiences, interpretations, and practical applications. As a result, the context in which landscape scale is applied is inherently entwined with the way it is used and interpreted, and this continued use and application helps define and shape the concept. Human interaction plays a vital role in the uptake and application of landscape scale in practice; therefore, the research requires a user-centred strategy designed to embrace and extract the knowledge directly from experts using the landscape scale.

As a result of the user-centred strategy, several different methodological approaches were considered during the design and development of the research project. These key methodological approaches included: surveys, interviews, and workshops.

From the outset the use of surveys as a mechanism to embrace and extract information from expert's implementation landscape scale was attractive. Mainly because with careful planning surveys provided a platform to collect large amounts of data in a short space of time, with minimal resources (Jones et al. 2013). However, importantly a key disadvantage of the survey technique is its lack of ability to explore the depth of that information. The research opportunity identified required a methodological approach that could not only explore the undertaking of the landscape scale but also explore why experts were using it. As a result, surveys were discounted as a viable methodological approach. Following this interview were another qualitative methodological approach considered within the research project. unlike surveys, interviews provide an opportunity to explore the concept of the landscape scale with experts in greater detail. Providing an opportunity to unpick their motivations, experiences and perceptions that underpin their responses to the research. However, on their own one interview was not considered to be sufficient because the research opportunity demanded a long-term interaction between the researchers and the participants to develop a meaningful research outcome. As a result, interviews were not considered to be a sufficient methodological approach on their own. However, they did feature as a key aspect of the first iterative round of the research approach as a semi-structured interview in Round 1.

Finally, workshops were another methodological approach considered by the researcher. While workshops provided a platform to explore the experience and details behind experts'

perceptions and even provide a greater capacity to facilitate advanced levels of collaboration (Ørngreen and Levinsen, 2017; Bertella *et al*., 2021) making it immediately attractive it had one major drawback. The interactions of different individuals in a face-to-face environment opens up the research to issues such as 'powerplays' and the 'bandwagon effect' (Linestone and Turoff, 2002). Unfortunately, these kinds of issues fundamentally undermined the research approach. it was essential that the experts involved in the research we able to provide their experience and perception of landscape scale not what they thought they should contribute. As a result, workshops were not considered a suitable methodological approach on it's own. After a great deal of reflection, a form of applied Delphi technique was considered the most suitable strategy to provide an acceptable methodology for the research approach.

Building upon this given the importance of human interaction in defining and shaping landscape scale, it is essential to understand the Researcher's role within the research project. This is a specific aspect to consider across qualitative research, including social sciences. Many scholars such as Fink (2000), Kiegelmenn (2002), Glass (2012) and Roger *et al*. (2018) explored in detail the role of the Researcher and their influence on the outcomes of different qualitative research approaches. According to Denzin & Lincoln (2003), the Researcher defines the Researcher's role within qualitative research as an 'instrument' through which raw data is mediated. However, Glass (2012) suggests the Researcher plays a much more influential role in qualitative research, especially if they attempt to produce practice-based solutions to address complex issues within a Delphi technique. According to Glass (2012), Researchers can play an active role in developing the work as a participant and 'catalyst' of information and ideas.

CHAPTER 3
LITERATURE REVIEW

3.1 Introduction

The supporting literature underpinning the different aspects of the PhD thesis has been separated into the most relevant chapters. The following Chapter is refined to explore the literature around the concept of landscape scale. The material is used to reinforce the selection of the panellists in the Delphi and provide the Researcher with adequate knowledge to draw upon the broader academic landscape during the iterative rounds of the Delphi, remaining consistent with the deductive aspect of the research approach. The literature supporting the development and design of the Methodology can be located in Section 5.4.1, and the academic literature supporting the underlying conceptual framework can be found in Chapter 4. As such, within this chapter, the critical research questions driving this aspect of the literature were.

1) What are the epistemological roots of the concept of landscape scale?
2) How is the concept of landscape scale being used and interpreted within different disciplinary lenses?
3) What are the implications of that on the research project?

As a result, the scope of this literature review attempts to strike the appropriate balance between breadth and depth. To remain pragmatic, the following chapter explores the critical disciplinary lenses that has seemingly reinforced the landscape scale concept, particularly regarding nature conservation, ecology, and urban planning. The chapter draws predominately on literature from the United Kingdom and attempts to draw on more comprehensive international work where appropriate.

With this in mind, the structure of the Literature Review is summarised as follows. First, exploring how the concept of landscape evolved and its implication on the contemporary understanding of landscape scale. Second, the development of landscape scale as a concept and how character and landscape have become increasingly important in considering landscape function. Finally, it explores the uptake of landscape scale within Landscape Ecology and Conservation (Natural Sciences) and within Planning (Applied Sciences).

The Researcher has explored the commonalities across the different landscape scale interpretations, identifying intricacies and nuances. This has been achieved by exploring the chronological development of the concept of landscape across different disciplinary traditions and publications over the past century. Key disciplines that were fundamental in shaping modern interpretations, ontologies, and theoretical underpinnings, along with practical applications include geography, ecology, landscape ecology, conservation, planning, landscape architecture and more recently, sociology (Hobbs, 1994; Metzger and Décamps, 1997; Antrop, 2004). These disciplinary lenses are fundamental in contemporary landscape research and have shaped definitions, meanings and uses of the term. The interactions between different these different disciplines have been conceptualised in Figure 3. Furthermore, this Chapter explores critical terminologies typically associated with the landscape scale concept's lexicon, i.e., ‘landscape’, ‘landscape character’ and ‘landscape function’.

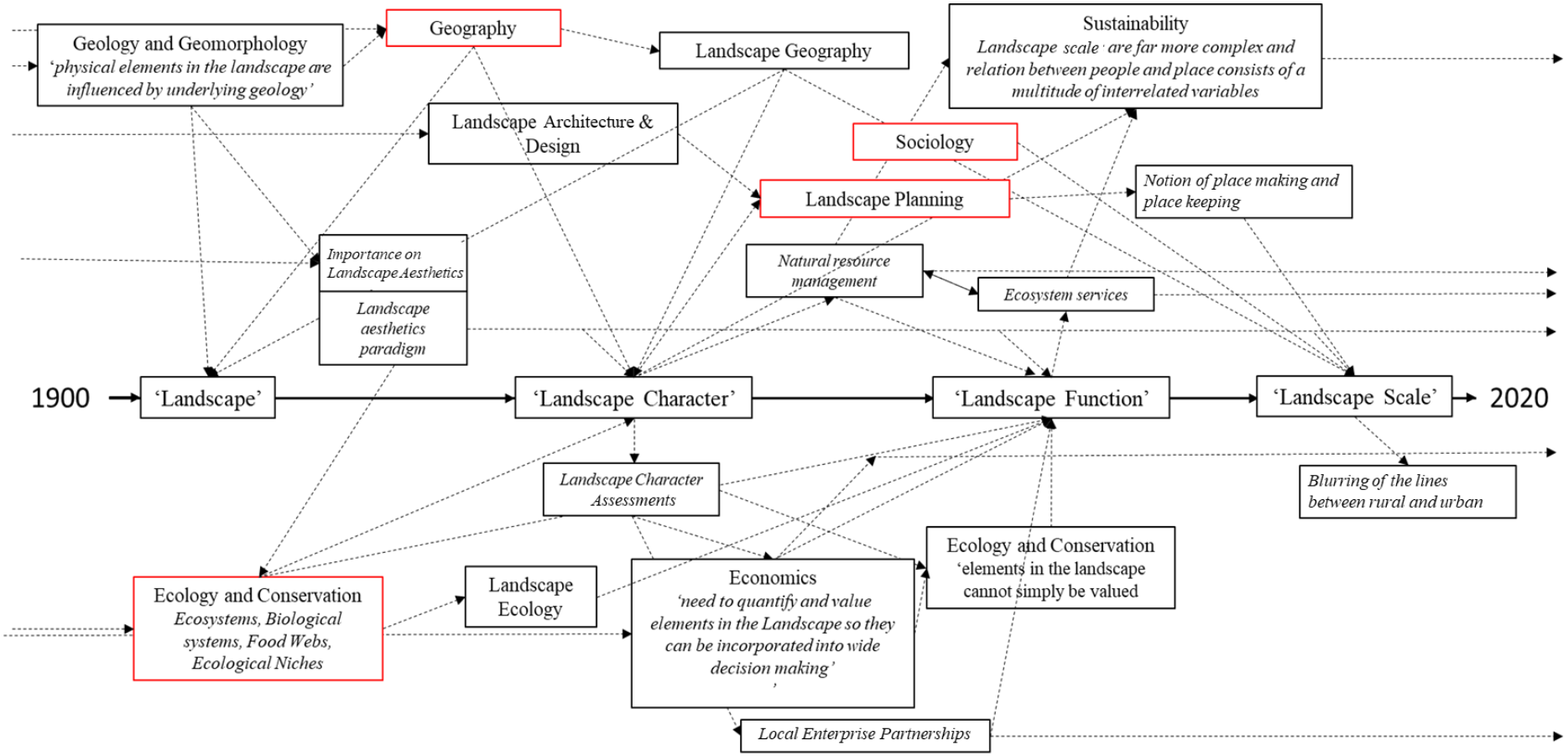

Figure 3 - Conceptual timeline of the literature review structure, demonstrating the evolution of the terms landscape, landscape character, landscape functions and landscape scale across vital disciplinary influences and research.

3.2 The Evolution of the Concept of Landscape

From the outset of the literature review, understanding what is meant by the word ‘landscape’ played a crucial role in contemporary landscape scale literature. Building awareness of how the term ‘landscape’ has developed over time will help reinforce a better understanding of the conceptual underpinnings of the landscape scale concept. Firstly, it is essential to highlight that the idea of ‘landscape’ as a visual element that humans perceive and enjoy has been an active part of human lives for centuries. With famous landscape architects such as André Le Nôtre, Lancelot ‘Capability’ Brown, Peter Joseph Lenné, having a profound long-term influence and ongoing relevance within landscape architecture (Gregory *et al.*, 2013; Rutherford, 2016; Phibbs, 2017). Similarly, famous philanthropists such as Sir Ebenezer Howard and George Cadbury in the United Kingdom were fundamental in the garden city movement in the early 1900s. Their designs for urban and suburban areas challenged the poor living conditions in towns and cities by including wide open green spaces to improve the workforce's health and productivity and their proposals and specific designs that still influence contemporary academic debates (Clevenger and Andrews, 2017). These in turn forming a key aspect in our contemporary understanding of the landscape and the importance it has on human lives:

Building upon this, when reviewing the evolution of the concept of landscape, it is crucial to reference Carl O. Sauer's work and his influence on the contemporary landscape understanding (Kersten, 1982). In his paper entitled “The Morphology of Landscape” (Sauer, 1925) Sauer proposed the importance of the cultural landscape and the influence of humans on the landscape which formed the basis for contemporary perception of landscapes as entities in which social and environmental elements collide. Sauer's work led to an increase in research towards landscape in the 1930s according to Weins (1992) and Forman (1995). The early reference to ‘landscape’ within the context of academic research was attributed to German research articles by Troll (1939) and Dickinson (1939). Several strands of landscape studies began to develop, with a specific focus on geology.

Wein’s (1992) review of landscape literature described ‘landscape’ as a vital environmental concept with no fixed definition because of the plurality of its interpretations and ideas. At that time, more emphasis was placed on the value of landscapes in extending the research area of geomorphology, the study of the earth’s surface’s physical features and their relation to geological structures (Dickinson, 1939). Therefore, historians focused predominately on the physical elements recognised within a single observer’s visual frame (Dickinson, 1939; Forman and Gordon, 1986). In particular, landscape was used to capture large scale features

across a broad geographical area which focused predominantly on aesthetics (Weins, 1992). This interpretation was potentially influenced by artistic depictions of landscape, and its importance on the gardens and garden cities movement decades before.

The next major step in developing the concept of landscape within geography and subsequently, other related disciplines seems to be aerial photography for research purposes after World War 1 (Cowley, 2010). The birds' eye view perspective that aerial photographs provided gave rise to new avenues of landscape research and, this stimulated the idea of landscape as a regional entity. According to Morgan *et al*. (2017), understanding historical patterns of spatial heterogeneity influences the dynamics of contemporary landscape management and priorities; thus, the detail that historical records such as these photographs provide is still relevant to the development and understanding of landscape. Furthermore, the use of such aerial photography forms the basis of a lot of mapping tools used by practitioners, further emphasizing how critical aerial photographs, and later satellite imagery, are to conduct a multi-temporal analysis of different landscapes (Morgan *et al*., 2017; Sevara *et al*., 2018). The increasing affordability of equipment is likely to increase its usage further and therefore, enhance its application (Aber e*t al*., 2019). Within the landscape scale, aerial photography's increased use provided Researchers with an alternative perception of the landscape over a large scale. For the first time, it provided the means to understand regional connections, and connectivity, over larger areas potential planting the seed for the use of landscape as a framework for cross-regional management.

The large-scale perspective these aerial photographs and satellite images provide probably contributed to landscape scale interpretation as a large-scale entity. Photography and other small scale digital technologies have been utilised in various sustainability-related studies to communicate, discuss, and facilitate discussions because of its transmissible nature (Kratzig and Warren-Kretzschmar, 2014).

Focusing on this early stage of development, this geomorphological framing of 'landscape' and focus on 'visual' elements of a given area, became well-entrenched (Jones *et al*., 2000). Furthermore, aesthetics remained a core element in the scientific literature researching landscape (Jakle, 1987; Bell, 1996), even though more contemporary research challenges this (which will be explored in section 3.5, Pp38). The emphasis on aesthetical aspects of landscape continued and was particularly pronounced throughout the 1970s and 1980s and gave rise to what is referred to as the '*landscape aesthetic approach*' (Bourassa, 1980; Appleton, 1996). At

the time, this paradigm postulated that landscape's visual aesthetics could be decided based upon three 'quantifiable' processes (Bourassa, 1980):

- Biological evolution
- Cultural history
- An individual's perceptions

According to Bourassa (1980), these three factors relate to humans' inherent attraction to specific ecosystems and suitable habitats through natural evolutionary tendencies. The tenets are explored in broad terms, within contemporary articles (e.g. Falk and Balling, 2010; Moura *et al*., 2018) and also in terms of the cultural and historical significance of a landscape to specific population groups (e.g. Alumäe *et al*., 2008) as well as the personal experiences and perceptions that influence how an individual perceives a particular place, which can fluctuate over time (e.g. Fairclough, 2006). The combination of humanity's natural evolution and the emphasis on landscape aesthetics approach can help to explain why the visual elements of a landscape are so well embedded across academic literature (Aarnason *et al*., 2012; Habibi, 2017) and has been viewed as critical within the epistemology and the future of landscape and land use management (Muir, 1999; Nohl, 2001; Jongman, 2005). The aesthetics of specific landscapes manifested themselves in the notion that scenic beauty or landscapes that humans considered attractive, were often protected, and favoured over others (see; Brooks and Lavigne, 1985; Leader-Williams *et al*., 1990; Willis and Garrod, 1993).

At the same time, the concept of landscape was somewhat absent from policy and decision-making processes. This was because of there are difficulties in making useful valuations as it relies upon a highly subjective, and individual, assessment of nature (Nasar, 1992; van der Berg *et al*., 1998). One exception to this lies within the designations of Areas of Outstanding Natural Beauty (ANOB) within the United Kingdom, as part of the "Countryside and Rights of Way Act 2000" (UK Public & general Acts, 2000). Within this legislatin landscapes are protected because of their aesthetic qualities based on a variety of integrated factors (DEFRA, 2011). These include a combination of aesthetics, biodiversity, geodiversity, and economic activity; defining a clear shift in the management and perceptions of landscape within the United Kingdom. It is essential to note, however, the aspect of landscape aesthetics continues to remain an integral part of contemporary research particularly with regards to the monetary valuation of landscape and environmental economics (Dupras *et al*., 2017; Price, 2017).

Within the United Kingdom, in the 1980s, research around the concept of landscape seemingly began to shift towards placing increased emphasis on the importance of 'valuation'. Scholars explored the economic value of aspects of the landscapes (Robinson *et al*., 1976) with a particular focus on the valuation of natural resources and their management. These literature developments contributed to the basis for the crucial and active research concepts we see within academic literature, policy, and practice. These include natural resource management, ecosystem services assessment, as well as the valuation and quantification of management improvements within Nature Improvement Areas (DEFRA, 2014). For example, within recent literature, attention can be drawn to notable works on the importance of economic valuation within the context of natural sciences, including O'Neil and Spash, (2000). The work conducted by Atkinson *et al*. (2014), where a critical review of different valuation methodologies, and their limitations, also supports the integration of valuation methodologies into natural science.

In response to the difficulties in incorporating landscape aesthetics into broader policy and decision-making processes, both international and national research into the landscape concept shifted towards expressing the visual elements that humans value in more quantifiable measurements (Ode *et al*., 2008; Skřivanová and Kalivoda, 2010). A strand of this economic valuation persists in landscape scale research as academics are continually trying to develop and integrate metrics, frameworks, and analytic tools to quantify landscape elements across spatial scales (van Zantem, 2016; Price, 2017; Tribot, 2018).

Since the 1990s, experts from across environmental disciplines, in particular ecology and conservation, have lamented the reduction of landscapes to simple numerical values, arguing this cannot adequately capture a landscape's value, or the complexity of whole ecosystems (Leader-Williams *et al*., 1990; Norgaard, 2010). Monetary valuation and other quantitative approaches are also inadequate in assessing the intertwined emotional connections humans have with the landscape around them. Awareness of these aspects has led to research focusing on 'space' and 'place' to accommodate various characteristics and meanings (Hunziker *et al*. 2007).

Another weakness in the valuation technique is its inability to accurately capture changing values over time (González and Leon, 2003). There is frequently an oversimplification of what is 'valued' in landscapes more generally, and the focus on specific or selected aspects perceived as valuable in defining the character of landscapes has also been criticised. For example, the

seminal work by Holling and Meffe (1996) pointed out the "pathology of natural resource management", in which landscapes have become less diverse and as a result, less resilient to perturbations. This unfortunately often happens in natural resource management and with land-use changes (e.g., the trend towards monocultures and more intensive agriculture and loss of habitats and species due to urban development). This has led to unsustainable environmental, social, and economic outcomes. Important work here is developed by Santos (1998), exploring the variety of theories and practices of landscape change - unpacking tools such as multiple regression preference models, cost-benefit analysis, and comparative cost-benefit indicators.

At this juncture in the earlier 1990s, research around the landscape concept appeared to take a profound shift by embracing the inherent complexity of landscapes and going beyond the mainstream perception of aesthetics and the need to quantify these variables (Mabey 1985). This viewpoint of the intrinsic challenges and changing nature of landscapes is, for example, expressed by Mabey (1985), found in Bishop and Phillips, 2012 p.110):

> *"Landscapes are a physical record of our history and labour, our inventiveness and sense of community. They are also recording of the continuing struggle between private ambition and social need. In this sense, they are a kind of concrete common language… 'A link between what we were and what we are'… Landscapes are not static."*

As a result, landscape studies became more focused on eliciting and analysing the significant interacting variables within landscapes and how ecosystems interact (Selman, 2006; Sanderson, 2020). This gradually manifested itself in various research topics such as 'cultural landscapes' studies (Eposito and Cavelazni, 2006). This idea extols a 'human-centred' view, focusing more specifically on those elements of an area that humans value and using this as a basis for conservation (Esposito and Cavelzani, 2006).

Although the argument has been made that aesthetics should remain integral to how we manage the natural environment (Habibi, 2017), a more holistic perspective of landscape gathered momentum as experts characterised them as dynamic places, intertwining ecological, economic, social, socio-economic, geological, and geographic elements among others (Daniels, 2000; Selman, 2002). This notion of a changing landscape is also captured in the European Landscape Convention's (ELC) definition in which landscapes are considered to be a polysemic concept (Council of Europe 2000, Chapter 1, Article 1a):

> *"... the landscape means an area, as perceived by people, whose character results from the action of natural and humans and their interrelationships ... the land, as perceived by local people or visitors, which evolves through time as a result of being acted upon by natural forces and human beings.*"

Modern interpretations of landscape signify a fluid entity, one that has been, and always will be, affected by the interrelationships of many different factors, including human perception (Antrop and Van Eetvelde, 2017). Therefore, it is unsurprising that the term 'landscape' has been used flexibly for many years, resulting in a wide range of different associations, even by experts within the same discipline (Ahern and Cole, 2012). To address this 'fuzziness', Selman (2006) proposed a pragmatic definition, defining landscape as a 'unit' in which place and space collide. Selman (2006) postulates that the consideration of landscape in this context will help develop better-aligned values with the inherent importance of landscape scale, thereby providing an integrative framework with which different experts can engage across other disciplines (Selman, 2006).

Furthermore, building upon the pragmatic nature of landscape, more contemporary research work explores the concept of landscape more as a "*powerful and evocative idea*" (Olin, 1988 p.153). For example, Moore and Cureton (2015) go beyond the notion of landscape as a framework or unit. They propose a philosophy of landscape that is more than an academic concept by extending it to the human experience on a fundamental level.

In summary, the use and meaning of the term 'landscape' has evolved from a reference to large geo(morpho)logical characteristics to an area's aesthetics and scenic beauty, and subsequently to a 'framework' that humans recognise and connect within a more multifunctional fashion. Selman is an advocate (2012) but recognises this can comprise a complex mix of variables and is dependent on the interrelationships between them. While the visual elements of the landscape remain essential characteristics in the identification and definition of the term (Bell, 2019), it is clear that academic research now tends to explore landscape as a complex and multifaceted entity consisting of interacting factors that contribute to any given ecosystem (Waldhiem, 2016). Recent literature emphasises the potential use of the term as a 'framework' or 'unit'. Environmental, social and economic issues, challenges and solutions are co-developed and delivered to serve multiple functions across spatial, temporal and disciplinary boundaries. The focus on landscape character has become an essential aspect of landscape and landscape scale research, and consequently, the next section of the thesis will explore this.

3.3 The Development of the Concept of Landscape Character

The term ‘landscape character’ gained prominence in the late 1980s and early 1990s (Swanwick, 2004). The use of landscape character was built on the notion of landscape being the result of a complex mix of definable contributing variables, acting as a framework for developing policies, projects, and approaches. This, then, requires a clear understanding of the core features, processes, and activities that make up a particular landscape.

According to Swanwick (2004, p.5), a widely cited definition of landscape character is.

> *“A distinct, recognisable, and consistent pattern of elements in the landscape. These patterns that give each locality its 'sense of place,' making one landscape different from another, rather than better or worse.”*

Therefore, the term landscape character emphasises the importance of a distinct, recognisable, and consistent pattern across a defined area, thereby providing a tangible and pragmatic concept for policymakers and practitioners to use. Finally, and perhaps most importantly, the term goes beyond an aesthetic or value judgment of ‘better or worse’ favouring merely ‘different’. (Tudor, 2014) Therefore, the term ‘landscape character’ embodies the notion of ‘distinctiveness’ rather than quality (Tudor, 2014).

According to a wide variety of sources, the concept of landscape has been a core component of geography for decades (Willams, 1989; Antrop, 2000; Freitas, 2003) and many experts, such as Cosgoive (1984) and Antrop (2004), have explored this over the last century and provided detailed literature on this interaction. In particular, Antrops’ work provides early career Researchers (including myself) with the critical developmental stages that have taken place within the concept of landscape and the primary disciplinary lens which has influenced it up until the early 2000s. The continued conceptual understanding of the relationships between different disciplines remains an active avenue of academic research. Initially, when exploring the roots of this relationship Antrop (2004) attributed this to Alexander Van Humboldt (1814). It stressed the importance of human and cultural elements within landscape with particular recourse to their influence on health and wellbeing. This led to increasing interest in studying landscapes across Europe with a strong emphasis on visual aesthetics and sensory experiences that a landscape provides, where scholars such as Granö (1929) placed our appreciation of landscape within art and science (Jones, 2003).

The concept of landscape saw a resurgence in 1986 and 1987s, as evidenced by the publication of journals such as *Landscape and Urban Planning* and *Landscape Ecology*, and also through greater emphasis being placed on transdisciplinary research approaches, embracing knowledge from different domains (Antrop, 2000). By way of highlighting this in the context of landscape scale, it is also important to mention the distinct sub-field of research dedicated towards developing specific tools to aid in the valuation of landscape elements in the form of metrics and indices, and the subsequent debates which occurred during the late 1980s and throughout the 1990s (Uuemaa, 2009).

The work of O' Neill *et al*. (1988); Li and Reynolds (1993), Turner (1990) and Turner and Gardner (1991) is noteworthy, as it prepared the ground in the form of early index work and frameworks for landscape value and structure, as well as analysing spatial patterns using quantitative methods: mostly based on the computing programme FRAGSTAT (Mander, 2008). Much criticism has since evolved around the use of metrics within landscape studies and related sciences, however, demand for metrics in practice and their ability to aid in decision making have remained a widespread and growing field of work within both research and policy fields.

The concept of landscape scale may not appear as dominant or explicit in geography as it seems to be within the natural sciences, but the academic literature does highlight the importance of geography's theoretical contributions to the contemporary understanding and implementation of landscape scale. For example, the concept of Landscape as a large-scale entity has been a consistent theme across human sciences (as explored in section 3.3).

Considering examples from the United Kingdom, according to Swanwick (2004), the genesis of landscape character thinking is found in the mid-1980s. At this point, enquiries were being made in the United Kingdom into ANOBs, an official designation designed to categorise landscapes in need of protection and preservation. Along with the development of the landscape convention, this led to the development of the 'Landscape Assessment Approach,' in which landscape character is a central component (Natural England, 2014) and provided experts with a useful tool to characterise landscapes based on their distinctiveness. Furthermore, within the United Kingdom, the idea of landscape as a framework for development has been utilised within the National Character Areas (NCAs) areas that divide the UK up into a patchwork of distinct landscapes (Natural England, 2017). These NCAs are

designed to integrate a wide range of information about landscapes and define specific typologies or character areas (Natural England, 2017).

3.4 The Emphasis Placed on the Concept of Landscape Function

In contrast to landscape character, landscape function focuses on the landscape's capacity to provide 'services' and, as such, it encapsulates the fundamental underlying processes that create them (De Groot, 1992). The concept of landscape function is well embedded within academic research, and there is a high degree of consistency around how it is defined. For example, Mander (2008) and Mander and Uuemaa (2015) produced a widely cited and used typology that highlights four categories: production functions, regulatory functions, habitat functions and cultural, or amenity, functions. Within contemporary research this is linked to the idea of ecosystem services because of the pressing demand for integrated approaches that attempt to link together different experts from across disciplines (Müller *et al*., 2010).

The production function refers to the economic benefits that civilisations receive from their environment; these include water, food, biomass, and fuels (Mander, 2008). Regulatory functions refer to the fundamental ecological functions that underline the landscape. The ecological functions include hydrological, meteorological, and geological elements that, in turn, regulate land quality (Deng, 2011), habitat, and biomass (Kienast *et al*. 2009).

Finally, cultural or amenity functions refer to the social benefits which the landscape provides, including recreation and relaxation, cognitive development, and spiritual reflection (UNESCO, 2009; Lindhjem *et al*., 2015). These different elements are fundamental in understanding landscape function serving as an essential way to conceptualise the complexity within the landscape and develop solutions that can be used to maintain and enhance them. Furthermore, the term Natural Capital has increasingly been used since the turn of the millennium (Costanza *et al*., 1997) and assigning economic value to natural environment provisions and processes, while integrating them into national and local asset accounting processes, has become common. Finally, the concept of landscape function is another aspect of landscape and landscape scale that must be explored as it is cited as helping to inform decision making (Guerry, 2015).

3.5 The Interpretations of Landscape Scale Concerning the Evolution of the Landscape, Landscape Character and Landscape Function.

The following section explores the application and evolution of the landscape scale concept across different disciplinary lenses. While the focus of landscape scale research and studies differs across disciplines, there is some convergence (Kullman, 2016) and an increasing emphasis on transdisciplinary approaches that force the integration of perspectives and disciplines has arisen over the past decade (Miller and Mansilla, 2004).

According to Antrop (2004), since the 15th Century Renaissance period when landscapes began to feature within art (Olwig, 2002, 2004), interest in the concept has been revived. The perspectives, concepts, and methods that have developed around landscape can be grouped into three broad disciplinary categories: Natural Sciences, Human Sciences, and Applied Sciences. Natural Science's contribution is predominately provided by the study of Landscape Ecology. Human Science, such as Human Geography and Human Ecology, adopts a humanistic and semiotic approach to landscape while, finally, Applied Sciences encompasses more applied disciplinary lenses such as Planning and Landscape Architecture.

These predefined groups form the basic structure to unpack the theoretical idea of landscape scale and continually refer to the previous literature. Rather than exploring the concept of landscape, however, the focus here is on the evolution and development of landscape scale thinking.

3.5.1 Landscape Scale within Landscape Ecology and Conservation (Natural Sciences)

The application of landscape scale thinking in theory and practice is widely embraced and assimilated within ecological disciplines (Turner and Gardner, 2015). This may result from rich history between the concept of landscape within ecology, geography, and geology (see section 3.2, Pp.29). Experts are more comfortable using and applying the term 'landscape' and, therefore, potentially the notion of landscape scale in practice. Often the large-scale perspective within landscape scale conservation is widely cited as a practical consideration in the conservation of biodiversity (Kautz *et al*., 2006; Inman *et al*., 2013) and endangered species conservation (MacNally and Horrocks, 2000; Kautz *et al*., 2006; Inman *et al*., 2013) because of its ability to develop holistic and integrated solutions across large(r) areas.

Historically, the principal authors within 'Landscape Ecology' are Naveh and Lieberman (1994, Pp.12) who explicitly outline the fundamental characteristics of Landscape Ecology within the scientific community, which can be summarised as follows:

> 1.'Landscapes' are tangible and heterogeneous entities with closely interwoven cultural and natural aspects, which directly affect human health'.
>
> 2.'As an approach to landscape study and management, the conventional discipline orientated, and reductionist scientific paradigms are replaced by integrative, holistic, and transdisciplinary approaches.'
>
> 3.'Advancements in technology have created finer resolution over greater areas and are providing opportunities for more effective management'.

These fundamental characteristics have been a critical starting point for practitioners using the landscape scale for conservation and landscape ecology over the past twenty-five years. These essential characteristics make explicit reference to the heterogeneous natural landscape and the need for a paradigm shift into more integrated, holistic, and transdisciplinary approaches. These characteristics are common elements of modern interpretations of the term landscape.

It would also be challenging to define landscape scale within natural science without including the Natural England White Paper, (2011) in which landscape scale approaches are defined as:

"*landscape scale conservation is characterised by the pursuit of multiple benefits across a defined area (e.g., water quality, biodiversity and access). The best examples also make links to wider economic and social priorities, where enhancing nature can benefit the local economy and quality of life.*" Natural England White Paper, (2011 Pp. 18).

The popularity of landscape scale approaches within conservation and ecology is linked to significant damage to the natural environment; much of it widely attributed to human activity at both the national (Wackernagel and Rees, 1996; UKNEA, 2011) and international scale (Duraiappah *et al*., 2001). Processes such as industrialisation, agricultural advancements, and rapid urbanisation have driven increased landscape fragmentation and reduced ecosystem heterogeneity (Lawton *et al*., 2010; IPBES, 2019). The result has been a considerable reduction in global biodiversity (Kimmins, 1997; Cardinale *et al*., 2012) and a diminishing ability to secure ecosystem services such as pollination, clean water, and biodiverse greenspaces (Biesmeijer *et al*., 2006). Ecosystem services provide fundamental regulatory cycles that underpin the natural environment. They also contribute directly to national economic stability

(UKNEA, 2011) and human health (WHO, 2005). Soule (1985) coined the term ‘Crisis Discipline’ to describe an arm of conservation biology tasked with the mitigation and prevention of biodiversity loss. Over the last few decades, the research conducted within this discipline has enhanced the professional understanding of the link between ecosystem biodiversity and landscape productivity (Kimmins, 1997; Cardinale *et al*., 2012). As a result, there is an extensive collection of research applying a landscape scale approach with specific reference to endangered species conservation (Kautz *et al*., 2006; MacNally and Horrocks, 2000; Inman *et al*., 2013). Landscape scale conservation approaches aim to identify suitable alternative habitats within the broader landscape that can be used to enhance or support self-sustaining populations. The reference to a ‘wider landscape’ contrast with other site-based conservation approaches that typically operate within one defined ecosystem.

Internationally, a large number of landscape scale conservation strategies exist. Examples of these include ‘Landscape Stabilizers’ which form a fundamental part of the Czech-Slovakian ecological model, describing a means of landscape rehabilitation after the rapid industrialisation within the Soviet Union and the increasing heterogeneity of landscapes as part of the Warsaw Pact (Skokanova and Slach, 2020). Other means for tackling biodiversity loss are the ‘Focal Species Models’ used in the United States (Carroll *et al.,* 2001) and the ‘Greenways’ concept, an approach based on biodiversity and species' movement through different ecosystems (Otsfeld and LoGiudice, 2003). ‘Greenways’ form a fundamental principle within the UK’s ecological model (Lawton *et al.,* 2010). These range from extensive ecosystems to linear ecosystems such as hedgerows. It should also be noted, however, that the term ‘Greenways’ is slightly misleading as water bodies may also provide significant corridors, allowing the transfer of energy through an ecosystem as outlined in and extensively cited through the ‘River Continuum Concept’ (Vannote *et al.*, 1980). The use of ‘Greenways’ to promote landscapes' health has been adopted in many other countries under different names and various discourses.

In some cases, existing and potentially outdated planning strategies in Europe may already serve as these corridors and have the potential to be enhanced, resulting in cultural and ecological benefits (Taylor *et al*., 1995; Terry *et al.,* 2006). Within the United Kingdom, the importance of Greenways and the role of Ecological Networks as a method for improving the natural environment was consolidated in a vital report entitled ‘Making Space for Nature’ (Lawton, 2010). The landscape scale approach is explicitly mentioned in this report as a means for habitat creation into the broader environment (Lawton, 2010, Pp.61). However, it is specific

to conservation and does not necessarily demonstrate the overlap between ecology and planning into a broader landscape scale approach. For example, as argued by Selman's (2006) work and the work by Prager *et al.*, (2012).

The concept of 'spatial heterogeneity' (Pickett and Cadnesso, 1995) explores and maps the mosaic of different elements within a landscape across wide areas. Such explorations include attention to a landscape's spatial scale (Pickett and Cadnesso, 1995). More contemporary research, such as Garrigues *et al*. (2006), Fryxell *et al*. (2005), Morris *et al*. (2016) and Zhou *et al*. (2017), provides examples with explicit reference to quantifying spatial heterogeneity at the landscape scale, further cementing the concept within the broader disciplinary lexicon as examples of the widespread applications of landscape scale. These studies varied greatly in their application and definition of the term, however. For example, Zhou *et al*. (2017) analyses the spatial heterogeneity of small-scale soil textures to assess the effect of wooded areas at the landscape scale and Fryxell *et al*. (2005) uses landscape scale to assess changes in temporal resources for grazers in the Serengeti as a means for biodiversity conservation. However, the reference to landscape scale within these contexts is explicitly used to imply a regional, or large spatial, scale and an explicit distinction is made between large and local eco-systems.

Explicit references to landscape scale can be found within research modeling the ecological landscape using a 'patchwork' style approach (Bennett, 2004). It's also found in regional and large-scale efforts to improve habitat connectivity damaged as a result of agricultural pressure practices (Donald and Evans, 2006). These approaches typically refer to 'large(r)' scales of working. It is within academic literature referring to nature conservation and biodiversity under the umbrella of 'landscape scale conservation' that we find more specific discussion of the term (Kautz *et al*., 2006; MacNally and Horrocks, 2000; Inman *et al*., 2013).

3.5.2 Landscape Scale in Planning (Applied Sciences)

The term 'landscape scale' is increasingly used within planning in the United Kingdom (Lawton, 2010; Natural England, 2011) as well as internationally (Scott, 2006; Dramstad and Fjellstad, 2011). This has been driven by a need to better understand sociological and socio-ecological relationships and their importance in effective planning decisions (de Groot, 1995). As Planning has to consider the needs of a range of stakeholders, there is an array of research exploring their role in the decision-making process, including Scott *et al*. (2009) and Sauer (2010). Research within this area highlights the value of different perspectives and proceeds from the notion that policy concerning ecology and geography has been preoccupied with

visual aesthetics (Bell, 2001; Tyrvainen *et al*., 2005). A landscape scale approach to planning is cited to improve citizen engagement and deliver more effective, multifaceted, land use options (Selman, 2006). Aspects of landscape scale approach within the ecosystem approach and scholars such as Müller *et al*., (2010) have emphasised the importance of integration because landscape scale thinking improves connectivity across disciplines, providing decision-makers with more useful information. This is also true of the British government's White Paper entitled 'Making Space for Nature' (Lawton, 2010) within the ecosystem approach.

In terms of academic and applied research, Selman (2006, 2013) has a strong landscape-(scale) informed approach for environmental planning and managing rural landscapes. It could be argued, therefore, that the comparative vocabulary and narratives within and between environmental planning, conservation, and landscape ecology, have aided in the implicit interpretations of the characteristics of what could be termed, a 'landscape scale approach' - as outlined by Naveh and Liebermen (1994).

Drawing on a wide range of studies that claim to be at the landscape scale, Pfund (2010) analysed the range of scales that such published works had adopted and found that this included spatial areas between 100 and 10,000km^2. Ahern and Cole (2012) took a different approach and considered scale but one factor, arguing that landscapes exist 'at all scales' and, therefore, include geographical areas as small as 100KM^2 - as put forward by Pfund (2010). Within the United Kingdom implicit definitions of the landscape scale exist within planning - particularly in the National Policy Planning Framework (NPPF), within the highly cited influential work by Selman (2002) and Lawton's (2010) 'Making Space for Nature'. More recently, Carter *et al.* (forthcoming 2021/22) define 'landscape scale' as an effective medium of synthesis that extends beyond scale issues, but which persists within conservation. The concept of landscape scale can provide a platform for more integrated thinking, planning, and delivery for environmental planning and management.

Interestingly, Carter *et al*., (forthcoming 2021/22) proposes a framework along six dimensions; spatial, temporal, functional, institutional, participatory, and emotional, in an attempt to better integrate this perspective of landscape scale within planning. This indicates a shift in research in which scholars are seeking to better operationalise the concept of landscape within Planning. This, in turn, mirrors the increased referencing of landscape scale thinking which has implicitly featured within the NPPF.

Typically, the NPPF is championed under the management of the built environment and references to the landscape scale's characteristics are specific to green infrastructure, encouraging the development of 'multi-functional' greenspace.

> "*A network of multi-functional green space, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities*." (MHCLG, 2019, p. 67)

Similarly, the European Union's Water Frameworks Directive (European Commission, 2000) in the context of water catchment management, promotes the importance of different spatial scales. For example, Holzkamper (2012) outlines a meta-model, a model designed for decision makers to identify conflicts and synergies between management at the 'catchment scale'. In this context, catchment-scale typically maps to large geographical areas as catchments themselves extend over many hundreds of Kilometres.

This links to Pfund's (2010) explanation of landscape scale as a large entity ranging from 100-10'000km^2 as, for example, reflected by water catchment flood management plans in the United Kingdom (Environment Agency, 2009, 2011). The apparent disconnect between the different uses of landscape scale appears to exacerbate the disjointed nature of the UK's planning system. For example, Adams *et al*. (2013) argue the British system is grounded in confrontation and legal challenge that serves to alienate people rather than encouraging positive grassroots initiatives.

Building upon this, Taylor (2010) argues spatial planning is just a rebranding of planning in the UK and provides no significant change. Allmendinger and Haughton (2010) also comment on the dysfunctional nature of the current system, suggesting spatial planning has, somewhat ironically, complicated the planning of spaces after devolution of power to local governments. In a similar vein, Selman (2006) refers to 'development planning silos' to describe the development of policies that operate in isolation, showing little evidence of interdisciplinary approaches.

Engagement and active participation are widely cited as critical components for success within planning, in an aim to deliver more efficient and effective land-use strategies. (Scott, 2011; Blackstock *et al*., 2012; Prager *et al*., 2012). This has been developed into a new lexicon, forming the focus behind many planning decisions: for example, the European Landscape Convention (Scott, 2011) and in England streamlining the National Planning Policy Framework (DCLG, 2012; MHCLG, 2019). There are also many national and local initiatives

such as Local Enterprise Partnerships and Neighbourhood Plans, all of which hold participation and community engagement at their core, devolving to a local level. 'Participology,' a board-game style exercise designed to engage and inform people about planning decisions in both general and real-life application, is an example of how important the need for active engagement has become (Participatory, 2016).

3.5.3. The Researchers Overarching Perspective on the Consulted Literature

Since the 1980s the concept of landscape has received much attention within several academic disciplines, especially ecology and geography. There are many arguments offered around multi-functionality and the need for integration across sectors and different interests to address political, social, economic, and environmental challenges. The concept of landscape integrates knowledge from other domains. It has evolved over the last century to become a multi-faceted concept. Different experts interact with and fundamentally change, what it means. Interestingly, according to John *et al*., (2004) the evolution of landscape is quantified as a reciprocal process in which the changes made to the concept because of the individual interactions also influence perceptions within the disciplines themselves. Given the long history of landscape within ecology and geography, it is clear why the concept of landscape scale has become so prevalent with these disciplines. John's *et al*., (2004) observation of the reciprocal evolution of landscape may also help to explain why the concept of 'landscape scale' and is often perceived as 'large scale'. Experts are drawing from the history of geography and application of landscape scale within ecology and conservation, but as we can see the idea of what a landscape is has evolved. It is now seen as a multi-disciplinary entity with seminal works such as Selman (2006) pointing out the value of landscape as a practical framework for approaches

3.6 Summary and critical points

The Literature Review attempted to balance breadth and depth by exploring the critical disciplinary lens that seems to have reinforced the landscape scale concept. This appears to be inherently linked to the concept of 'Landscape'. The term landscape scale has essential epistemological roots within landscape research, particularly ecology and conservation. Within these disciplines landscape is usually refers to a large-scale entity which humans recognise. This notion is perpetuated across contemporary literature in which the term landscape scale is used to describe a large-scale strategic entity. The recent uptake of the concept across another disciplinary lens such as planning and sociology, referred to as 'applied sciences' in the literature review, holds onto this notion.

However, this idea of landscape scale as a purely large-scale strategic entity from the epistemological roots of ecology, perpetuated across policy and practice is not a full concept. Since the turn of the millennium, the concept of landscape scale has interacted and drawn from a more comprehensive array of related academic research. Scholars have highlighted the potential capacity of the landscape scale to provide a theoretical meeting place outside of traditionally defined academic disciplines.

Based on the Literature Reviews outcomes, the following chapter outlines the conceptual boundaries of the research project. First, the conceptual framework attempts to reflect upon the global context in which the term is being championed to better understand the driving forces behind the uptake and longer-term feasibility of the concept. Secondly, to facilitate knowledge generation from different disciplinary lenses, the conceptual framework also outlines the importance of transdisciplinary working to generate new knowledge and encouraging social learning between different individuals.

CHAPTER 4
CONCEPTUAL FRAMEWORK

4.1 Introduction

This chapter aims to explain and justify the critical conceptual focus and essential boundaries of this research project. This will be achieved by exploring the major theories and concepts identified in the Literature Review and the first part of the philosophical positioning. Figure 4 outlines the key concepts and structural flow for this chapter, indicating how the thesis' central ideas relate to each other, and contributed to the other research elements.

Firstly, the chapter explores the broader context in which the research project is situated by examining the significant discourses influencing landscape scale working and unpacking the specific global context to which this research relates. This includes looking at the different aspects and variables facilitating the observed increase in interdisciplinary thinking and investigating the context in which it is being used and applied in practice. Secondly, this chapter focuses on the different research approaches used to integrate knowledge across different disciplines and between other individuals' work. This relates directly to the chosen interpretivist philosophical approach that emphasises the importance of an individual's experience and interaction, with their knowledge influencing the interpretation and application of landscape scale. The definitions of interdisciplinary, transdisciplinary, and multi-disciplinary working will be reviewed as well as the key challenges and limitations to this working style explored drawing on evidence from the broader academic literature.

Thirdly, the chapter draws upon the defined approach established within part 1 of the philosophical positioning (section 2.2) to determine the influence of the approach and the role of hermeneutics in the communication and dissemination of knowledge within the thesis. This specifically refers to the knowledge exchange between individuals involved in the research process as well as disseminating the research's outcomes after its completion. This is because most input of information collected throughout the PhD project will be ultimately communicated through text. As a result, a clear understanding of hermeneutics' conceptual boundaries on the collection, development, and final dissemination of the research outcomes is essential.

Finally, the chapter turns its focus to reviewing the challenges and limitations imposed on the research project by the PhD's confines and how these can be mitigated. This chapter concludes with a critical commentary of the 'Landscape scale Framework' as a proposed project outcome. It reflects on the (potential) limitations of the research aim and objectives.

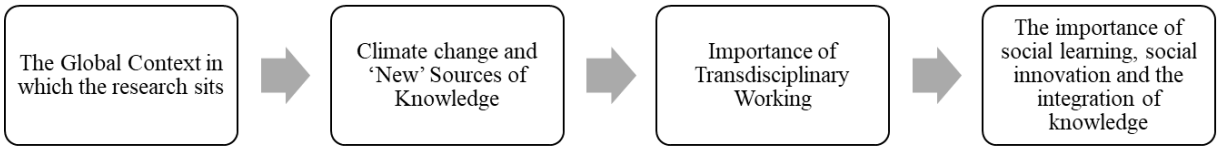

Figure 4 - The major concepts that provide the conceptual boundaries for this Ph.D. project and the flow between them.

4.2 The Contemporary Landscape Scale Discourse and the Global Context

4.2.1 The Global Context

The contemporary political environment is in a state of flux with a resurgence of populism and isolationist ideologies, such as the UK's 'BREXIT' vote and Scotland's vote for independence in 2016 and 2014, respectively. At the international level, America's proposed withdrawal from the 'Paris Climate Accord' (NPR, 2019) and the rise of environmental 'extremist' groups such as the Extinction Rebellion (Extinction Rebellion, 2020) are two a few examples. It would be difficult to delineate the different elements contributing to the political climate in which this PhD research was conducted and completed. It is essential to, at the very least, acknowledge the rapidly changing political landscape and the context in which the research outcomes and outputs are likely to be considered and implemented.

In this context, the increasing use of the concept of landscape scale can be viewed as part of a broader shift, in which environmental governance as a whole is changing in response to a multitude of factors. These factors include resource shortages, human capital and quality of life, technology, and increased pollution (Cihelkova, 2011; European Environment Agency, 2016). Different actors such as multinational corporations, non-governmental organisations and scientific organisations are increasingly involved in global governance (European Environment Agency, 2016). Furthermore, a more significant consideration is placed on

collaboration across different stakeholder groups (Johnson *et al*., 2003; Dick *et al*., 2018) and the inclusion of various forms of knowledge from local stakeholders to maximise, share and protect resources. It is in this context in that concepts like landscape scale are growing in popularity. Overall, it is evident that due to a multitude of factors, existing legal and governmental mechanisms are no longer suitable for dealing with the complex issues we face.

4.2.2 Climate change and 'New' Sources of Knowledge

Modern civilisation is faced with a continuous and rapidly changing climate (Hougton *et al*., 1990; Norris *et al*., 2016; IPCC, 2018). Climate change has been referred to as a systemic challenge (EEA, 2016). In turn, this has seen changes across politics, environmental sciences, economics, and sociology (Mitchie, et al., 2015; Cramer *et al.*, 2018) with experts seeking more resilient and practical solutions, that have broadly manifested in more collaborative and inclusive research projects. Evidence of this shift can be seen across academic literature, policy, and practice. For example, the last decade has seen a shift in research towards identifying different forms of polycentric governance mechanisms (Heikklia, 2018) such as adaptive governance (Djalante *et al*. (2011) as well as an emphasis on more collaborative forms of knowledge production (Boezeman and de Coninck, 2018). Many scholars have pointed out the importance of contemporary academic research in crossing the theoretical/practical divide (Nathan *et al*., 2007; Robinson and Carson, 2013; Willams *et al*., 2020) in which researchers are encouraged to incorporate local stakeholders into their research in the hope of maximising on these 'new knowledge' sources.

Furthermore, academic research increasingly sees an intertwining of previously distinct disciplines (Vitousek, 1994; Bruce, 1994; Skoufias, 2003) and emphasises the importance of enhanced collaboration between Researchers (Bennett and Gadlin, 2012). Thus, there is a sharp rise in new knowledge production models that transcend disciplinary and institutional boundaries (Klenk and Meehan, 2015). It appears that the increased uptake of the term landscape scale in academic literature is occurring at a time when experts are seeking concepts to aid in the production of viable, reflexive, and reliable solutions (Klenk and Meehan, 2015). That, in turn, can facilitate the development of these new knowledge sources.

4.3 Importance of Transdisciplinary Working

As briefly mentioned in section 4.2, the concept of landscape scale can be viewed as a smaller part of a much broader shift in which greater emphasis is placed on concepts such as collaboration and coproduction as well as transdisciplinary, interdisciplinary, and multi-

disciplinary working. The definition of these concepts is widely debated across academic literature (Lawrence, 2010; Stock and Burton, 2011; Toomey *et al*., 2014). In this context, the following definitions were considered useful for this research project and have been drawn out from an exceptionally widely cited source (Choi, 2006). **Multi-disciplinarily** draws on knowledge from different disciplines but stays within disciplinary boundaries (Choi, 2006). **Inter-disciplinarily** analyses synthesize and harmonize links between disciplines into a coordinated and coherent whole (Choi, 2006). And finally, according to Toomey *et al*. (2014), **transdisciplinary** work moves beyond the bridging of divides within academia to engage directly with the production and use of knowledge outside the academia. in which academics and non- academics are brought together for a specific goal or purpose (Tress *et al*., 2003)

The distinction between transdisciplinary, multi-, and inter-disciplinary seems to be a persistent feature, even though precise definitions vary (see, e.g. (Tress *et al*., 2003; Lang *et al*., 2012). Therefore, the key is that transdisciplinary approaches require the active development of knowledge with individuals from outside the realms of academia, in the same way as individuals from practice and policy have an active role in developing knowledge and formulating solutions.

According to Klein (2008), transdisciplinary working is now a 'widespread mantra' across academic research and becoming something of a gold standard in research projects found across various disciplines (Hadorn *et al*., 2015). This trend has been evident in academic literature since the late 1990s and early 2000s, with seminal works on transdisciplinary approaches including Tress *et al*. (2003), Wikson *et al*. (2006) and Brandt *et al.* (2013).

Transdisciplinary working is an essential conceptual underpinning for the research project. The emphasis on the growing appreciation of the complex problems civilisation faces requires solutions developed from multiple perspectives. Also, given the research project aims to produce a practical output as defined in the aims and objectives, understanding the key principles and practices of transdisciplinary working is a fundamental conceptual underpinning. There is a wide array of well-cited and well-established academic literature to aid in designing and developing reliable and valid transdisciplinary approaches. For example, Lang *et al*. (2012) produced a conceptual model of an ideal transdisciplinary research process based on academic literature exploration. As adapted in Figure 5, this conceptual model provided a valuable and robust conceptual underpinning to this PhD project and helped develop the specific transdisciplinary approach drawing on its core components/principles.

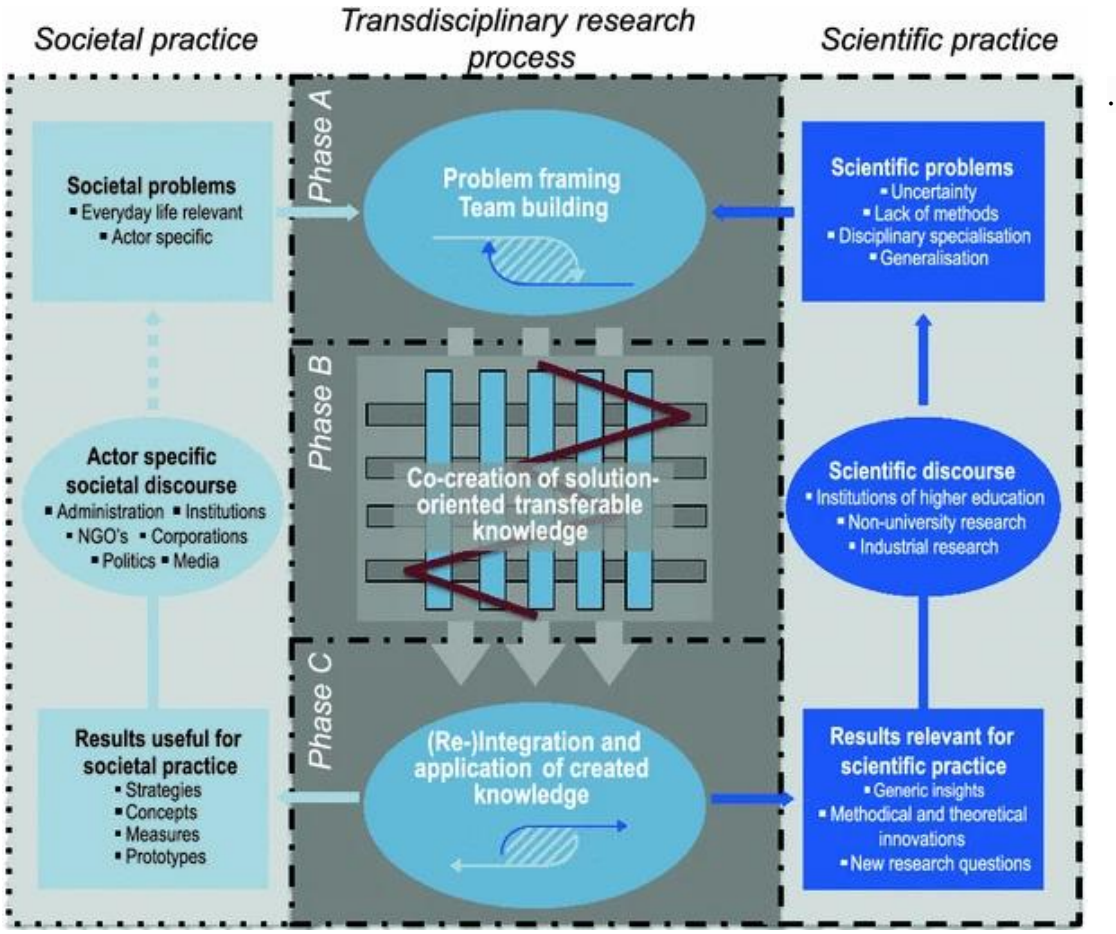

Figure 5: A conceptual model of an ideal-typical transdisciplinary research process which incorporates a multitude of transdisciplinary principles, approaches, and challenges. Lang et al. (2012 p.28).

4.4. The importance of social learning, social innovation and the integration of knowledge

4.4.1 Social Learning

Another crucial conceptual underpinning of the thesis is social learning which builds upon inter-and transdisciplinary approaches and its importance in hermeneutics. In this PhD project, the research adopted the widely cited research paper by Reed *et al*. (2010). This paper critically reviews the different definitions of social learning and clarifies that for analysis to be considered as social learning it must fulfil the following two criteria.

1. *Demonstrate that a change in understanding has taken place in the individuals involved. This may be at a surface level, e.g., via recall of new information, or more*

profound levels, e.g., demonstrated by the change in attitudes, world views or epistemological beliefs. Reed *et al*. (2010 p.5)

2. *Go beyond the individual to become situated within more comprehensive social units or communities of practice within society.* Reed *et al*. (2010 p.5)

These two elements formed a fundamental conceptual underpinning for the design of the methodological approach. They were embedded in the co-production of a framework to help improve the understanding of landscape scale and inform policy and practice with supporting operational guidance.

4.4.2 Social Innovation

Beyond social learning, social innovation's role was also considered an aspect of the conceptual underpinning of the research. The assumption is that a well-designed transdisciplinary research approach, in line with the conceptual model outlined in Figure 5, will interact with both actors and societal practice, thereby incorporating different knowledge bases and exposing other participants within the PhD research to different ways of thinking from various disciplines, professional perspectives (Researcher, policymaker, practitioners) operating across a range of spatial scales. Finally, the research project assumed that the individuals from the different disciplinary and professional backgrounds bring together knowledge, experience and perceptions of the landscape scale that can be ‘integrated’.

CHAPTER 5

PHILOSOPHICAL POSITIONING (Part 2)

5.1 Introduction

This chapter unpacks the final three layers of Saunders *et al.*'s (2007) Research Onion. These layers cover the methodological choices, time horizons and, finally, the specific techniques and procedures that will be utilised to collect data (see Figure 6). A vital part of this is to explain and justify the methodological choices in the applied Delphi technique. Within section 5.4 we draw, and were able to build, upon the extensive literature review conducted by Glass (2011) by considering the Delphi's fundamental characteristics and various applications, critically reflecting on the multiple characteristics deemed to constitute a 'good' Delphi study.

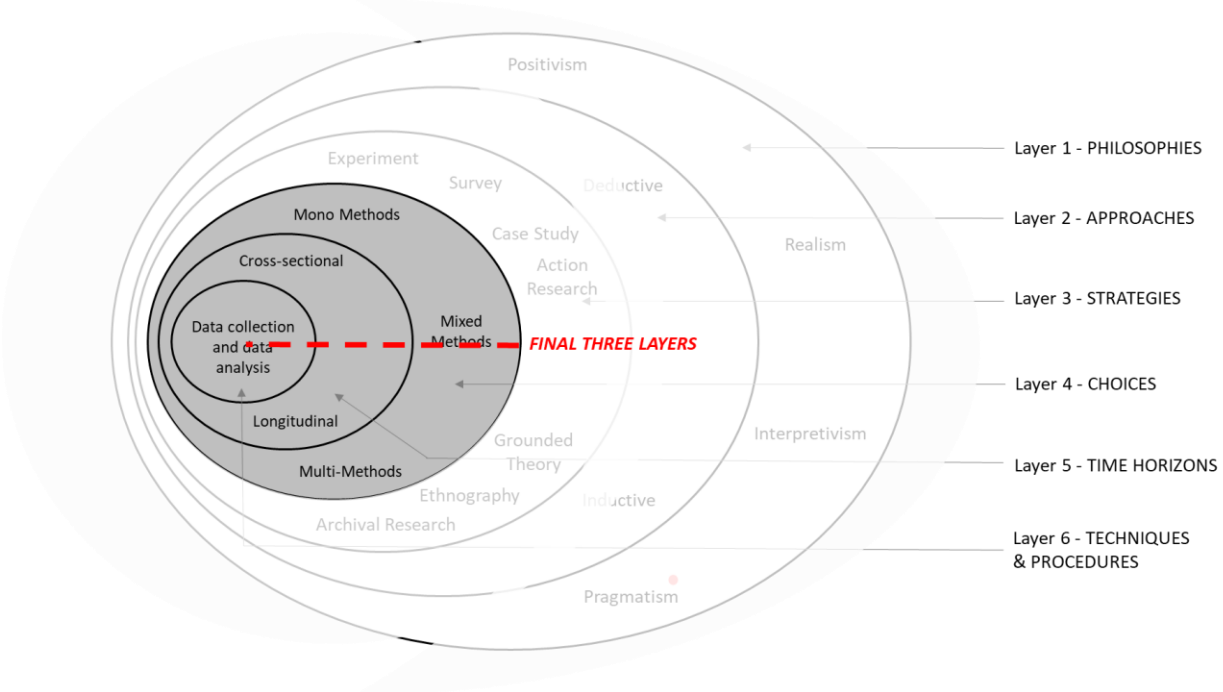

Figure 6 - The inner three layers of the research onion that are explored in this chapter. Adapted from Saunders et al. (2007)

5.2 Layer 4 of the research onion - ‘Choices.’

Given the broader context and the specific research requirements, a survey research strategy combined with grounded theory elements provides a suitable research option. As a result, a multi-method approach was adopted, which is consistent with the philosophical positioning: allowing the collection of an extensive array of rich data that can be analysed and refined to produce an output to the PhD project which practitioners from the different professions can understand.

A multi-method approach to the research can also help overcome any inherent weaknesses in any given research method (Brewer and Hunter, 1989). The defining feature of a multi-method approach is that is defines a combination of both qualitative and quantitative research methods. Separate methods are used in combination and not necessarily merged into a ‘new’ method (Creswell and Plano-Clark, 2007). Adopting a carefully selected range of complementary approaches helps counterbalance each method's specific strengths and weaknesses to produce a more robust outcome. In this context, and given landscape scale's inherent complexity, the use of one qualitative research method would not seem adequate. According to Morse (2003), multi-method approaches are often used in the context of broad topic designs, where there is a large degree of complexity, and thus reinforces the choice of a multi-method approach to help capture the subtle nuances and complexities inherent in real-life interactions and applications around landscape scale.

Based on these requirements, qualitative methodologies such as questionnaires and surveys were considered, but not adopted, as the primary data collection methods. Despite being well-embedded methodologies within social science research (see Phellas *et al*., 2011) and widely used within mixed method approaches to explore complex issues, their retrieved form and lack of detail were considered too limiting. Mitigating the shortfalls identified previously can be achieved through technological advancements and internet access (Batinic *et al*., 2002), while the costs for surveys and interviews can be significantly minimised (Sue and Ritter, 2012) with inexpensive development and dissemination costs (Jones *et al*., 2013). Carefully planned questionnaires help collect large amounts of diverse raw data in short periods and offer some flexibility. They also form part of or complement other methodological approaches (McGuirk and O’Neil, 2016).

It became clear that the demands of the research project required a mixed methodology in which the use of a form of Delphi technique seemed to provide a suitable, sufficiently flexible,

cost-effective and practical approach conducted over several months with several points of data collected from participants through a mixture of interviews and 'survey-style' sets of questions. The specific techniques and procedures explored within the final layer of the Research Onion in section 5.4.

5.3 Layer 5 of the Research Onion - 'Time Horizons.'

This layer of the Research Onion considers the specific time horizon; specifically, whether the research design is longitudinal or cross-sectional (Saunders *et al*., 2007). The longitudinal research design refers to an approach in which a sample population is studied over different periods. However, a cross-section research design refers to a study in which one sample is taken at a specific point in time (Malhotra and Birks, 2007).

This research opportunity examines the perceptions of a range of experts on a specific set of issue, in the present, but allowing them to draw on experiences in the past and present to apply outcomes to future work. It, therefore, relates to a specific chronological context. As a result, the data is collected at specific points in time but with several data collection stages. This has been referred to as a multiple cross-sectional time frame (Malhotra and Birks, 2007). Adopting such a cross-sectional timeframe allows the investigation of an issue over a specified period. It includes probing into past experiences and insights gathered over time, thus partly accommodating a longitudinal perspective.

5.4 Layer 6 of the Research Onion - 'Techniques and Procedures'

The core of Saunders *et al*.'s (2007) Research Onion approach is selecting techniques and procedures that address the research topic in ways consistent with the overarching research philosophy and strategy. Therefore, it is necessary to be critical in selecting the specific techniques and procedures within the multi-method approach with data collection at cross-sectional time frames which form the iterative rounds of the Delphi technique. Therefore, the following section explores the Delphi technique and the specific choices the Researcher made to develop the thesis' methodological approach.

5.4.1 The Delphi technique

The Delphi technique is a qualitative research methodology, developed initially by Dalkey and Helmer (1963) at the RAND Corporation to explore the increasing role of technology on warfare. Typically, the Delphi technique is used to reach a converging opinion or consensus around a topic, with real-world knowledge from a group of defined experts (Black *et al*., 1999; Hsu, 2007; Steinert, 2009). The Delphi technique is praised for its ability to produce meaningful research outcomes in circumstances where a consensus was too challenging to reach or too resource-intensive to achieve with other methodological approaches (Hsu, 2007).

According to Flostrand *et al*., (2020) over 2,600 articles related to the Delphi technique have published as of 2020. There has been a boom in the number of recent applications of the Delphi technique across contemporary literature. These different Delphi iterations can be found across many disciplines and aspects of social research including, but not limited to, education (O'Brien, 1978; Green 2014; John-Matthews *et al*., 2017), the plethora of sociology (Daniels, 2017; Kim & Yeo, 2018), medicine and nursing (McKenna, 1994; Keeney *et al*., 2001; Schulz *et al*., 2010; Flostrand *et al*., 2020) transport (Hirschhorn, 2019), sustainability (Glass 2011; 2013, Musa; 2015; Fefer *et al*., 2016; Allen, 2019) and recently economics (Sahari *et al*., 2018). Despite the breadth of Delphi applications and the clear uptake of Delphi related research across academia (Flostrand *et al*., 2020) scholars agree that there is no unified definition of the Delphi technique and continue to widely regard the methodology as in its 'infancy' (Flostrand *et al*., 2020). Instead, many advocates of the Delphi technique refer to, or develop, specific key characteristics or components which appear to form the basis of scientifically rigorous Delphi applications. In turn, this has led to a mushrooming of practical guides, guidance, and handbooks across the Delphi literature created to help researchers utilise the approach for their own research. For example, see; Jünger *et al*., (2017), Chalmers and Armour (2019) and Goodyear-Smith (2021) to highlight just a few.

However, one piece of work has remained a starting point for researchers attempting to adapt the Delphi to meet their research requirements: '*The Delphi Method: Techniques and Applications'* produced by Linestone and Turoff (1975; 2002). These guidelines are widely cited across Delphi literature and seemingly any application of the approach, regardless of the discipline, cites this work. Historically, scholars such as Keeney *et al*., (2005) have stated the applications of these principles are not intrinsic to the application of the Delphi technique (Keeney *et al*., 2005) it undeniably remains a core aspect of Delphi research. Furthermore,

other articles which have also been highly influential are works by Hasson and Mckenna (2000) and, more recently, Hirschhorn (2019), providing a variety of case-specific examples and operational guidance for modern Researchers hoping to employ a Delphi Technique.

According to Strasser (2017) the lack of a consistent definition and the variety of different implementations of Delphi has led to a heterogeneity of Delphi variants which undermines its scientific rigour. As a result, it is important for the Researcher to draw from an abundance of guidelines, and a variety of applications and common characteristics, within the literature to construct their specific iteration of the Delphi. Consequently, Section 5.4.2 below briefly explores the different forms of the evolving Delphi method to better appreciate its epistemological roots and ensure the most appropriate and up to date approach is used. This reinforces the development of the specific methodological approach within Chapter 6.

5.4.2 Exploring Different Applications of the Delphi technique

For decades, the Delphi has been applied across various disciplines to suit a wide variety of problems (Gupta and Clarke, 1996; Linestone and Turoff, 2002; Flostrand *et al*., 2020) and continually evolves as a methodological approach to suit different research requirements. Within this wider context scholars have attempted to categorise different iterations of the Delphi approach. This has culminated in three different variants that can be conceptualised as the 'Conventional/Classic Delphi', the 'Real-time Delphi and e-Delphi', and finally, the 'Policy Delphi' (De Villiers *et al*., 2005; Avella, 2016).

An in-depth examination of these different categories of Delphi technique will help draw out the common characteristics of what constitutes 'good' practice and establish what type will be most suitable for the researcher. It is also important to note the researcher chose to explore the increasing number of 'e-Delphis' within the context of Real-time Delphi's, like Hsu, (2012).

5.4.2.1 Conventional or 'Classic' Delphi Technique

The conventional Delphi is the traditional application of the Delphi technique linking back to the Classic Delphi defined by Dalkey and Helmer (1963). This iteration strives to aggregate a consensus amongst a group of experts on a specific topic or issue through a number of iterative 'rounds' (De Villiers *et al*., 2005). In each round the participants are provided with a set of questions to answer anonymously. These answers are then analysed and used to develop a new, more refined questionnaire for the following round. Typically, the respondent group can review their answers, considering new knowledge put forward by the other respondents. This process

of iteration and continued knowledge development through questionnaires encourages the respondents to see different perspectives, but ultimately achieve a consensus or converge around a specific topic or project aim (Hsu and Sandford, 2007).

According to De Villiers *et al*. (2005, p. 638), this iterative process of back and forth is completed when "*an accepted degree of consensus is reached*". In their specific case, the "*acceptable degree*" was achieved after three iterative rounds when 97% of opinions, ideas, and themes converged, with the remaining 3% of disagreement being explained and justified through qualitative feedback from the Panellists. However, De Villiers *et al*. (2005) stated that what is considered to be 'acceptable' can differ significantly from study to study. Therefore, De Villiers emphasises the importance of defining the acceptable degree of consensus for each specific research opportunity. Based on a review of past applications, Bellamy *et al*. (1991) observed that considerable agreement is typically achieved in three iterative rounds with the most significant changes happening in the first two rounds. This precedent between two and three iterative rounds seems to persist in contemporary applications with many authors recording adequate degrees of consensus within three rounds, for example see, (Vogel *et al*., 2019).

The process of iteration through these rounds, using questionnaires without face-to-face meetings is one of the fundamental characteristics of a conventional Delphi. Furthermore, traditional Delphi's conducted without the use of technology are cited as having a greater response rate (Geist, 2010). However, critics and users of the method have also identified several limitations of the conventional Delphi research method (Gordon, 1994; De Villiers *et al*., 2005; Gnatzy *et al*., 2011). The process of is time-consuming and expensive, which in turn, can dishearten Panellists and result in severe Panellist attrition and wavering enthusiasm (Custer *et al*., 1999; Landeta *et al*., 2008), which in the worst cases, can result in the complete failure of a research project (Garrod, 2012).

For example, specific Delphi technique applications can take anything from a few weeks to several months to complete (Mukherjee *et al*., 2015). The time lag between receipt of all responses, analysing those responses and sending the newly revised questionnaire back out via paper and pencil is slow. To speed up the process and mitigate time delays between participants, contemporary researchers take advantage of modern technology. This can eliminate the long delays between responses and yield more efficient Delphi techniques. This is considered a faster and less expensive variation (Gordon, 1994) and many contemporary

applications of the Delphi technique typically use computers to speed up the process and overcome some of the conventional Delphi's issues. The following sections explore the adaptation and utilisation of information communication technology within the Delphi technique with the development of real-time and e-Delphi's.

5.4.4.2 Real-Time Delphi Technique & e-Delphi's

The real-time Delphi technique is designed to take advantage of information technology to overcome the limitations regarding time and labour needed to conduct a conventional Delphi approach (Aengenheyster, *et al*., 2017). Although still inherently reliant on iterative rounds the term 'real-time' Delphi emerged because the questions, and ultimately the information exchange and analysis, could be done in real-time with the assistance of computers. Turoff (1972) provides a widely cited and early experimental example of a real-time Delphi by joining together isolated groups of experts in networks. Online questionnaires helped reduce time burdens while still retaining the experts' critical anonymity (this will be explored in section 5.6.2). Gordon and Pease (2006) refer to the real-time Delphi method as "round-less" because the data development, analysis, and feedback are provided instantaneously, significantly decreasing the time required within one seamless Delphi round.

There are many examples of real-time Delphi techniques in research with diverse aims and objectives. In fact, almost all contemporary applications of the Delphi technique take advantage of information technology in some respect. Gnatzy *et al*. (2011) examined its effectiveness in rigour and mitigating observed weaknesses in atypical 'paper and pencil' Delphi and found that the change to computers and electronic communication did not have any effect on the validity or reliability of the results and iterative process, stating.

> *"Significant differences between the two Delphi formats did not exist, and final survey results are not affected by the changes in the survey procedure."* Gnatzy *et al*. (2011 p.1681)

It is important to note that more contemporary literature has criticised the use of Real-time Delphis. For example, Aengenheyster, *et al.,* (2017) highlights several limitations with real-time Delphi approaches related to aspects such as the format in which feedback is given. Consequently, the application of the methodology still requires further refinement in order for it to be considered a reliable and valid methodological approach in its own right. Finally, building from the applications of real-time Delphi is the increasing reference to the 'e-Delphi' technique across contemporary academic research. Conceptually e-Delphi's are a form of real-

time Delphi technique in which the ‘e’ refers to electronic. These Delphi techniques are completed entirely through digital means and are widely abundant across contemporary research (see; Taylor *et al*., 2016; Msibi *et al*., 2018). While not necessarily offering anything vital to this review their increasing popularity make it important to note because they may have implications on the Delphi technique in the coming years.

5.4.4.3 Policy Delphi Technique

The policy Delphi technique, once again, is a variation on the conventional Delphi technique and shares a great deal of its key structural characteristics, in the form of iterative rounds a panel of experts and the role of the researcher acting as the key disseminator and analyst of information. However, a key distinction is that rather than focusing on achieving a consensus, the policy Delphi strives towards identifying differing opinions and responses on a specific policy issue (Needham, 1990; Linestone and Turoff, 2002; Ali, 2005). Within a policy Delphi achieving consensus is no longer the (primary) goal. Instead, a policy Delphi activity attempts to identify the different aspects of consensus and dissent in an attempt to; Explore options, find solutions and evaluate/design fit for purpose policy (Mukherjee et al., 2015). Mukherjee *et al*., (2015) accurately synthesises the core aspects of a policy Delphi and explores its key defining characteristics.

For this PhD, a policy Delphi was judged to provide a tested methodological approach to explore the different landscape scale interpretations to identify some areas of consensus or commonalities between policy applications, research and practice and different disciplinary lenses. The process is considered a reliable ‘tool’ to unpack experts’ and stakeholders’ perceptions efficiently and anonymously around a complex issue to inform holistic solutions. Policy Delphi’s have become increasingly prevalent in contemporary social science research for its ability to structure communication and interaction around the complex, multifaceted, and contentious issues (Buck, *et al*., 1993; Rayens, 2000; McGeoch *et al*., 2014). Finally, an important and extremely interesting iteration of the policy Delphi technique within the context of the research is referred to as the “Applied policy Delphi” (Glass, 2011; 2013).

The Applied Policy Delphi technique is designed to explore specific policy issues similar to the ‘Policy Delphi’ described above. However, rather than merely exploring opposing areas of consensus and dissensus and scoping potential resolutions to a problem as defined by Mukherjee *et al*., (2015). The Applied Policy Delphi goes one step further and actively develops, validates and if possible, applies a solution as part of the iterative rounds of the

Delphi. Hence the name ‘Applied’ Policy Delphi. While it is somewhat challenging to elicit an explicit example of a robust Applied Policy Delphi from academia literature the PhD project developed by Glass (2011) provides a valuable precedent for the design, application, potential and even limitations of an Applied Policy Delphi in practice.

Within this research work Glass (2011) designed a four Round adapted policy Delphi to co-produce a series of sustainability indicators for assessing the extent to which upland estate management in Scotland delivers sustainability goals. It is important to note that the original adaptation of the Policy Delphi to address this research formed an important reference point for the adaption of the Delphi technique to this research project.

5.4.3 The Fundamental Characteristics of an Effective Delphi Technique

This section draws out the Delphi technique's essential components, which set it apart from other qualitative data gathering and analysis forms. As a qualitative research approach, the Delphi technique has evolved since its conception in 1963 (Linestone and Turoff, 2002). As mentioned in section 5.4 it has been adapted to fit a wide variety of research applications. However, despite this, experts coalesce around widely agreed fundamental procedural and methodological characteristic or ‘cardinal features’ across the Delphi applications (Thangaratinam and Redman, 2005; Donohoe and Needham, 2008; Shariff, 2015; Fink-Hafner, *et al*., 2019). Figure 7 encapsulates these key design characteristics from wider academic literature, in the form of: iterative rounds and feedback, Panellist’s selection and interest, anonymity, time, and written communication (Hasson and McKenna, 2002; Linestone and Turoff, 2002; Yousef, 2007; Avella, 2015). The following section will unpack these fundamental characteristics in developing a specific Delphi methodological approach, which helps explain the chosen format of the applied policy Delphi for this PhD research.

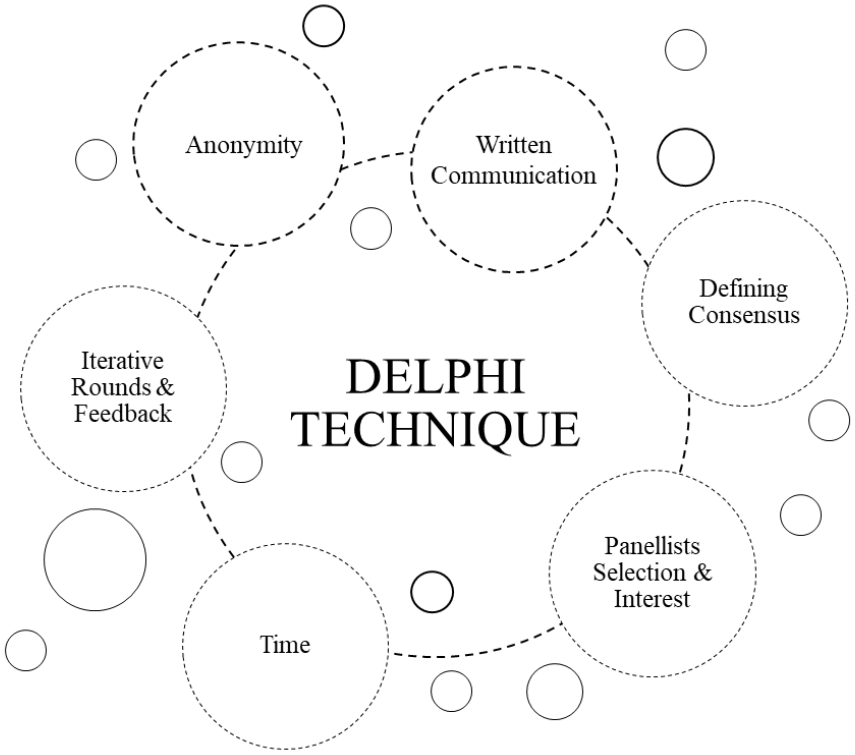

Figure 7 - The fundamental procedural characteristics of all Delphi techniques methodology according to the wealth of literature available across the wider academic community.

5.4.3.1 Iterative Rounds and Feedback

One of the major defining features of a Delphi technique is a series of distinct iterative rounds, each with a specific goal on the broader methodology (Linestone and Turoff, 2002). The number of rounds in each study is subjective and depends on the Delphi application and the explored topic (Skulmoski et al., 2007; Whitehead and Schneider, 2012). In the Delphi technique's early conception and application, it was widely agreed that four rounds were empirically optimal (Erffmeyer et al., 1986). However, as identifed in section 5.4.2.1 more recent studies have emphasized that as few as two rounds can be just as useful in some applications (Thangaratinam & Redman, 2005; Chichetti, 2011; Fernández et al., 2013, Veugelers, et al., 2020).

Generally, there seems an apparent consensus within academic literature that the actual number of rounds is dependent on the research topic, its objectives and the Researcher's resources and any limitations (Whitehead and Schneider, 2012). This ambiguity on the specific format of a

Delphi approach can make it challenging for an early career Researcher to develop a suitable approach. Hasson et al. (2000) provide valuable insights here, suggesting the law of diminishing returns can determine the suitable number of rounds; this means every Delphi will reach a point at which the time and energy invested by the Researcher and panel can no longer produce any substantial or meaningful developments.

Across academic literature, specific reference to the most suitable number of rounds was encapsulated in the seminal works by Linestone and Turoff (2002), who acknowledge the need for flexibility but reviewed a wide variety of Delphi technique applications and identified four distinct phases which consistently appeared across different applications. These are 1) exploration in which the views of a panel are established; 2) a process of understanding the Panellists' views; 3) exploration of any significant disagreement(s) and underlying reasons; and 4) evaluation and analysis of the Panellists' inputs and dissemination of the results. These 'phases' informed the development of the specific rounds within the Delphi technique designed for this research project to ensure that the design remains consistent with the core literature on Delphi design and therefore retains reliability and validity as a method. This is further supported by more recent work by Belton et al. (2019) who identified six essential steps which will aid in developing a valid and reliable methodological approach. Belton et al. (2019) defined these six critical steps as follows; 1) they are selecting respondents and focal issues; 2) they are illustrating the method of delivery: 3) developing questions and response scales, 4) they are providing feedback; 5) preventing and dealing with Panellist drop out, and finally, 6) they are analysing and presenting the Delphi yield.

According to De Villiers et al. (2005), three iterative rounds are typical within the conventional Delphi applications, with most significant developments being achieved in the first two rounds. However, there are variations in approach. Glass (2011) produced a set of sustainability indicators using four iterative rounds, which started with exploring a group of experts' perceptions and then moving towards consensus building and indicator development. What can be agreed is the number of rounds within a Delphi varies depending on the specific applications of the methodology. However, there must be at least two rounds in which iterative feedback is provided and the Panellists are given the opportunity to reflect at least once. In more complicated research projects, more rounds may be necessary in which the preliminary phases defined by Linestone and Turoff (2002) provide well cited guidance.

5.4.3.2 Anonymity

The importance of anonymity is widely cited across the academic literature as a fundamental component in the execution of any successful Delphi technique, regardless of its complexity, form, or application (Linestone and Turoff, 2002, Thangaratinam and Redman, 2005; Yousef, 2007; Biondo *et al*., 2008; Shariff, 2015). Maintaining the anonymity of Panellists remains a consistent core feature of the Delphi technique regardless of the design (Linestone and Turoff, 2002) and is even typically maintained after the research project has concluded (Whitehead and Schneider, 2012). Anonymity allows each participant freedom of expression without concerns about negative repercussions. This means they may contribute more honestly about the discussion at hand (Whitehead and Schneider, 2012). In turn, the open and honest input from the panel is likely to result in a more 'truthful' representation of the issue at the centre of the discussions and therefore enhance the project validity (Whitehead and Schneider, 2012). Furthermore, ensuring that the Panellists do not have direct contact with each other can help to overcome some of the shortfalls, such as the 'bandwagon effect', bias, and power play in distorting the results found in other qualitative research approaches (Murray and Hammonds, 1995; Tuckett, 2005; Schmitt-Beck, 2015).

5.4.3.3 Appropriate Selection of Panellists

The Panellists taking part in the Delphi form the principal means of data collection. As a result, both the selection and the number of Panellists need careful consideration (Chan *et al*., 2001; Belto *et al.*, 2019) as they have a profound effect on the outcome, and success, of the Delphi approach (Shiftan *et al*., 2003; Kenyon *et al*., 2008). However, despite the Delphi technique's growing popularity as a research methodology across different disciplines (see section 5.4) there is some variation in the number of Panellists deemed appropriate for any given application (Atkins, 2005). Like many of the other elements of the Delphi design process, the number of Panellists is dependent on the specific topic and research opportunity for which the Delphi technique is being developed.

Recent research articles highlighted that panels tend to be selected purposefully by the Researcher or based on convenience rather than randomisation (De Loë *et al*., 2016; Devaney and Henchion, 2019). However, Avella (2016) emphasises the importance of selecting a panel whose expertise accurately represents the field of inquiry. It is more important to have suitable and invested participants than a randomised sampling approach. Furthermore, according to Avella (2016), the criteria for selecting an appropriate panel must be identified and measurable,

but not necessarily based on picking the most qualified in the discipline - although this would be advantageous; many strategies can lead to effective Panellist selection. For example, McKenna *et al*. (2000) stresses the importance of impartiality from the Researcher's perspective when selecting panel members, helping to maintain the research's validity and reliability. In support of this, many Researchers identify the potential panel members during the Literature Review phase of the research, being guided by what they regard as essential publications in the field (Avella, 2016). Alternatively, a mix of the above can be used, as identified by Glass (2011) who defined an appropriate selection of Panellists based on Literature Review, referrals, reputation, and even workshop attendance. Approaching the panellist's selection in this way brings together a balance between invested panel members identified through existing relationships and experts from research, allowing early careers researchers with limited professional connections to develop a robust panel.

5.4.3.4 Adequate Time to Respond

The Delphi approach is often categorised by the length of time required for its completion (Hsu and Sandford, 2007; McMillian *et al*., 2016). While some scholars highlight this has been significantly reduced with modern technology, many contemporary examples extend over prolonged periods, even with computers.

Characteristically, the participants must have adequate time available to dedicate to the Delphi over an extended period. The length of this period can vary depending on the topic, the number of rounds or issue being explored (Avella, 2016). It can also change between the Panellists (Veugelers *et al*., 2020). For example, some iterations of the Delphi can be completed within a matter of days. Culley (2011) comprised a 2-day processing time from data collection to presentation. In contrast, there are occasions where it can take several months (see Glass, 2011), owing to delays between rounds (Ludwig, 1994), large sample size, or the complexity in the Panellist's responses requiring more time for analysis.

Evidence from the current academic literature suggests that the more participants and the greater the number of sequential rounds of the Delphi, the more time participants will invest in the research. Therefore, it may not be easy to estimate the amount of time needed for a Delphi accurately. The Researcher must, therefore, make all participants aware of the estimated timescales and the potential for delay.

5.4.4 The Delphi's strengths and limitations

5.4.4.1 Strengths of the Delphi Approach

This chapter draws from the critical academic literature to help justify and develop the research approach and outline the strengths, limitations, advantages, and disadvantages of using the Delphi technique. This section aims to evaluate the technique's specific strengths and weaknesses based on the range of consulting applications before applying this to critically examine the strengths and weaknesses of this particular research application. These will be briefly outlined below to help the reader appreciate the Delphi technique's value as a method for exploring the perceptions and conceptual underpinnings of 'concepts' such as landscape scale. Furthermore, an explicit exploration of the methodology's strengths and weaknesses could be used to mitigate potential issues before they arise.

The Delphi technique's first and most widely accredited strength is its ability to produce a consensus where previously none existed (Hasson *et al*., 2000; Powell, 2003). The Delphi provides the Researcher with a flexible methodological approach to explore a complex issue, or issues that lack clear empirical evidence (Dawson and Barker, 1995; Murphy *et al*., 1998). It is also useful where there is uncertainty around the outcome of a specific research opportunity in which conventional methods would not help. The technique also provides a degree of flexibility during the actual data collection phase. There can be small amendments made to the design of the approach to account for unexpected, or unforeseen, circumstances as they arise.

First, Delphi provides a degree of flexibility during the design phase. Many academic research projects have taken advantage of this flexibility and mould the approach to bespoke project requirements (Skulmoski *et al*., 2007). However, this flexibility appears to extend beyond the initial design phase and into the formation of methodologies to collect raw data (Linestone and Turoff, 2002). Delphi based research often deals with complex and contentious issues and there can be unexpected developments during the data collection from which the research would benefit. As a result, minor amendments to the methodological procedure can be made on an 'ad hoc' basis, as long as those amendments are justified in the research design, and in keeping with the Delphi approach's underlying principles as outlined in the literature.

Secondly, the freedom for Panellists to express their thoughts openly is a direct result of the anonymity required in all Delphi approaches. The iterative rounds allow Panellists to express feelings, opinions, and perceptions causally related to the topic. The anonymous nature removes their fear of being judged or criticized by other Panellists (De Villers *et al*., 2005).

This mitigates against other methodological limitations and provides an 'equal playing field' where all inputs are treated with equal value, regardless of a Panellist's experience, knowledge, or professional affiliations.

Many examples across academic literature have shown that Delphi techniques are inexpensive ways to consult spatially separated experts (Mckenna, 1994; Powell, 2003; Mehnen *et al.*, 2013). In part, this has been attributed to modern development in electronic communication and the speed at which large amounts of information can be freely exchanged via the internet. Furthermore, a Delphi does not require a 'physical space,' i.e., a laboratory or conference room for the collected results. This is one of the main reasons the methodology is favoured in PhD research (Avella, 2016), where funding is limited.

The Delphi techniques can enhance knowledge and stimulate ideas between the experts involved (Glass, 2011). This is achieved because the sharing of knowledge and the development of ideas over the iterative rounds allows Panellists to reflect on the individual feedback and ideas in a safe space (Thangaratinam & Redman, 2005). Furthermore, because a Delphi approach is not limited by geographical boundaries and/or disciplinary boundaries, the panel can represent a wide array of international experiences and cross-disciplinary perspectives. According to Delbecq *et al.*'s (1975) conclusions, a Delphi technique can be used to achieve much more than gathering data and striving towards a consensus. This seems prevalent in a large amount of literature. The Delphi technique provides an opportunity to explore and learn from other disciplines and understand the discourse underpinning certain assumptions. Furthermore, it provides a platform for knowledge exchange where the respondents can learn directly from each other's experience.

5.4.4.2 Limitations of the Delphi Approach

The most cited **'**major limitation' of a Delphi is the time and labour, which has to be invested by all involved parties. A considerable amount of time is required to complete a Delphi. As the method may get more complicated throughout the research project, the Researcher and the Panellists' time commitment will likely have to increase. With more complicated Delphi approaches, there is a higher risk of Panellist attrition, either because of unforeseen circumstances or diminishing motivations (Linstone and Turoff, 2002). To some extent, this can be overcome with clear instructions about the likely time commitment and project duration and a 'definitive' Delphi design from the outset.

According to de Loe (1995), Delphi techniques typically explore the breadth of a topic area, namely the perspectives of different experts, not only the underlying reasons or motivations as stated above, but the depth of the issue (de Loe, 1995). This can be damaging in the long term as the Delphi approach can produce solutions that address only the symptoms of an issue rather than the problem's cause. The Researcher is a fundamental part of the successful design and delivery of a Delphi study and must fulfil multiple roles throughout the research approach, including but not limited to: 'planner', 'facilitator', 'observer', 'interpreter', 'mediator' and 'presenter', of the information (Avella, 2016, page. 307). Because of the multitude of responsibilities, any flaws or biases the researcher exhibits will be exacerbated and can inherently influence the project. This raises several philosophical and methodological issues that can undermine the research project if they are not considered. It does not matter whether this is conscious or unconscious, as damage the Delphi approach's validity.

The Delphi technique relies heavily on the input of Panellists throughout the project as they form the sole means of data collection and development. Thus, the Delphi approach is subject to weaknesses should one or more Panellists choose to leave the research project. Furthermore, some experts have postulated the increased anonymity levels may reduce expert accountability and result in less valid results and analysis (Powell, 2003).

5.4.5 Suitability of Delphi Technique to the Research Opportunity

After unpacking the Delphi approach's concept and briefly reviewing core characteristics and the associated strengths and limitations of the technique, this section assesses its suitability as a qualitative methodological approach to the research aim, goals, and objectives of this PhD. According to Hsu and Sandford, 2007 (page 1) Delbecq *et al*., (1975), the following purposes are identified.

1. *"To determine or develop a range of possible program alternatives;"*
2. *"To explore or expose underlying assumptions or information leading to different judgments;"*
3. *"To seek out information which may generate a consensus on the part of the respondent group;"*
4. *"To correlate informed decisions on a topic spanning a wide range of disciplines, and;"*
5. *"To educate the respondent group as to the diverse and interrelated aspects of the problem."*

Based on this, two specific objectives align with this research project's objectives, namely, Objective Two and Objective Four. Firstly, one of the objectives of this research project is to explore experts' perceptions and experience using landscape scale within their daily work – these fit directly within the scope of Objective Two. Secondly, according to Delbecq *et al*. (1975), the Delphi technique is also suitable to help correlate informed decisions on a topic spanning a wide range of disciplines. Given the breadth of academic disciplines influenced by landscape scale, and the research project's overall aim to aid in its operationalisation, a Delphi survey would help achieve this. This indicates that the Delphi approach aligns with the research project's requirements and provides a valid methodology. It is also important, however, to assess the Delphi approach with the underlying methodological stance to consider how it will influence the data collection and exploration.

Some consider an interpretivist philosophical positioning to be the best approach to deal with complex social issues (Schwandt, 1998; Carson *et al*., 2001; Nudzor, 2009). It provides an opportunity to explore a scientific phenomenon within a specific setting, alongside the individuals directly involved. It also aligns well with this PhD's perceived research opportunity – to co-produce a landscape scale resource kit. This kind of philosophical positioning, however, also poses some challenges and limitations (Kapoulas, 2006).

Interpretivist approaches have been said to produce unreliable outcomes (Kapoulas, 2006), owing to fact that the approach is inherently subjective (Nudzor, 2009). In this inevitable consequence, a phenomenon is observed, analysed, and interpreted within a specific context, at one particular time, with a particular group of people. Consequently, the research and methodological approach cannot be recreated or repeated in a future study.

Historically, concepts such as validity and reliability were developed for positivist approaches and quantitative research with less emphasis placed on their importance within qualitative and social research. According to Brock-Unte (1996) and Yildrim (2010), however, both these qualities can be effectively employed in qualitative research and are equally essential to guarantee the research's quality and authenticity. Therefore, careful consideration must be given to the procedures for reinforcing these qualities within the methodological design. This critique is developed from the perspective that interpretivist approaches do not necessarily provide a more meaningful understanding of social phenomena because they have failed to achieve consensus (Nudzor, 2009). According to Silverman (2009), many different methods and approaches reinforce the broader interpretivist approach. For this reason, many positivists'

Researchers state that an interpretivist approach should be used to become familiar with a phenomenon, its context, and epistemological development. This is also the perspective and rationale for adopting the interpretivist approach (and the methodological design) to explore landscape scale perceptions.

A potential criticism of the inductive approach is that research adapts and formulates theories through observation. The resulting epistemology will draw reasoning from the past and project this into the future (Kemeny, 1959). As a result, there is a core assumption at the heart of inductive reasoning that inductive methodological approaches will result in a future that looks and behaves like, or at least similarly to, the past. As a result, the research conclusions are 'probably', but not undoubtedly, real. Therefore, it is an essential that the Researcher and the participants plan a degree of flexibility into the project outcome and consider the research's application in the future and by limiting it to the present. Within the context of this research project, the use of an inductive research approach may determine the reliability of any potential outcome. The research cannot assume the outcome produced as part of this research project (to aid the participating experts) will be of the same value to another set of experts if they had participated in the same project.

Typically, inductive approaches do not require a hypothesis from the project's outset (Creswell and Plano-Clark, 2007). Instead, research outcomes are based purely on observations, compared to theory retrospectively within the discussion and conclusion. To mitigate against this risk in the context of this PhD, the research also embedded elements of a grounded theory approach. Grounded theory is about constructing theories through the systematic gathering and analysis of data. This aspect will be explored in more detail in the next chapter, which unpacks the research strategy's specific approaches and methods.

CHAPTER 6
METHODOLOGY

6.1 Introduction

This chapter draws upon the underpinning work of Chapters 3 – Literature Review, Chapter 4 – Conceptual Framework, and Chapter 5 – Philosophical Positioning (Part 2) to outline the specific methodological approach employed in the research project. Before the conclusion was reached that a form of adapted Delphi technique provided the best opportunity to explore a group of experts' perceptions and experiences, several other potential qualitative methods were investigated, including traditional questionnaires, electronic surveys, interviews, and a group workshop. Ultimately, a form of adapted Delphi technique similar to the methodology proposed by Glass (2011) provided a number of benefits that were considered important to the research project and the potential to provide an expert led approach far outweighed the benefits of any other methodological approach. Furthermore, this research project was seen as a valuable opportunity to test the potential of an applied Delphi technique as a singular methodological approach to develop (and test) a practical outcome to a complex policy issue. This would provide much needed evidence of the Applied Delphi technique and potentially reinforcing the value of the methodology identified by Glass (2011)

Once the decision was taken to use a Delphi technique for the research project, it was essential to adapt the Applied Policy Delphi approach to suit the research's requirements. As a result, an innovative approach had to be developed using the fundamental building blocks, as explained in section 5.4.7. The first version of the Applied Policy Delphi technique used in this research approach, therefore, drawing heavily on the Delphi-related literature, including the work of Linestone and Turoff (2002), Hasson *et al*. (2000) and Glass (2011, 2013). Figure 8 outlines the adapted Applied Policy Delphi Technique used in this research project. Figure 8 outlines the three iterative rounds as well as the refinement and independent testing phases. Furthermore, the approach outlines the explicit responsibilities of the Researcher (on the right of the figure) and the panel (on the left of the diagram) and demonstrates the input and outputs that link the different iterative phases together. The following section explores these different iterative rounds in greater detail.

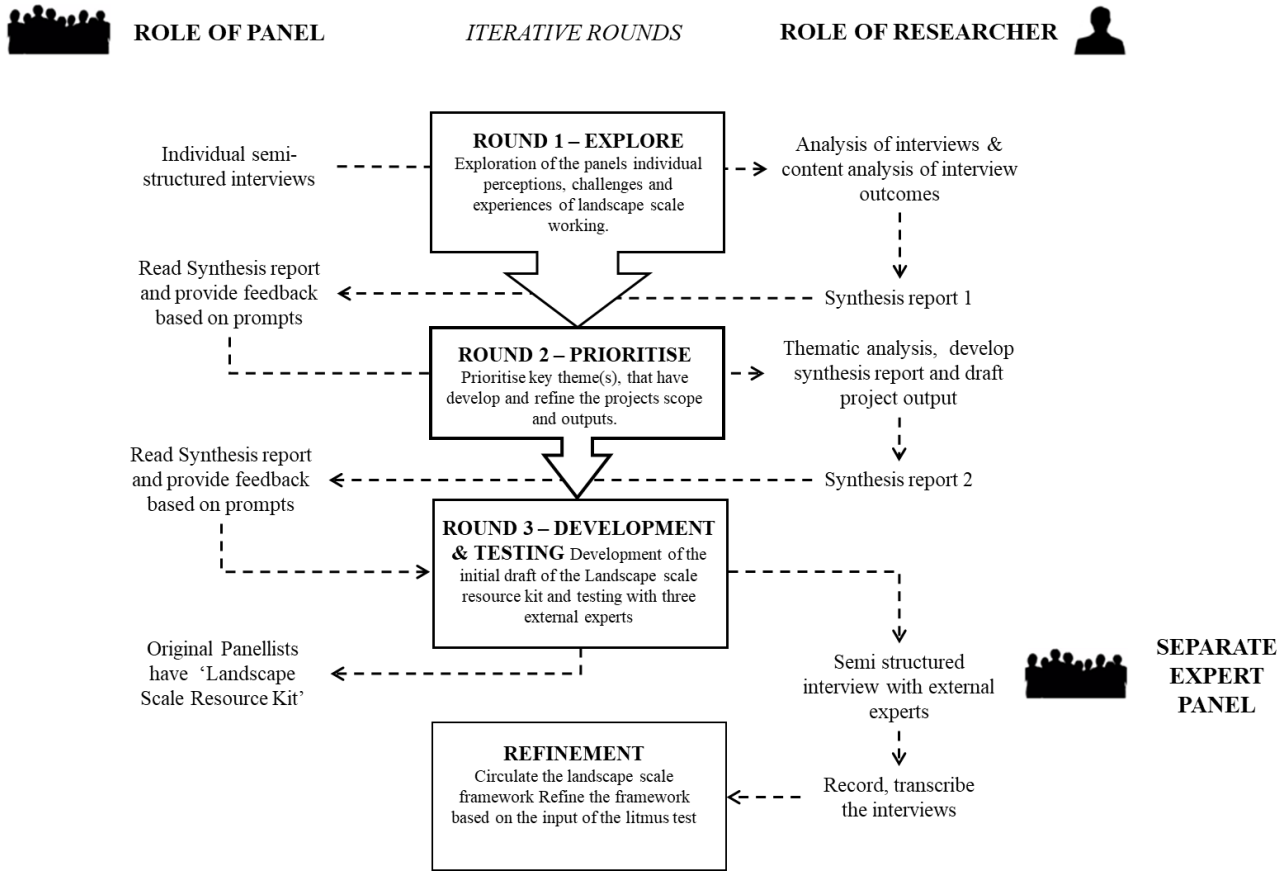

Figure 8 - The final version of the Applied Policy Delphi methodology, designed to explore; prioritise and develop a landscape scale framework.

6.3 Structure of the Final Methodology

6.3.1 Round 1

The Delphi's first round was entitled 'Explore' and served as a scoping stage for the following two rounds. This round aimed to capture as much raw data as possible, allowing the Panellists to express their views and perspectives on landscape scale as they wished whilst remaining relevant to the research project's development. To maximise the input from the panel, the specific aims of this round were as follows:

1. To establish the context of the research and each Panellist's experience and understanding of landscape scale.
2. To identify how the group of Panellists perceive landscape scale in their various disciplinary and professional contexts.

3. To establish a set of specific objectives and aims for the perceived outcomes in later rounds.
4. To explore the barriers/constraints and limitations of landscape scale working from the participants' perspectives.
5. To begin holistic discussions on potential outcomes for the research to aid in the delivery of landscape scale.

The key methodology of data collection in Round 1 was a semi structured interview. During the interview invitation process, each Panellist was forwarded another copy of the briefing letter (Appendix 1) a week before the meeting took place to remind them of the project. To maximise the Panellists' input, in short, individual hour long semi-structured interviews were organised. The interviews varied in length, depending on the Panellist, the shortest interview was forty eight minutes in length, and the longest was one hour and thirty eight minutes. Typically, the interviews conducted face to face were longer and the conversation more fluid. To ensure the interview remained within the project's scope, a semi-structured interview guide was developed (see; Appendix 2.). The recorded and transcribed semi-structured interviews of Round 1 allowed for open and flexible discussions with all the Panellists around the landscape scale topic but with a structure and purpose that reinforced those discussions. Overall, sixteen separate interviews were conducted over six months between June and December 2017. Of those sixteen interviews, six were performed face-to-face, eight were performed face-to-face via electronic video conferencing software and two over the telephone. Conducting the interview face-to-face was the preferred means of data collection because it provided the best opportunity to capture the Panellists' expressions. However, in the circumstances where the Panellist was too busy to dedicate time to a face-to-face meeting or they were too far away, recorded phone conversations had to suffice. In keeping with the philosophical positioning (section 2.3), the direction of the discussion in the interviews was dictated by the Panellists. The semi-structured interviews were reviewed using a form of Thematic Content Analysis. Key themes in the discussion were highlighted and transferred into A3 mind maps by the Researcher (see Appendix 3) The common themes (areas of consensus) and significant contention areas across the sixteen mind maps were then highlighted and consolidated by the research into a synthesis report called 'Synthesis Report 1' and is provided in Appendix 4. The analysis, transcription and development of the Synthesis Report was a challenging process. Synthesis Report 1 was conducted simultaneously alongside the semi-structured interviews between June and December 2017. However, an overall analysis of the semi-structured

interviews could only be done once all of the interviews were completed. As a result, Synthesis Report 1 was circulated in February 2018, in some cases several months after the first few interviews. To mitigate this, short emails were sent to the Panellist who participated in the interviews during the summer of 2017 to keep them informed of the project's developments.

6.3.2 Round 2

Round 2 of the Delphi technique formally started in February of 2018 once Synthesis Report 1, and accompanying material, had been circulated. Round 2 of the Delphi technique aimed to prioritise the themes and issues collected in Round 1 of the project. The specific objectives of Round 2 of the Delphi were as follows.

1. Prioritise the key themes from the raw data developed in the First Round of the Delphi technique.
2. Facilitate the Panellist's inputs to coalesce around a consensus to be used in the following rounds' of the Delphi technique.

Round 2 of the Delphi technique allowed the Researcher and Panellists to reflect on many data and discussion points developed in Round 1 and highlighted within Synthesis Report 1. To stimulate, the discussion around keys aspects of consensus and dissensus, Synthesis Report 1 included 13 prompts. These 13 prompts were placed at the strategic positions throughout the report, and the Panellist was asked to respond directly to them. The Panellists provided feedback and comments in writing, thereby starting the iterative development between rounds and sharing knowledge. Examples of the prompts are as follows, but for more detail, see Appendix 4.

> *"Prompt 4 – What then are the links between 'landscape character,' 'landscape scale,' and 'landscape,' and is each term sufficiently distinct?"*
>
> *"Prompt 7 - What approaches / solutions would you recommend enabling strong legacies."*
>
> *"Prompt 13 – There was a heavy focus on practice throughout Round 1. Is there any theoretical support for this thinking within the broader academic literature or discourse?"*

To keep the project progressing as quickly as possible, the Panellists were requested to read Synthesis Report 1 and respond to the document's prompts within two weeks of receiving it. This timeframe was considered sufficient to keep the project within a strict timeline but was also flexible enough to allow the Panellists time to fit the work into there already strained

schedules. Furthermore, maintaining the momentum and continued development throughout the rounds allowed the Researchers to ’strike while the iron was hot’ potentially making up for a loss of motivation due to the delays in Round 1. Pursuing issues and opportunities as they arose and while they were fresh in the panel members' minds.

After the two weeks, only eight Panellists responded directly to the prompts and a follow up email was required to elicit the final 8 contributions. Unfortunately, following the reminder email, one of the Panellists chose to drop out of the Delphi as they felt they could no longer contribute time to the project's development. In keeping with the research project's ethical considerations, they were immediately removed from the communication chain. However, the inputs during the round 1 interview remained as part of the research in the future. Panellist attrition is a recognised limitation of the Delphi technique (see section 5.4.4.2), and despite the measure taken to mitigate against this, it was a continuous risk. Thankfully, after discussion with the supervisory team, the loss of one Panellist was not considered to be a significant setback. However, if more Panellists continued to drop out of the research project, a review of the methodological approach would be necessary.

Following the remaining responses, the Researcher analysed the written feedback in four weeks and prepared two documents in preparation for Round 3. These two documents were Synthesis Report 2 (Appendix 5) and an accompanying draft of the landscape scale framework components, which at this point in the project was referred to as the “landscape scale toolkit” (Appendix 6). The two documents were circulated to the remaining 15 Panellists. They were given a total of four weeks to respond to another series of prompts within Synthesis Report 2 and the current the version of the landscape scale toolkit and its contents.

6.3.3 Round 3

Finally, round 3 of the Delphi technique aims to;

1. Obtain and consolidate the panel members' feedback on the round two Synthesis Report and draft Landscape scale Toolkit.
2. Identify areas of consensus and the remaining areas of contention amongst the actively engaged panel members.
3. Amend the initial draft of the landscape scale toolkit based on the Panellists' feedback.
4. Develop the 'final' version of the toolkit before testing with experts not associated with the Delphi panel.

After the four weeks, all of the Panellists except one responded to the landscape scale resource kit's prompts and contents. Twelve of the original 16 Panellists provided valid feedback on the landscape scale toolkit's initial draft within four weeks and the remaining four was collected after that date and incorporated. At this point, their input to the research project ended. Following the panel input, the Researcher amended the Landscape scale Toolkit, which was now referred to as the 'Landscape scale Resource Kit' over four-week period (See, Appendix 7). This amended version of the Landscape scale Framework was then tested with a group of experts outside of the initial sixteen Panellists to evaluate how the Landscape scale Resource Kit developed within this research project was perceived by a completely new set of experts selected as part of the Delphi technique for further refinement and development.

This chapter outlines the perceived motivation and adds value of the landscape scale concept and, in turn, the Framework. This was considered an essential step in the toolkit's development based on preliminary discussion with the supervisory team's discussions. Secondly, the chapter outlines the Tool Kit's proposed layout based on the panel's input over the last three rounds. Finally, the chapter considers each of the amended Resource Kit's different elements and the specific reason for their development and adaptation owing to the Panellist feedback.

6.4 Selecting an Appropriate Panel

Selecting a suitable panel for the Delphi process is fundamental to its success (Avella, 2016). The experts' selection provides the basis of information throughout the Delphi process that is then interpreted/analysed and 'packaged' for the Researcher's next round. Therefore, the integrity, reliability, and validity of anything produced during the research depends on selecting a suitable panel. The following section explores the academic literature around the selection of an appropriate Delphi panel.

6.4.1 Determining the Appropriate Panel Size

The research approach designed above consists of three iterative rounds, led by one Researcher and supported by the supervisory team. Therefore, the approach outlined above required a smaller number of Panellists because of the complexity of the research topic and overall goal. In this case, it is typical to have between fifteen and thirty participants (Linestone *et al*., 2005), although academic literature on the Delphi technique varies widely. A clear strategy needed to be outlined for selecting experts with two main criteria: (1) they had extensive experience in landscape scale policy or projects; and (2) they were enthusiastic about the research project, ensuring their long-term contributions. These two criteria were chosen to ensure that participants remained active and interested throughout the entire project. This would also help limit the potential for Panellist attrition, potentially reducing the project outcome's validity in the long term.

6.4.2 Panel Selection Process for the Research

In total, forty-nine briefing packs were emailed to experts around the globe (Appendix 1) Initially, forty nine invitees were selected for various reasons using a purposive approach to ensure perspective from the different disciplinary lenses either because of their direct practical experience of landscape scale or their involvement in landscape scale related research. Ongoing professional relationships or existing working experience with the supervisory team was also a contributing factor. Of these original invitations, twenty responses were received, and out of those initial responses, sixteen Panellists agreed to participate and were chosen based on the following:

- They have experience within a relevant discipline or associated landscape discipline.
- They have been, or are currently, involved in delivering a landscape scale project/approach or policy.

- They are active and published academics with an interest in landscape scale research or involved in projects.
- They were quick to respond to the initial invitation and enthusiastic about contributing and interested in learning from other experts.

It was not essential for all of the Panellists to fulfil all of these criteria simultaneously. These experts could draw from a diverse pool of experience and knowledge directly related to the research opportunity.

6.4.3 The Panel

Of these initial invitations, twenty of the potential Panellists responded, having read the material. Of those, four felt that they either did not have the relevant expertise to contribute to the project or did not have the time necessary to take part. This left a panel of sixteen experts willing to contribute to the development of a Landscape scale Framework. The sixteen Panellists were drawn from different organizations and institutions, including universities, NGOs, Quangos, local planning authorities, and consultancies. Panellists were predominately from the United Kingdom however, they all represented international perspectives for Australia, the United States and Europe. The experiences, current employment, and method of identification are outlined in Table 1.

Panel Member Number	Current Employment or Role	Experience and Knowledge	Method of Identification
1	Researcher on an urban-focused project in the United Kingdom	Background in town and country planning working at both a local and regional level. Experience with a non-departmental government body in the UK. Commissioned landscape scale projects involving sustainable land use and blue and green infrastructure.	Reputation and referral
2	Academic based in the USA with a research focus on the collaboration of public, private, and charitable institutions to solve complex social and environmental problems	A wide array of academic publications and research interests, including public policy, public administration, governance, organizational theory, and sustainability science. Involvement in the practical development of environmental policy.	Academic literature
3	Academic based in the UK, lecturing within a geography and planning department	Their research's core themes are improving governance, planning, and policy to improve ecological, socio-economic, and democratic outcomes. Panellist has experience as an environmental planning	Academic literature

		consultant and policy advisor in Australia, America, and the UK.	
4	Academic in Australia (social sciences)	Panellist has a vast array of academic papers and decades of experience in the UK, Australia, Canada, and New Zealand.	Academic literature, policy documents and reputation
5	Transdisciplinary Researcher specializing in social innovation, research impact, and stakeholder engagement	A long history of research projects relating to stakeholder engagement, ecosystem services, sustainability, conservation, amongst others. The Panellist has published a large number of books and academic publications.	Reputation and referral
6	Visiting professor and consultant	Expertise includes the environment, land use, and rural strategy. The Panellist has advised on policy development on land use and rural strategy and senior positions in significant governance departments.	Reputation and referral
7	Project lead in a Partnership seeking to enhance sustainable and inclusive economic growth across a strategic area in the UK	Panellist leads an innovative project based in the north of England, combining several local authorities and various community groups to develop a partnership enhancing inclusive economic growth.	Internet search
8	Regional authority green infrastructure policy advisor	Nature reserve manager and worked on strategic planning projects within the UK. Particularly interested in making the environment more relevant to people.	Internet search
9	Landscape and biodiversity lead for a large National Park in the UK	Focused on policy development and practical implications on ecosystem services, natural capital valuation, landscape ecology, management planning for protected areas, National Park designation/establishment, landscape scale delivery, countryside access and recreation management, and cultural benefits the natural environment.	Referral
10	During the time of the research project, the individual was a conservation advisor for a large non-departmental governmental body in the UK	Panellist has a wide range of experience, including multi-million-pound regional conservation projects. Project work typically used to deliver multiple benefits.	Met at workshop
11	Founding partner of a Sustainability Consultancy in the UK	Panellist specializes in sustainability issues in the agri-food industry. He is a recognized Researcher and communicator with an in-depth knowledge of agricultural production systems, consumer goods supply chains, and associated business risks and opportunities. He worked on projects of varying scales with private and public industries.	Referral
12	Chartered town planner and currently working with a local authority in the UK	Over a decade of experience in senior housing and planning roles at the local and regional level and influencing policy at the national level,, and currently leading several large-scale multimillion-pound projects.	Referral and reputation

13	Ecologist in the UK. Delivers projects for the benefit of biodiversity at local and regional scales	Two decades of experience in developing and delivering landscape sale conservation projects within a local authority in the UK. A significant degree of specialist ecological knowledge.	Literature and internet search
14	Land management coordinator in the UK	Project coordinator interested in the design and implementation of strategic projects with a particular focus on land remediation and restoration with decades of experience.	Internet search
15	Strategic team leader at an environmental Quango based in the UK	Panellist had decades of experience in designing and implementing projects and approaches at the regional and catchment scale. Current employment primarily focusses on the relationship between human populations and water.	Reputation
16	Project Manager at an environmental Quango based in the UK	Aids in delivering and coordinating strategic projects with a particular focus on flooding and the catchment scale.	Referral

Table 1 - List of panellists within the Delphi technique demonstrating their background/current employment, specific expertise, and how they were selected.

Table 1 summarises the background and experience of the sixteen experts who agreed to participate in the Delphi for the entire duration of the research project. Each of the Panellists was assigned a number dependent on the date they decided to participate in the research to keep each contribution anonymous. The selection of each Panellist was either the result of their reputation in the field, identification through academic literature, personal meetings at workshops or conferences, targeted internet searches, or through referral where an expert from the panel who was unable to take part would nominate a colleague. Finally, a member of the supervisor team would refer someone they felt had a high degree of experience and time/interest to dedicate to the Delphi. Building upon this Table 2 encapsulates a simple breakdown of the participants based broadly on their sphere of experience including academia, policy and practice. Finally, Figure 9 highlights a simple image created by the researcher to help conceptualise the experience and disciplinary lenses of the participants to ensure a diverse interdisciplinary panel.

Panellist	*Experience & Disciplinary lens at the time of Project*	*Academic Research*	*Policy Development*	*Practical Application*
Panellist 1	Urban focused project (UK)	✓	✓	
Panellist 2	Academic (USA)	✓		
Panellist 3	Academic (UK)	✓		
Panellist 4	Academic (AUS)	✓	✓	
Panellist 5	Academic (UK)	✓	✓	✓
Panellist 6	Self employed land use consultant (UK)	✓	✓	✓
Panellist 7	Expert, English county council (UK)		✓	✓
Panellist 8	Urban based Local Authority (UK)		✓	✓
Panellist 9	Expert, National Park (UK)		✓	✓
Panellist 10	Non departmental government body (UK)		✓	✓
Panellist 11	Sustainability consultant (UK)		✓	✓
Panellist 12	Expert, planning association (UK)		✓	✓
Panellist 13	Expert, local water trust (UK)			✓
Panellist 14	Ecologist, local ecology trust (UK)			✓
Panellist 15	Regional Expert, environmental Quango (UK)		✓	✓
Panellist 16	Expert, environmental Quango (UK)			✓

FOOTNOTE - (UK) United Kingdom; (USA) the United States of America; (AUS) Australia; Quango is defined as a semi-public administrative body outside the civil service but reporting to and receiving financial support from the government.

Table 2 - Figurative representation of the experience of the sixteen experts who make up the panel contributing to the Delphi technique.

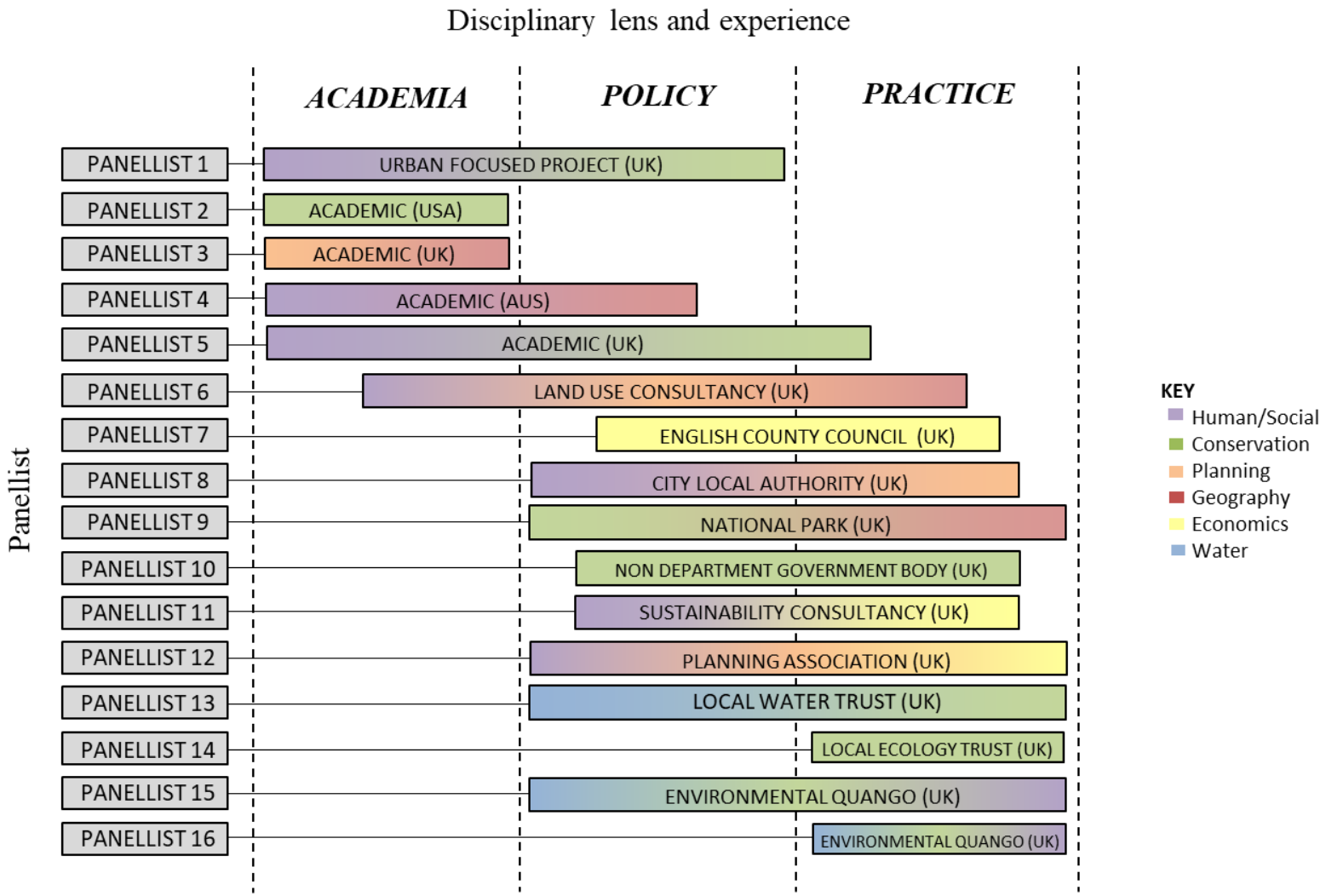

Figure 9 - A figurative representation of the sixteen-panel members' distribution by experience and broadly defined disciplinary lenes.

CHAPTER 7

ROUND 1 - EXPLORING AND UNDERSTANDING THE PERCEPTIONS OF LANDSCAPE SCALE

7.1 Introduction

This is the first of three chapters that present the results and analysis of the applied policy Delphi technique used in the research. The results section has been presented purposefully so that the development of the landscape scale ideas and themes can be quickly identified in chronological order. It was felt this would best demonstrate the co-production of knowledge and consensus around specific themes through the applied Delphi technique. This allows the reader to trace the development of thoughts and themes from their initial inception in the first round of the Delphi to their implications on developing the final 'Landscape scale Framework'. Conversely, the reader can also see where original ideas and themes were not carried through to the subsequent round because they were resolved or considered 'irrelevant' to the broader consensus of the group. Figure 10 highlights the role of round 1 within the broader methodological approach.

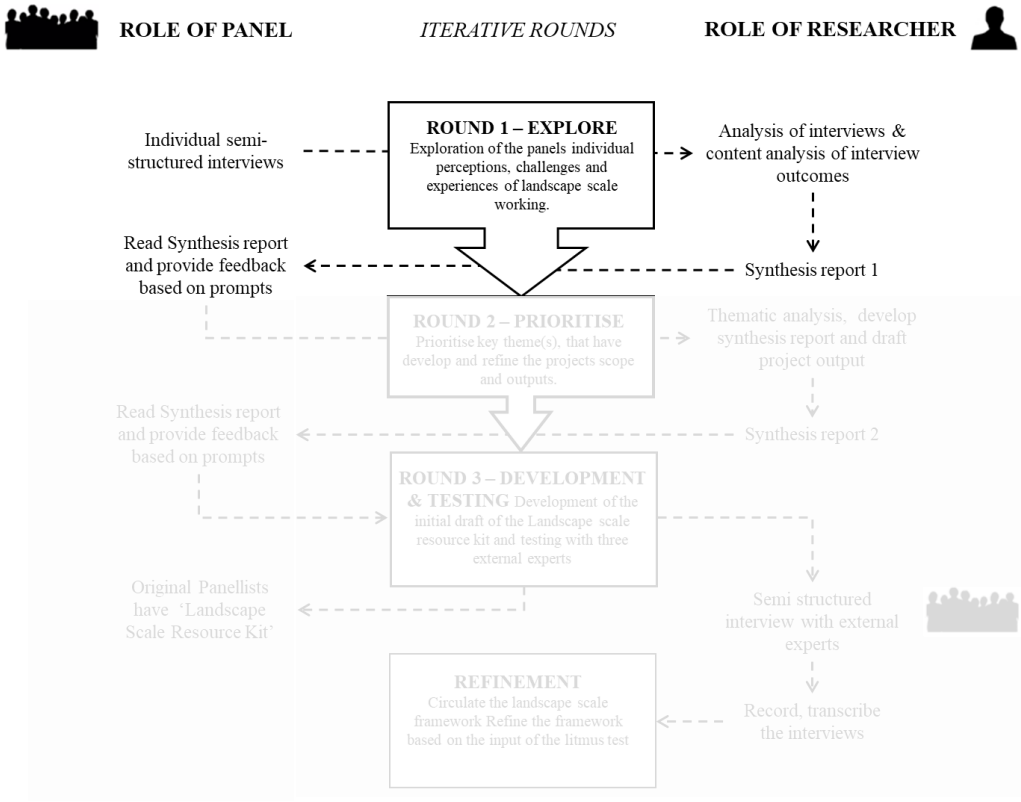

Figure 10 - The first round of the adapted applied Delphi approach and the Researcher and panel's role in the context of the broader methodological approach.

7.2 Interview Raw Data and Thematic Analysis

In total, there were over one thousand minutes of interview data. Each interview was unpacked individually using a thematic analysis tool reminiscent of a form of mind map and, for this purpose, labelled 'thematic map' (see; Figure 11, for an example; see Appendix 3.) for all thematic maps). Unpacking the information in this way allowed the Researcher to draw out the key points and different themes in each Panellist's interview then analyse them together to identify the patterns that were developing across all of the interviews. Using a similar approach employed by the examples from Wheeldon (2009) and Burgess-Allen (2010).

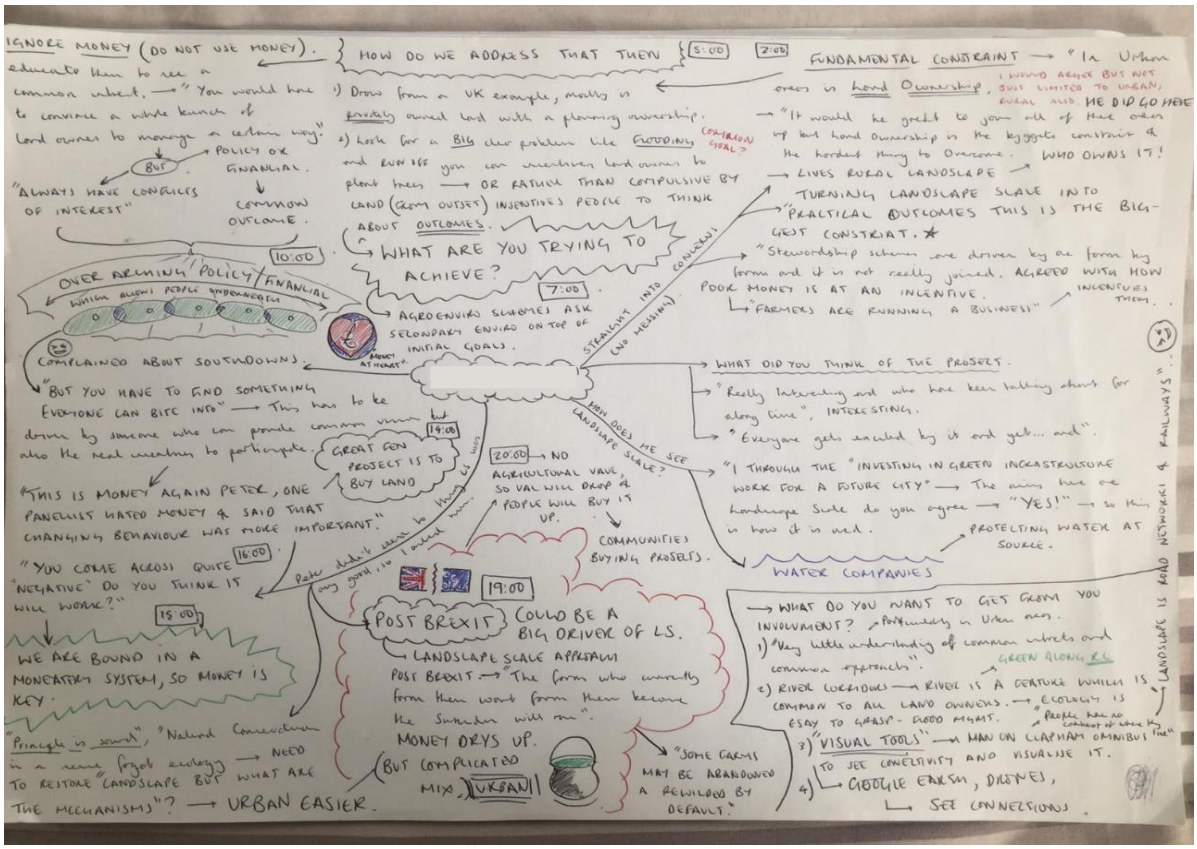

Figure 11- An example of the thematic map used to unpack each Panellist's interview and identify patterns and critical themes.

Some themes were well defined by the Panellists and appeared to be consistent across all of the interviews. These were carried forward into Round 2 without amendment or adaption. Others were much more complex. Even though a 'basic' theme could be identified in Round 1, it was clear some of the intricacies underlying it had to be unpacked in greater detail in the following rounds. When all of the critical points raised in the interview had been transferred onto their associated thematic map, the Researcher could start the process of eliciting a series of 'themes' across the interviews. Several models show the individual panel members' specific inputs and how they contributed to the broader development of the core themes. To better understand these themes, and progress the research further, it was essential to unpack them in greater detail through thematic analysis and explore them in the context of broader academic analysis and critique them against academic literature, where appropriate. These themes have been reinforced with direct paraphrased quotes from the interviews below.

7.3 Round 1 Results

It became clear from the outset that while all of the Panellists were familiar with the landscape scale concept, there was some confusion regarding its perceived value and the potential value of a 'toolkit' to address the disparities between disciplines. Round 1 of the Delphi technique illuminated that the panellists unpacked the term 'landscape scale' more readily when concerning working at the landscape scale than its underlying theory or strategic importance of defining and embedding landscape scale in the policy.

A consensus was evident amongst Panellists that the significant barriers to the implementation of landscape scale in practice were a lack of funding, problems securing ownership of the land, and the lack of dedicated and skilled landscape scale facilitators. Panellists also highlighted that active stakeholder engagement and negotiation with partners could successfully overcome barriers to landscape scale working. This reinforced and mirrored the trend in contemporary research examples, which places importance on effective stakeholder engagement (Robison and Carson, 2013; Dumont *et al*., 2019; Clark and Nyaupane, 2020). As a result, the interviews highlighted the importance of effective facilitation (in addition to project coordination), which requires a role-specific person with the right set of skills, knowledge and access to timely, high quality, and accurate information (Avery, 2016)

Similarly, to the broader academic literature findings, the Panellists identified the importance of optimizing and enhancing partnership working effectiveness. Excellent communication emerged as paramount to success within landscape scale approaches (see; Frost *et al*., 2006). This analysis is consistent with the message that came through all of the interviews with Panellists asking for "*better education",* "s*omething to inform*", "*a space for knowledge exchange*", "*common interest groups*", "*open explicitly discussion about value*", "*the need to empower responsibility without formal authority*" and "*enhancing stakeholder engagement*". The various points raised in Round 1 have been thematically grouped into eight broadly defined core themes, which are presented in Figure 12.

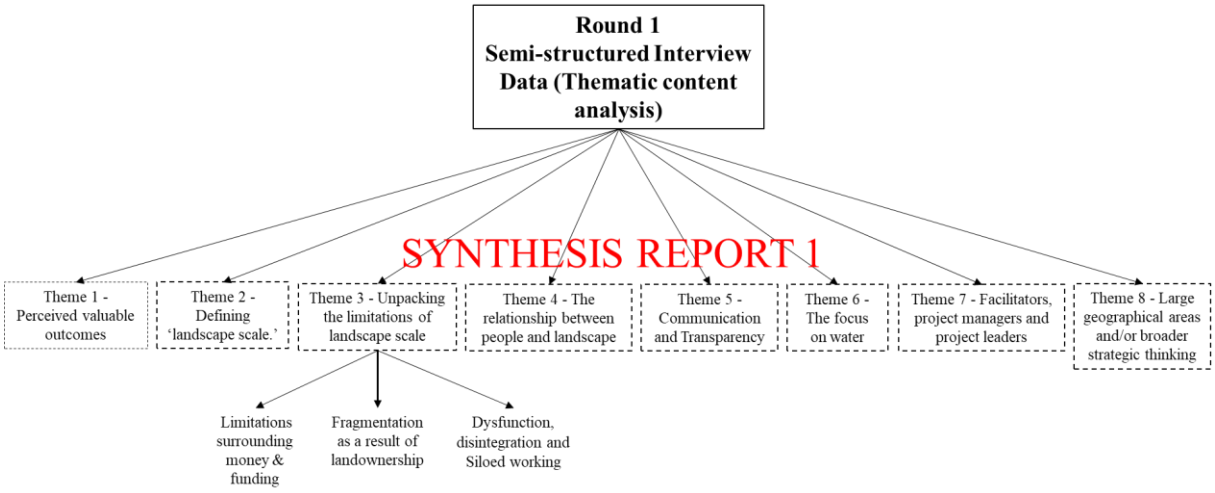

Figure 12 - Overview of the eight key themes and seven sub-themes elicited from the semi-structured interviews in Round 1.

7.3.1 Theme 1 - Perceived Valuable Outcomes

During the interviews, it became clear that different experts were looking for subtly different things, which they felt would be useful to help them with their specific landscape scale research/work/projects. This meant that the PhD research project might not produce a single specific outcome. Attempting to shoehorn the Panellists to an individual output seemed likely lead to failure. As a result, the Researcher adopted the terms 'Toolkit' and 'Resource Kit' into the interview dialogue when speaking about the Delphi approach's outcome. The use of these terms gave the Panellists a blank canvas. or at least a prompt. for discussing potential useful outputs and allowed them to paint their picture and 'fill in the gaps' based on their requirements rather than forcing them to adhere to one defined outcome. For example, the Researcher would use a specific phrase in an attempt to elicit discussions, such as;

> *"The goal of my research is to produce some form of resource kit or toolkit to help us deliver landscape scale projects"* (Researcher during the interview with Panellist 14)

> *"I know you said that a toolkit as an outcome could be a hazardous outcome. Can you explain why?"* (Researcher during the interview with Panellist 15)

In some interviews and with some prompting, the Panellists readily coalesced around the idea of a 'Resource Kit' or 'Toolkit' as valuable and achievable outcomes within the research project's scope. They preferred the open nature of the terms.

"Yeah…cool…yeah, that sounds great. I mean, I think it's a… great… project…I think the tool kit could be really useful and [has] a lot of applicability." [Panellist 2]

"[…]so for me, if we're looking for the long term, I would be interested in actually having some toolkit, whether you call it a tool kit or a…er…a, an action, you know, a plan of action for a lot of people to work in this and a more coherent way." [Panellist 10]

However, in this first round, the details around this resource's specific contents were limited. The Panellists were only able to provide basic descriptions of what they thought would be potentially useful components. Five Panellists proposed developing an explicit and unified definition and understanding of what working at the landscape scale means. While the Panellists were comfortable discussing the idea of landscape scale in their disciplinary context, when pressed for a definition, they struggled to concisely define the term without relating it to specific working examples or another 'related' concept. For example:

"… it is difficult though to get people to think in terms of landscape. I think people do understand landscape, so they understand the Lake District, they understand a river valley or whatever, but in terms of managing that landscape and operationalizing stuff that goes in it…erm…I think it often works at different levels." [Panellist 1]

This apparent trend coincides with the literature review findings that the landscape scale means different things to different people depending on the prism in which it is viewed (Ahern and Cole, 2012). However, there was one exception. Panellist 9 presented a clear and concise definition of landscape scale they had developed during their work which they were interested in opening for broader scrutiny. Hence, this specific definition provided a valuable starting point for discussion and a base for developing or amending a definition that all Panellists would be able to subscribe to (see Theme 2).

The interviews also highlighted the importance of a practice-relevant output. For example, Panellist 1 suggested the inclusion of something that would "*inform*" current practice and would have the most potential for them rather than encouraging experts to start from the beginning. This suggestion (along with the term 'Toolkit') was used in the following interviews to help elicit specific practical solutions from the panel members by encouraging them to think about tools that they could use in their current work to help overcome particular barriers or limitations.

7.3.2 Theme 2 - Defining 'Landscape Scale.'

In the first instance, Chapter 3 - Literature Review identified a lack of clarity around what is meant by the term 'landscape scale'; this could be a potential hindrance to its successful application and, as a result, became a distinct and essential theme for discussion during the interviews. This trend in the literature was indeed reflected in the Round 1 interviews. First, the panel members would often refer to landscape scale using their own disciplinary vernacular. For example, Panellist 15 openly and explicitly referred to landscape scale as '*catchment scale*' within his working and disciplinary lens and the importance of *regional planning scales'* within the context of landscape scale.

> *"Well, yes we had it with the regional spatial boundaries, we took political decisions regionally and regionally meant strategically, and then we had to go around and be creative, and now we say catchment scale planning"* [Panellist 15]

Alternatively, the Panellists would define the landscape scale by referring to a specific case study or program of work which they felt, in their opinion, best-represented landscape scale principles. Only one Panellist, who is actively involved in high-level policy development, offered an explicit definition of the term landscape scale based on their working experience. This definition is presented below;

> *"A project or program of work that delivers outcomes or activities across a large area and is based on a sound understanding of the character and function of that landscape. This also takes into account the natural and cultural elements of the landscape both old and new"* [Panellist 9]

As a result, rather than demanding an explicit definition from the panel, the Researcher allowed the Panellists the freedom to express their opinions organically. Outlining how they perceived landscape scale working in a way they felt most comfortable and, if possible, to reflect on the definition provided by Panellist 9. This approach required a more significant investment of time during the thematic analysis and a degree of interpretation from the Researcher who had to retrospectively draw out the themes and produce a consensus based on these individual perspectives. This approach offered the most significant potential to yield a viable outcome. Several common characteristics and themes started to emerge. These characteristics were consistent across all of the Panellist's discussion of landscape scale and became referred to by the Researcher as 'the key ingredients' of landscape scale. These could be used in conjunction

with the definition to provide a consistency of approach identified in the earlier themes but also the flexibility which was considered to be so important.

7.3.3 Theme 3 - Unpacking the Limitations of Landscape Scale

Naturally, the discussion around constraints and barriers of landscape scale working stimulated a lot of passionate discussions. Various issues, constraints, and barriers were brought forward in the talks, which can be analysed in greater detail by referring to the raw interview data. However, after thematic analysis, it was apparent the significant limitations of landscape scale working could be grouped into three distinct areas unpacked below.

7.3.3.1 – Limitations Surrounding Money & Funding

The topic of funding for landscape scale projects was considered valuable by all Panellists and viewed as a significant factor in their success or failure. It was also widely considered to be the main leverage available for securing any form of change. Statements included:

> *"… money is always at the heart of these issues. How much of the UK population lives outside a system which is not reliant on banks, income, and money…0.001% perhaps, so we are all tied into that system"* [Panellist 8].

> *"We have just secured funding to extend the project by another 'X' kilometres"* [Panellist 13]

> *"If you gave us a large pot of money…what we would probably use it to do is buy up large areas of the uplands and re-wild them…"* [Panellist 9]

Given the perceived reliance on funding, Panellists identified broadly two types of strategy in which they seemingly adapted when implementing landscape scale projects;

1) LAND PURCHASE STRATEGY – Where land availability determines the landscape scale project's strategy and where land control is the primary driver of success. For example,

> *"A large organization owns several fens, and they have a one-hundred-year vision to create a huge fen landscape on the outskirts of Cambridge of approximately a thousand hectares. They currently own a few hundred; their strategy is to buy the land when it becomes available."* [Panellist 8]

2) COLLABORATIVE WORKING STRATEGY – Where the strategy is focused on people and organizations working together to deliver shared goals and where the primary driver of

success is to forge productive relationships with existing landowners and land managers to achieve the desired goals.

> "*because we are relatively small and agile on the ground…with small overheads when compared with other big organizations, with only fifty staff, we have been very good at working with partners*" [Panellist 14]

> "…*and austerity is driving us to seek our partners.*" [Panellists 15]

Overall, the Panellists believed the choice of strategy depended on each organization's financial power, with 'smaller' organizations typically more reliant on landscape scale projects based on shared goals delivered through effective collaboration and trust. Based on the panel responses, the default position appears to be land purchase strategies with collaborative working strategies used as a fall back even though organizations reliant on collaborative working strategies seem to excel at it.

Another essential strand that emerged is the longevity of landscape scale projects. Some consensus was evident that persistence is a defining feature of landscape scale working. Those Panellists explored this issue within an economic context, identifying specific problems with what could be termed *legacy issues*. In three interviews, Panellists expressed concerns that "*future planning," "future-proofing," or "What happens after the funding ends?"* criteria were not explicit in some funding applications. This is a significant oversight, as the long-term success of landscape scale projects may be undermined by a failure to consider costs beyond the initial project duration. A further aspect, which every panel member involved in the delivery of landscape scale projects identified, was the importance of including local stakeholders from the outset and the importance of volunteers and community groups supporting the longer-term delivery of goals.

7.3.3.2 – Fragmentation as a Result of Land Ownership

Eight-panel members raised the theme of land ownership. One Panellist went so far as to say that they considered land ownership as "*the greatest limitation to the delivery of landscape scale* projects." This sentiment was quoted in consequent interviews and found strong support regardless of discipline, experience, or background. Four-panel members agree that it was the most significant single limitation to the achievement of success. The reasoning behind this assertion was that:

> "*whoever controls the land controls what happens to it"* [Panellist 8].

All Panellists knew of or had personal experience of cases to illustrate how landscape scale projects or strategies were hindered or stopped by differences in landowner opinion, practices, or requirements. One example described a goal to enhance hedgerows along with agricultural fields.

> *"We had encouraged one farmer to allow trees to grow through his hedgerows every 50 meters, which was a success, but when we returned months later, we found that they had all been cut down by the farmer in the adjacent field…"* [Panellist 13]

Such experiences help explain why there is an emphasis on buying land instead of developing schemes collaboratively because it appears to be the simplest solution.' However, in the quoted case, the reason for failure could have just as easily been attributed to a lack of engagement – had the neighbouring farmer been made aware of the project's aim and their support secured, they may not have cut the trees. A combination of both strategies also seems inevitable due to costs and available funding to defend boundary and land management rights.

Three Panellists identified the problem of land ownership as being more acute in rural settings where landowners may change from one field to the next, impacting biodiversity conservation. This was, however, considered more important in countries with smaller, fragmented, ecosystems. In urban environments, issues revolve more around land use and enhancing 'the zones of transition' between constructed or perceptual 'boundaries.'

Adding a further layer of complexity to land ownership, one Panellist identified the importance of securing the engagement of land 'users' or 'actors' within the scope of landscape scale projects. In the absence of suitable subcontract arrangements, tenants, contractors, sub-contractors and land managers, who may work the land but don't necessarily own it, will also need to be included within stakeholder engagement arrangements.

To summarise, while land ownership seems essential in the successful delivery of landscape scale projects, all affected or relevant stakeholders' involvement and the development of shared goals, relationships, and trust appear to be the key drivers of success.

7.3.3.3 – Dysfunction, Disintegration and Siloed Working

The majority of Panellists focused on *how* they implement landscape scale, i.e., the blockages and barriers. A small number of Panellists active in strategic policymaking described problems with *what* landscape scale working is trying to achieve. Here silo working and political

boundaries were raised as the two leading causes of conflicting aims and objectives, contributing directly to a landscape scale projects' failure. For example, concerns were voiced over individuals working solely within their discipline or working with partners from similar organizations to achieve narrowly framed goals.

'*A common interest group*' or a space for '*knowledge exchange*' was expressed as being needed to allow individuals to share experience across organizations and disciplines to promote the development of more *holistic solutions*.' Around half the Panellists developed this point further, citing the current political framework as a driver of differential policy development and as an effective barrier to the alignment of policy objectives around the landscape scale.

> *"…land ownership is not a barrier for me… it is politics that is the major barrier…because political boundaries in no way respect the landscape…and have a history of not being in line with the landscape at all"* [Panellist 6]

The political context elicited different elements associated with boundaries, geographies, and designated spaces, teasing out the individual Panellists' issues. Barriers established for administrative purposes, i.e., civil parishes, districts, parliamentary constituencies, exist at all governance levels from large government department bodies to local planning authorities. In the context of landscape scale, these political boundaries can have both positive and negative impacts. According to one Panellist, these human imposed limitations often do not coincide with, or respect, the landscape. Differences in policy, practices, and 'goals' could hinder broader strategic thinking effectiveness and require innovative individuals to overcome such barriers. Some Panellists from practice lamented the abolition of regional planning authorities in which a whole layer of governance was seemingly removed overnight.

> *"I think it is evident in the drop of the 'R' word [meaning Regional], which came out of our job titles overnight. It came out of the way that we wrote, but it didn't come out of the way we thought… we just had to dress it up differently"* [Panellist 15]

Geographies reflect governance and government. Change in the political geography can give rise to a change in policy direction, causing landscape scale projects to lose traction or be cancelled, sometimes simply because they are associated with the previous administration. For example, one Panellist explained that the Trump administration ignores the term 'landscape' because it was heavily used during the last administration's rhetoric. Thus some concepts and ideas will gather short or long term traction, and others won't.

Building upon the issue raised around political administration, Panellist 6 lamented about the fragmentation of designated spaces that reflect a measure of value, e.g., in the United Kingdom, Sites of Special Scientific Interest (SSSI) and Areas of Outstanding Natural Beauty (AONBs). One Panellist described how perplexing the array of different designations could be and gave an example of the sort of difficulties that could arise as a result.

> *"Ten adjacent areas have an AONB board, with representatives from each local authority area, some of them are unitary, and some of them are county or district [authorities]. Each of these units has to put together a core strategy, so what chance is there that all of their core strategies are delivering benefits to conserve the landscape?"* [Panellist 6]

This perhaps puts into question the extent to which landscape scale working - which is here loosely defined as a 'fit for purpose solution' to address contemporary environmental challenges – can effectively be implemented, when it has to be superimposed onto a political framework that changes over time and may not always be supportive. International Panellists' contribution was particularly valued concerning this central theme as a landscape scale and how it fits into different political systems could be explored. For example, Panellists based in Australia and the United States of America highlighted how landscape scale provides a network of cooperative federalism within 'vast' homogenous landscapes.

7.3.4 Theme 4 - The Relationship between People and Landscape

It was abundantly clear that the relationship between people and the landscape was considered vital in all the interviews examining the Literature Review outcomes. However, people's role in landscape scale took many forms and varied depending on the Panellist's experience, perception, and current project work. This included cultural heritage, stakeholder engagement, volunteers, and land users.

> *"…there's definitely in, in all of it, there's a core element of working with local communities and volunteers."* [Panellist 13]
>
> *"there is still something in terms of the landscape scale approach trying to find simple tools to help people visualize and understand the connectivity you need to make in any landscape. Whether it is an urban landscape…a rural landscape and…and…most people still don't get it"*. [Panellists 8]

"-erm, you know, and then it's what- we've done all this good work, they've got community groups to keep maintaining and-" [Panellists 14]

The way people use and experience the landscape seems deeply embedded within the landscape scale concept and was perceived by all panel members as an essential and integral component regardless of their professional perspective and experience. Local providers and a significant source of knowledge, a crucial source of labour and resources, and finally, a distinct barrier when attempting to deliver landscape scale work.

Attention under this theme focused on the relationships and interactions of people with the land and how this can become a powerful force for change. One Panellist raised the importance of cultural heritage in landscape scale decision making, stressing the emotional, sometimes irrational, connections a person or communities may feel towards specific features in the landscape. Another Panellist articulated this same point, but in terms of the emotional connection people sometimes have with particular species, often resulting in incredibly visceral reactions and public outcry when these species are put at risk. Many Panellists viewed emotional investment as a positive force, stressing local communities and volunteers' importance in securing landscape scale objectives. Fostering this moving force and harnessing it to influence policymaking, local decision making, and delivery was widely recognized.

"It is impossible for experts to be in all places at once, and volunteers are a valuable asset during data collection and monitoring" [Panellist 13]

Most Panellists highlighted the importance of the emotional connection that people have with their immediate environment. Still, three Panellists also identified that fundamentally, there is a disconnect between people and the underlying natural cycles and ecosystem services that treasured areas provide in a broader geographical context. As a result, when steps are taken to improve biodiversity, enhance ecosystem services, or mitigate environmental issues, these can sometimes be viewed negatively and face deep-seated resistance.

"Very often, the people who initially get involved or in contact [do so] to complain; so from the outset, their attitude is negative, which can be very hard to remedy." [Panellist 13]

There may be an underlying failure to effectively educate communities and foster a better understanding of the broader landscape scale objectives in a timely way; this suggests an opportunity to strike while the 'iron is hot', influencing public opinion and harnessing local

communities as a positive force for change. A failure to do so may create disconnections, which then become exacerbated as people feel isolated from the decision-making process and powerless to prevent or influence change in the landscape. It was clear from the Round 1 interviews that the emotional investment people place in the local landscape is a compelling force. Together with the points raised in other sections around the importance of securing active stakeholder engagement, there was support amongst Panellists for the need and benefit of stakeholder education, the development of common interest, and '*a platform for knowledge exchange*.'

There was a clear consensus regarding the importance of active stakeholder engagement when employing landscape scale approaches. landscape scale approaches to bring together experts from different organisations, and varied disciplines were considered a high strength, creating an environment for strategic thinking, and underpinning more holistic solutions. Panellist 3 stated that landscape scale approaches have the potential to encourage "*more explicit discussions*" about values (underlying fundamental views and ethical principles) and value (measures of what is valued) because of the inclusion of a wide range of experts and the fact they bring different perspectives to the supporting knowledge base and eventual decision-making process. When probed as to what was meant by the term 'value,' the Panellist described the balance of inputs (e.g., time, resources, and money) against outputs (e.g., improved ecosystem services and other positive outcomes). Using their examples, several Panellists saw a measure of 'values' as necessary when justifying decisions and projects in funding applications.

> *"You can combat some of those negative bits in landscape scale by using it to facilitate an explicit discussion about [the] values some people might have. You decide after having that discussion about the scientific reality and the reality of resources [available]"* [Panellist 4]

When discussing the term 'value,' three Panellists explicitly linked landscape scale approaches to the mainstreaming of natural capital and ecosystem services. In this context, Panellists appeared to be expressing a nuanced view of what they believed to be one of the critical strengths of landscape scale approaches, namely by bringing together different stakeholders. A wide range of 'values' can be assigned to the 'same' resource mitigating the risk of conflicting outcomes or the setting of project goals that may be serving a single purpose.

"With any planning application, there is an economic value and a social value, but there are also some costs in the loss of natural capital. So if you could put values on them, you would reach more rational decisions which are really, I guess, where the principle came from" [Panellist 6]

7.3.5 Theme 5 - Communication and Transparency

Communication and transparency were another recurring theme and featured strongly during the interviews, mainly when Panellists referred to specific case studies regarding the application of landscape projects. For example;

"I mean, they're not all bad, and a lot of them do some very good work, but we can help and communicate that, because I think they're disconnected, I think a lot of people don't get what's happening out there" [Panellist 9]

"-handed down, but there's little communication there even though the Cotswolds is a-is a landscape character area-" [Panellist 14]

"We work with our supplies generally, and they would be able to say that we source from this location, and we are working with people and seen this much improvement in habitat and being a bit more…a better…more communication potential…" [Panellist 11]

This applied not only across stakeholders operating at different spatial scales and different disciplinary lenses but also across stakeholders operating within the same spatial scale. A strong belief that effective, two-way communication must be maintained both during and after landscape scale projects, also featured and that transparency was particularly crucial for building trust between different stakeholders, the facilitator/project manager, leading to more effective and holistic outcomes.

7.3.6 Theme 6 - The Focus on Water

The concept of water seemed to be inseparable from the term 'landscape scale', coming up in every interview. Regardless of discipline or working experience, panel members referred to rivers, canals, water catchment areas, drinking water, and oceans. The Panellists concurred that the reason was because water is 'inherently linked to landscape character.' Typically, humans use definite changes in the landscape's character to draw anthropogenic boundaries and develop projects, approaches, and policies following those boundaries. Water forms a distinct and

recognizable physical limitation, and as a result, it is unsurprising we use them to define the scale of projects. Furthermore, good quality water is inherently linked to human behaviour, and it is fundamental to our existence, putting it at the forefront of planning.

At this early stage, it was difficult to determine the importance of these critical themes without exploring them in greater detail with the Panellists. Still, the topic of water may provide a common link across different disciplines that may, in turn, help in the mainstreaming of landscape scale approaches.

7.3.7 Theme 7 - Facilitators, Project Managers and Project Leaders

A range of terms was used to discuss the need and role of formal authority' for landscape scale projects. For instance, Panellist 3 stated:

> *"Without formal authority and the power behind that, that responsibility makes it difficult to get things done that, and they found that in the natural resource management organization in Australia had a responsibility with authority and so they kept failing actually to achieve their objective."* [Panellist 3]

Many of the other panel members built on this and emphasized that a landscape scale approach requires a 'facilitator' to help communicate ideas across many stakeholders and drive projects forward to benefit everyone involved. Panellist 3 encapsulated the importance of effective facilitation, stating that "*collaborative working comes to a crunch when you have responsibility without formal authority."* Other Panellists mentioned the importance of this role in a similar context. The' facilitator's personal and professional qualities were raised by many panel members using terms such as 'credible,' 'knowledgeable,' 'unbiased,' 'charismatic', and 'relatable.' One Panellist suggested that academics had the potential to fulfil this role. At the same time, another cited individual from local third sector groups. In all cases, the importance of finding a suitable facilitator was considered paramount for achieving successful outcomes. Still, despite the prevailing consensus around essential traits, there was no consensus about who this person should be.

7.3.8 Theme 8 - Large Geographical Areas and/or Broader Strategic Thinking

It was immediately apparent during the interviews that landscape scale working, as a term, was used to refer to large strategic areas, such as the "*Catchment Scale*" [Panellist 15], "*Regional Scales*" [Panellist 9] or to smaller scale projects to deliver outcomes as part of a more comprehensive strategic program or thinking.

There were mixed feelings about the usefulness of a clear, concise definition of 'landscape scale.' Those in strategic positions or academic backgrounds valued the flexibility that the lack of a precise definition gave them.

> *"NGOs, academics, and people who take on lots of different kinds of projects like it nebulous because it can mean everything and also nothing."* [Panellist 5]

Others, mostly active in project implementation and coordination, felt that the lack of clarity around the definition of landscape scale undermined practical solutions on the ground. For example, one Panellist observed that the term 'landscape scale' was something of a 'buzzword,' having political traction when applying for funding applications but not necessarily translating into tangible, practical outcomes that can be objectively measured. Overall, therefore, it appears that the most significant benefit would be felt at the practice or delivery level, where clarity is essential to measure and evaluate outcomes of landscape scale projects and to secure future funding. Care would have to be taken not to fall into the following trap, where.

> *"… large businesses would develop generalized policies which, when they filtered down, were just not contextualised and specific enough, so people didn't use them."* [Panellist 11]

Respondents felt the facilitator's role in bridging the gaps between policy (strategy) and efficient delivery (tactics/steps for implementation) might be crucial here. Using 'soft' skills such as communication, collaboration, and negotiation as well as possessing a thorough understanding of the subject matter are needed to translate landscape scale project objectives into meaningful delivery processes on a project-by-project basis.

CHAPTER 8

ROUND 2 – PRIORITISING THE RESEARCH OUTCOMES AND UNPACKING THE KEY THEMES

8.1 Introduction

Chapter 8 outlines Round 2 of the Delphi technique entitled 'Prioritise.' The purpose of this iterative round was to prioritise the eight original key themes that developed during the first round into more a refined format and to explore in greater detail the specific components that will contribute to the Landscape scale Toolkit identified in Round 1 (see section 7.3.1) as a potentially meaningful output arising from the PhD research. To stimulate the discussions in this round, the Panellists were provided with an eight-page synthesis report entitled 'Synthesis Report 1' (see Appendix 4) The synthesis report consolidated the inputs and discussion points developed in Round 1 into an accessible document for the Panellists to provide comments on the content and prompts. The results outlined in the following chapter are presented based on the Panellist feedback from Round 1 (see Chapter 7). The results from both rounds are discussed to provide a sound underpinning for developing the landscape scale toolkit in later rounds. The role of Round 2 within the Delphi technique has been encapsulated within Figure 13.

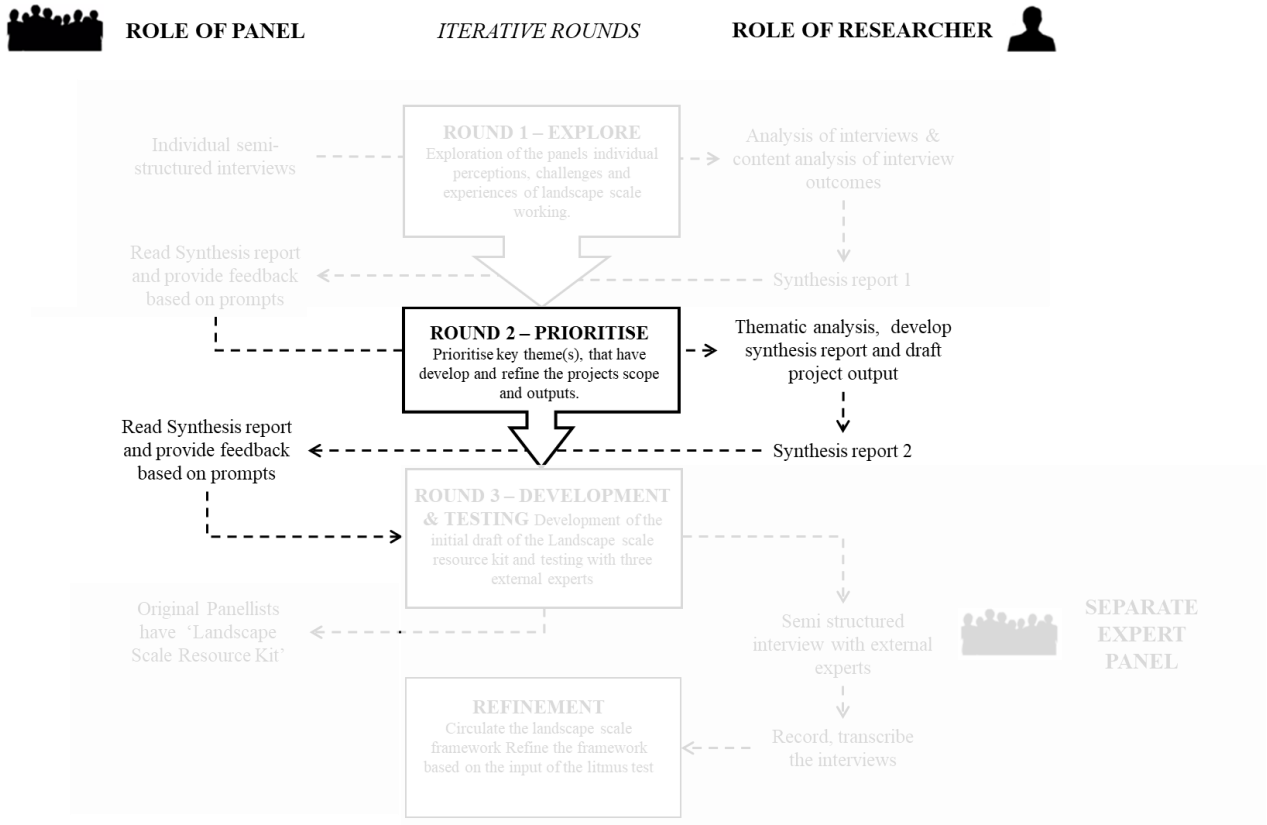

Figure 13 - The second round of the adapted applied Delphi approach and the role of both the Researcher and panel in the context of the broader methodological approach.

8.2 Round 2 Results

The following section outlines the nine critical themes from Round 1 because of the Panellist's feedback on the prompts. Following the input from the original synthesis report prompts, the Panellists developed a consensus around specific aspects of the project. The research used the experience gained from Delphi's first round and in the answers from the prompts to define four refined themes. The themes and their relation to the themes developed in Delphi's first round can be found in Figure 14.

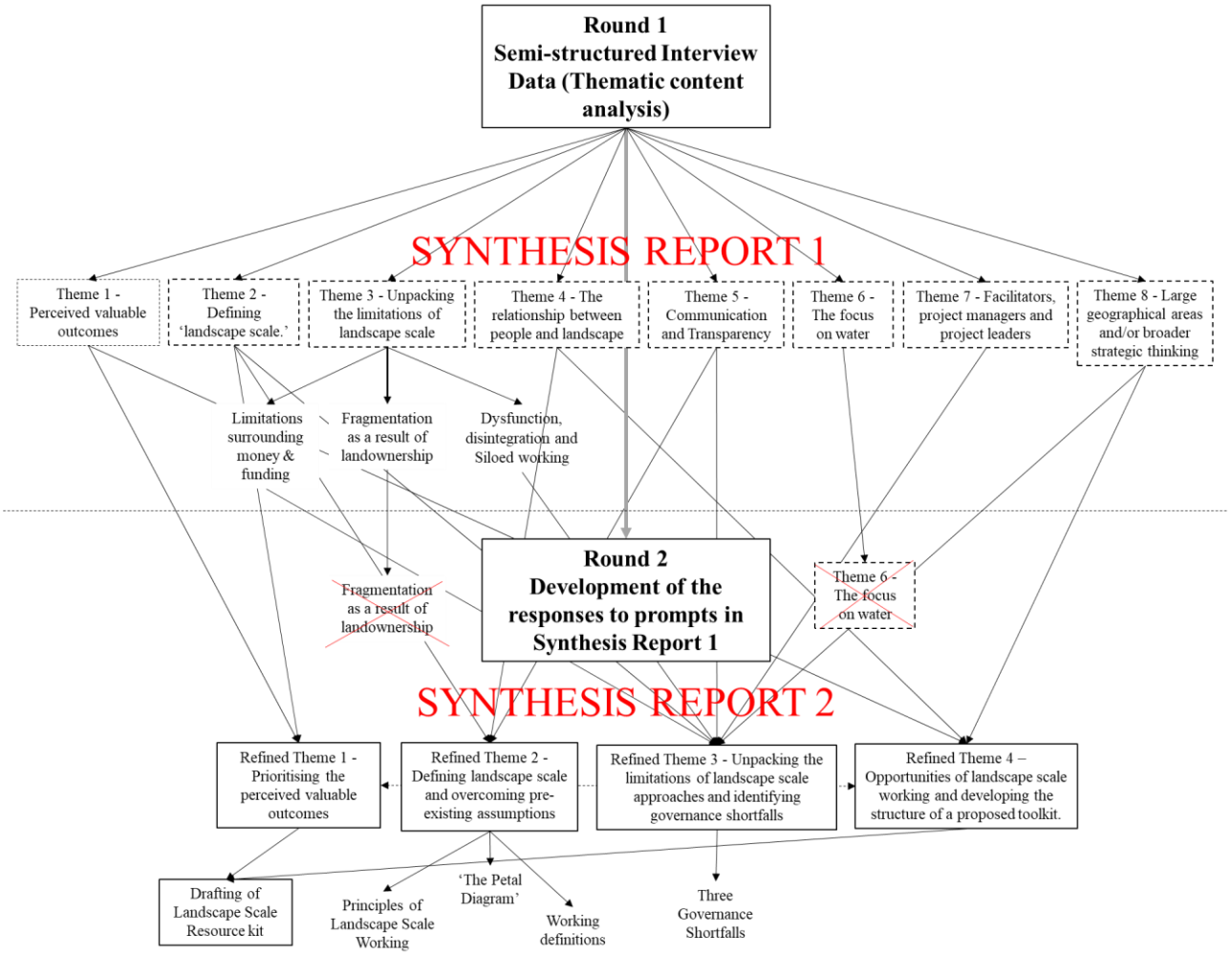

Figure 14 - The development of the key themes and refinement of the project output following Panellist feedback in Round 2 of the Applied Policy Delphi.

8.2.1 Refined Theme 1 - Prioritising the Perceived Valuable Outcomes

The Panellists proposed several valuable outcomes during the Delphi first round, including a landscape scale definition accompanied by the concept's crucial ingredients. These included some landscape scale principles and guidance in applying the approach in fundamental steps, operational guidance, and case studies. To prioritize the project's outcome, the Panellists were required to rank the potential outcomes as identified in Round 1 using a scale of 1 to 4. 1 being the most useful and 4 being the least desirable outcome for their perspective in the context of their current work. The result of the feedback is outlined in Table 3. To make it easier to identify underlying trends, the results of the scoring exercise have been colour coded.

	Academia					Policy						Practice				
Panellist Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Collection of Case Studies	4	2	3	4	/	1	2	3	4	3	/	1	4	1	1	Round 1 Input Only
Fundamental Steps and Stages	3	1	1	2	/	/	3	4	3	2	/	4	3	4	3	
Explicit Definitions	2	4	4	3	/	/	4	1	2	4	/	2	1	3	4	
Landscape Scale Priniples	1	3	2	1	/	/	1	2	1	1	/	3	2	2	2	

Table 3 - The distribution of different ranks awarded to the four potential outcomes of the research by 16 Panellists during the Round 2 Feedback.

This figure was very popular amongst the panel, and in the feedback, Panellist 3 said.

> *"Great diagram and a very interesting set of rankings from your panel members. It's fascinating to see how the Panellists from different backgrounds place different emphasis on the four categories"* [Panellist 3]

From the 15 Panellists who responded, two, Panellists 5 and 11, chose to abstain from ranking the proposed research project outcomes. At this point in the Delphi technique, Panellist 5 reiterated their comments from the interviews in round 1, stating they were not taking part in the research to receive any outcomes but instead were purely interested in understanding how other experts across different disciplines interpreted landscape scale working and learning from the development of the project.

> *"I am only taking part to see how others see the landscape scale, and I don't think I will get anything from the project..."* [Panellist 5]

In contrast, Panellist 11 overlooked the proposed research project outcomes and appeared to prefer commenting on the more open-ended prompts later in the report. After consolidation and analyses of the feedback, it became immediately apparent that Panellists desired different project outcomes based on their professional roles and experience. For example, the Panellists working within academia, prioritised outcomes that assisted their research work. Examples of this were the fundamental stages of a landscape scale approach alongside a set of landscape scale principles. Panellists from academia attributed less value to developing an explicit definition of landscape scale, perceiving an ability to apply a description flexibly across different settings as advantageous to their research work. Panellist 10 also stated that even if a

'concrete definition' were useful, it would be challenging to produce. This is because landscape scale draws from various experiences, all perceiving and using it in subtly different ways. In short emphasizing that the landscape scale varies in accordance with a specific project or disciplinary need.

> *"To look at it as a multi-jurisdiction thing. It would be really valuable to have a more concrete definition. Still, because you are looking at a different kind of type of landscape scale projects…that will be challenging for you, it doesn't mean you can't do it, but it will be challenging to find a one size fits all definition."* [Panellist 10]

In comparison, Panellists with experience in policy development and one from academia valued the formation of landscape scale principles more highly than an explicit definition (which was pointed out by Panellist 10 during the Round 1 semi-structured interviews). This would imply that a set of overarching principles could be applied across different policy and governance frameworks, ensuring flexibility in the approach while maintaining the integrity and consistency of approach across the different disciplinary perspectives and contexts. All but one of the experts from practice prioritised a collection of case studies as useful. Doing so emphasized the value of this outcome in providing examples and resources to help in their delivery. This appeared to be an extension of the idea of a 'community of practice' identified in Round 1. The development of case studies, including best practice examples, had several useful functions to a Panellist from practice. In the first instance, they felt that case studies could help formulate effective methods for application referring to tangible evidence of.

> *"…what's worked and what hasn't worked so well."* [Panellist 14]

Essentially, this would take the form of a consolidated database to help guide the development of practical applications, share knowledge, and reduce the potential for wasted time and resources. However, Panellist 9 stated that examples already existed, and this would not necessarily add value.

> *"I think there are some good case studies available, so this might not be the most fruitful outcome"* [Panellist 9]

The point is important as the basis of a solution might already exist. Instead, it is not necessarily in an accessible format – once again, it supported the need to develop a community of practice and a wider accessible landscape scale resource. Panellist 14 furthermore expressed the value

of such case studies in the funding application process for landscape scale resources. The ability to provide clear and explicit evidence of a landscape scale approach that has already worked is an instrumental tool in securing future/long-term funding for (ongoing) projects.

> *"Uh-huh, yeah, yeah, it would, 'cause this seems to be the way forward, is that there is money to draw down and spend on landscape projects, so yeah, it would be useful too."* [Panellist 14]

Therefore, practical case studies would provide a valuable tool to enhance the application of landscape scale and improve securing funding. Analysis of the ranking in overall terms indicates that a consensus developed around a set of landscape scale principles was considered the most useful research project outcome. This was ranked either the most important or the other most crucial result by all experts but one.

It is clear from the feedback that despite differences in Panellists' experiences and perceptions of landscape scale, a set of principles would clarify what landscape scale means. It also provides a flexible framework to facilitate its practical application across different disciplines and policy, practice, and research contexts. The key to success is that such principles need to offer additionality to the existing principles that are already being available and used in landscape or land-use management contexts (e.g., ecosystem approach, UN SD goals). All of the Panellists provided feedback on what they considered to be the 'principles' of landscape scale in the form of specific words or phrases drawn from their detailed feedback.

8.2.2 Refined Theme 2 - Defining Landscape Scale and Overcoming Pre-existing Assumptions

Overall, there was a consensus amongst all the panel that the initially proposed landscape scale definition 'in principle' provided by Panellist 9 during round 1 was indeed a "*good starting point*" and offered the "*right ingredients*" for an explicit definition. However, all of the Panellists offered amendments and additional suggestions; in essence, the initial 'draft' definition stimulated a great deal of feedback and comments, despite the relatively low ranking of an 'explicit definition' as a beneficial outcome of the project at the end of Round 1 several panel members indicated that while an explicit definition was not necessarily a priority, it was considered an important issue worthy of further consideration.

> *"The quoted definition is ok as far as it goes but feels static and limited"* [Panellist 1]

"It captures a good proportion of the right ingredients, but not all." [Panellist 10]

Interestingly, even Panellist 9, who provided the initial definition, reflected on it within the research project context, critiqued their input, and provided additional comments in anticipation of input from other experts.

"I think it contains all the relevant considerations as to whether something could be considered 'landscape scale.' The one thing that it perhaps doesn't reflect adequately is that in reality, 'landscape scale' can be quite variable in spatial terms – covering everything from a landscape unit, character area right up to sub-regional. I have generally included a reference to 'spatial area' in there to try and cover this." [Panellist 9]

It was at this point that 'Theme 8 'large geographical areas *and*/*or* wider strategic thinking,' which arose during the initial semi-structured interviews, was considered to be closely intertwined with the development of a definition. By drawing on the Panellist's perceptions of landscape scale, it became clear that this could be resolved within the scope of an explicit definition. First of all, some panel members raised an issue concerning the usage of a 'large scale' in the initial definition provided, emphasizing that a specific scale alone did not define whether a project was a 'landscape scale' project or not. Instead, landscape scale projects are defined by their ability to operate across multiple scales simultaneously, including a large scale, but not limited by it.

In contrast to the panel's consensus, Panellist 3 felt that based on their own experience, defining the landscape scale in this way was quite outdated and this definition may be of little use to them in their practical experience.

"I'm not convinced that Panellist 9 (pg.3) gives an especially useful definition, partly because [the term] 'large area' is meaningless" [Panellist 3]

While the critique of the use of a large scale is indeed a vital observation to help shape a relevant definition, from the research perspective, the perception of landscape scale is purely a 'large scaled' approach (as defined within Panellists 9 definition) may not be an issue. It could highlight a much more significant problem regarding the assimilation of academic knowledge into the practical sphere and not an attempt to limit the scope of landscape scale to large scale working. For example, it may be common knowledge in the academic literature that landscape

scale refers to multiscale projects, but this may not be accepted or even useful to those delivering these projects on the ground, i.e., the context in which Panellist 9 is using them. Secondly, Panellist 5 highlighted the fact that the proposed definition of landscape scale neglected critical elements with regards to the formation of landscapes stating, that while a sound understanding of the character and function of landscape is essential, you cannot neglect how that area is managed and perceived by people; the aspect of people being a fundamental component in the formation of landscapes. This comment draws directly on the key Theme 4 from Round 1 (see section 7.3.4), which focused on the relationship between people and landscape.

Alternatively, Panellist 3 chose to provide an alternate definition to the one initially outlined by Panellist 9, feeling it better captured the landscape scale's key elements and was still consistent with Panellist 9's definition. Panellist 3 further elaborated on this by including the need for cultural heritage within the landscape scale aspect.

> *"The definition seems fine to me, so long as cultural elements are included in reference to the built environment"* [Panellist 3].

Upon further analysis, given the agreement amongst the panel members and the fact it addressed many of the other Panellists; major concerns, rather than create a new description based on the feedback, the Researcher felt it would be inappropriate to present the new definition outlined by Panellist 9 to the panel for review in Round 2 as it was a worthy discussion point to avoid the panel from becoming caught up on the details of definition in which in principle they seemed to agree with the significant elements. This definition is as follows:

> *'An area or spatial scale defined by the way that area is used and managed, perceived in the context of a subjective set of variables applied across multiple scales.'*

Two panel members emphasized the need for caution, pointing out that landscape scale concepts will vary in meaning depending on the problem being tackled and the specific context in which the concept is applied. In attempting to develop a robust definition, therefore, it will be essential to keep in mind the potential range of professional disciplines that might refer to it, as well as the nature of the environment in which the definition may potentially be deployed both on a conceptual basis and in a practical sense.

"Of course, a definition is important, but I can see the definition varying according to the problem being tackled, and especially its scale. In other words, I think 'landscape scale' can vary in size from a small local catchment to a major landform, both of which could be planned holistically." [Panellist 1]

With these factors in mind, the challenge is to develop a working definition explicit enough to clarify landscape=scale working's distinct characteristics while retaining sufficient flexibility to maximise its application across various disciplines and contexts. The panel's insightful feedback concerning the definition of landscape scale at the start of Round 2 clarified that low priority is given to reaching an agreed definition. The explicit definition of landscape scale as an output of the project (see Table 3, section 8.2.1.) was not because it wasn't a useful outcome but because of the need for flexibility in applying landscape scale.

In summary, a definition was considered valuable, but not if it was overly prescriptive and narrowly framed. Therefore, landscape scale needs to be defined in a way that reflects the wide-ranging relevant aspects and ranges of 'scales' in line with the range of landscape scale contexts and projects that Panellists (and others) encountered. Defining that consistency of general approach and characteristics was crucial (and a core aim of the research project). Simultaneously, landscape scale was seen as an 'organic' concept needing some flexibility in interpretation and application.

8.2.2.1 Principles of Landscape Scale Working

After the panel members' feedback on prompts provided within the Synthesis Report 1 the Researcher returned to the thematic mind maps to analyse Round 1. The aim was explicitly to draw out common keywords that consistently appeared across different interviews. These included words like "collaboration" and "stakeholder engagement", for example, and was arranged and grouped into a circular figure for discussion and analysis with the supervisory team (see Figure 15), which became colloquially referred to as the 'Petal Diagram'.

On their own, these words did not yield any particularly unique value. They appeared to be common words of good practice from academic literature compared with previous attempts to conceptualise landscape scale principles as in Ahern and Cole (2012) Sayer *et al*. (2013) which is explored later in Table 4 (section 10.3.2). After several rounds of discussion and development with the supervisory team, this circular diagram was used to establish eleven broad principles forming the development within Round 3. It is important to note that this petal diagram was not provided to the panel for comment at this stage in the research process. It was

a means of thematic analysis used to draw out flexible principles that could be applied in practice rather than an element of the toolkit. However, this changed later in the research project when it was decided that the petal diagram provided a useful practical tool when accompanied with the more flexible definition.

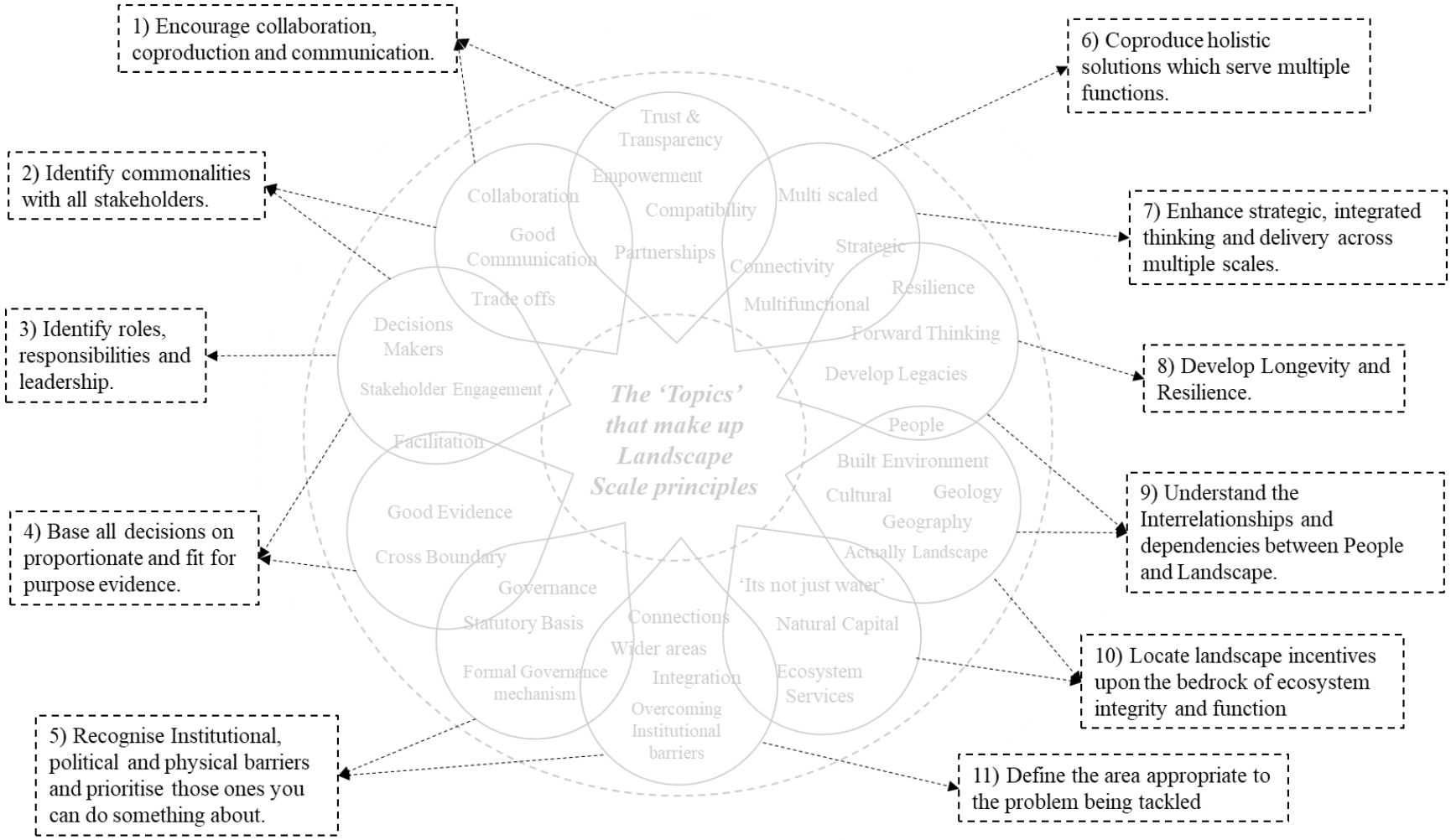

Figure 15 - The initial flexible landscape scale principles develop as a result of the panellist's input from the Round 1 semi-structured interviews and the feedback from the round 1 synthesis report.

Consolidating what the Panellists considered to be the critical topics of landscape scale working in a petal diagram allowed the Researcher to elicit several preliminary landscape scale principles for the Panellists to review Synthesis Report 2, which contained a series of prompts to stimulate discussions. These were used to begin the process of discussion, feedback, and development in Round 2 of the Delphi. The initial principles elicited from the input of Round 1 & 2 have been highlighted below:

1) Encourage collaboration, co-production, and communication.

2) Identify commonalities with all stakeholders.

3) Identify roles, responsibilities, and leadership.

4) Base all decisions on proportionate and fit for purpose evidence.

5) Recognise Institutional, political and physical barriers and prioritise those you can do something about.

6) Co-produce holistic solutions that serve multiple functions.

7) Enhance strategic, integrated thinking and delivery across multiple scales.

8) Develop Longevity and resilience.

9) Understand the Interrelationships and dependencies between people and the Landscape.

10) Locate landscape incentives upon the bedrock of ecosystem integrity and function.

11) Define the area appropriate to the problem being tackled.

8.2.2.2 Establishing some Working definitions.

Finally, building upon the discussion around the Definitions developed in Round 1, three Panellists emphasized the need to distinguish between ‘landscape scale’ and ‘landscape scale approaches’ suggesting that in their view, landscape scale defined a specific area or (set of) spatial scale(s) with similar issues and characteristics, whereas a ‘landscape scale approach’ referred to a policy, project or programme of work developed within the context of the defined ‘landscape scale.’ Panellist 5 encapsulated this nicely in their feedback to the prompts in the Round 1 synthesis report stating.

"landscape character has been defined for landscape character areas and differs from landscape function and scale. One talks about the character of a landscape aesthetically and culturally. The next about how that landscape functions (e.g., ecosystem functions that give rise to ecosystem services), and the next is about spatial scale. Landscape could refer to any of the above. With these issues in mind, the following provides a slightly revised definition based on a suggested iteration by Panellist 8, including some minor edits to include other proposed nuances from the round 2 feedback and to clearly distinguish between 'landscape scale' and 'landscape scale approach. "[Panellist 5]

Panellist 8 stated.

"'Landscape character,' 'landscape scale' and 'landscape' mean different things and are distinct from a landscape scale approach. My thoughts on their meanings below:

Landscape = the descriptive summary of the cultural, natural and aesthetic attributes of a defined geography

Landscape character = the technical account of the cultural, natural and aesthetic attributes of a defined geography

landscape scale = the area over which a project or programme has an impact

landscape scale approach = a set of principles and objectives for defined geography that will result in net environmental gain."

8.2.3 Refined Theme 3 - Unpacking the Limitations of Landscape Scale Approaches and Identifying Governance Shortfalls.

Rounds 1 and 2 elicited many limitations and operational challenges of working at the landscape scale. as a result of the feedback in Round 2 the Researcher grouped these limitations into three distinct sub-themes, which all fell under the scope of limiting landscape scale with regard to its operationalization of landscape scale working and delivery of landscape scale project/policy outcomes. These three sub-themes were:

1) Money and shortfalls in funding applications.

2) Fragmentation as a result of land ownership.

3) Dysfunction, disintegration, and silos.

As themes, these are very broad and encompass a myriad of physical, political, social and/or economic barriers, differences in management and structure of organizations, tensions surrounding land ownership, failure or breakdown of partnerships, ineffective engagement, poor facilitation, and a lack of explicit futureproofing. According to the panel, these challenges are significant in limiting the application of landscape scale and have become so ingrained that they are widely accepted as part of daily practice. To overcome these challenges, the panel described a working environment where these issues were addressed on a case-by-case basis with solutions devised on a piecemeal basis depending on the organization/organizations' resources, expertise, and volunteer base. Solving the issues could significantly delay a project and place increased pressure on already stretched organizations.

Discussions in relation to these themes linked directly to the desired outcome described by the panel for an overarching tool for developing a 'community of practice'. In specific terms, this related to the need for an easily accessible collection of case studies, resources, and tools to help devise solutions and reduce the impact of delays on landscape scale projects. However, to respond to this desired outcome effectively, any overarching tool would need to be designed to address the unique mix of interacting variables for a specific project's scope – once again, highlighting the importance of flexibility when designing and delivering landscape scale approaches.

Aggregating the three themes above, several Panellists lamented the contemporary governance frameworks around landscape scale working, stating the perceived barriers to landscape scale working resulted from failures in new legal mechanisms. This was true to the extent that governance frameworks are "*ignorant of the process for delivery"* [Panellist 3]. The Researcher explored this in greater detail to understand how the limitations and barriers developed from Round 3 are related to a broader governance failure and how this could be prioritized into the research project's scope.

It is possible the operational challenges, perceived causes, and proposed solutions identified by the panel are not necessarily unique to the landscape scale but, instead, everyday issues practitioners face when attempting to deliver strategic or complex projects involving multiple stakeholders (Berlinger *et al*., 2015). This is consistent with literature that widely emphasises projects' failure owing to their complexity (Dao *et al*., 2016). There is an abundance of

epistemological literature exploring the limitations imposed by money and inadequate funding (Newmark and Hough, 2000). Therefore, what the Panellists may be describing is a permeation of existing, broader problems in the frameworks for governance of the planning and delivery of landscape scale projects, in turn contributing to the lack of clarity more broadly around the landscape scale concept.

Therefore, Panellists may be describing symptoms of problems within existing governance frameworks that, at their core, do not support approaches that attempt to enhance more collaborative and strategic forms of working. To remain on track, therefore, and to achieve the projects aim and ensure the PhD is completed within an acceptable timeframe, the Researcher compared the input from Round 2 with the feedback to the round 1 Synthesis Report to tease out any potential governance issues which might be magnified when working at the landscape scale. Figure 16 brings together these symptoms to identify the contemporary governance challenges and highlights the specific ones compounded from landscape scale working.

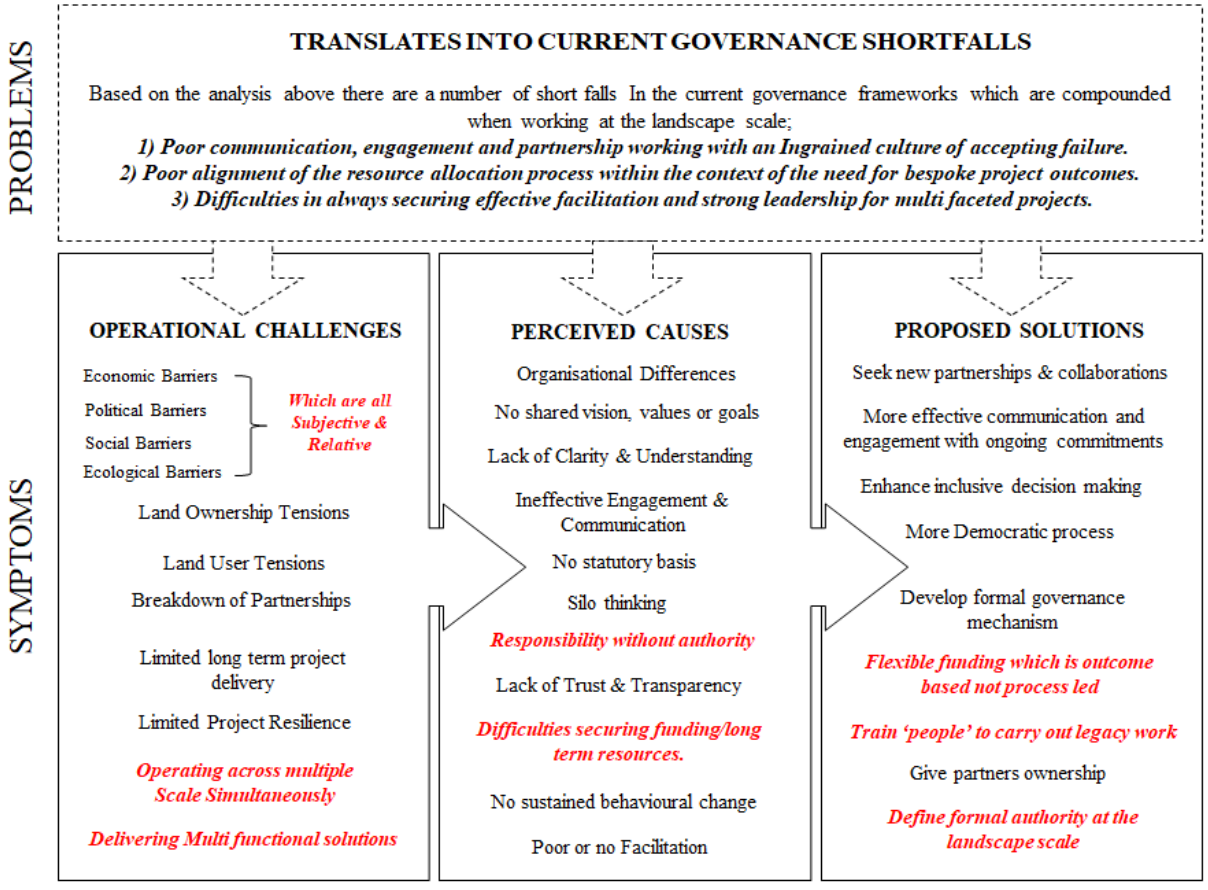

Figure 16 - The three overarching governance shortfalls and challenges associated with landscape scale projects/policies drawn out from the first two rounds of the Delphi.

Analysis of the operational challenges, perceived causes, and proposed solutions identified by the panel highlighted three shortfalls in governance which were compounded when working at the landscape scale. These deficits are 1) Poor communication, engagement, and partnership working with an ingrained culture of accepting failure; 2) Poor alignment of the resource allocation process within the context of the need for bespoke project outcomes; and 3) Poor alignment of the resource allocation process within the context of the need for bespoke project outcomes. These three shortfalls are explored in greater detail below.

8.2.3.1 - Governance Shortfall 1 - Poor Communication, Engagement, and Partnership Working with an Ingrained Culture of Accepting Failure.

People are listening without hearing, looking without seeing, and are failing to share experiences essential to underpin future improvement.

Within the Delphi, the panel members characterized engagement and general decision making as democratic and inclusive processes. They linked back to emphasise this in the conceptual framework in which there is a heightened emphasis on more transdisciplinary working and the need to develop more inclusive processes (see Chapter 4). However, challenges seemed to stem from a failure to identify and maintain effective partnership working with all stakeholders over the longer term. According to the panel, this is further exacerbated by a type of institutional myopia, in which reasons for failure are overlooked or not fully disclosed, denying individuals and other organizations the opportunity to learn from past mistakes and challenges. Upon reflection, this sectoral myopia and failure share lessons learned have also been observed within wider academic literature outside of landscape scale specific literature in the concept of decentralised decision-making (Lane *et al*., 2004). This may be exacerbated within landscape scale approaches that inherently require different disciplines and many experts' input. In response, landscape scale methods must facilitate an open and honest process of learning from examples of good and bad practice, which might foster a governance paradigm and infrastructure that enables progressive change over the long term.

8.2.3.2 - Governance Shortfall 2 - Poor Alignment of the Resource Allocation Process within the Need for Bespoke Project Outcomes.

There is a limited amount of time and money available for landscape scale projects with current arrangements for allocating these resources; this seems 'process' rather than 'outcome' led.

Another interesting governance shortfall highlighted by panel members revolved specifically around resource allocation, concerning money, workforce, time, and other resources allocated to develop landscape scale projects.

landscape scale projects by nature inherently require large amounts of resources. While some authors have attempted to develop less resource-intensive approaches (Didier *et al*., 2009), this remains the case. The Panellists reported that current governance funding mechanisms do not provide a resource allocation process that reflects the landscape scale's flexible and dynamic nature. In budgeting and some allocation changes, this inflexibility undermines the alignment between levels of investment needed and desired outcomes, which for landscape scale projects are often bespoke, varied, and complicated.

8.2.3.3 - Governance Shortfall 3 – Difficulties in Securing Effective Facilitation and Strong Leadership for Multifaceted Projects.

There are many ways to get to the finish line, but the course must be well organized, signposted with someone setting the pace.

In the context of current landscape scale projects, 'authority' is often shared or lacks clarity with large numbers of stakeholders, varied interests, skills and expertise. Each project is unique. This reflects the landscape scale concept, which is inherently flexible, dynamic, and operates at multiple scales. This often results in complex interrelationships with different stakeholders dealing with various 'bits' of the landscape without any clear leadership over the entire landscape scale project/policy. This theme featured strongly in rounds 1 and 2, where problems associated with project leadership and facilitation were identified in many different ways, suggesting the need for a more robust governance framework and the allocation of these roles to achieve a 'best fit'. The Panellists were asked to reflect and comment on the limitations of landscape scale after this interpretation. The belief is that these shortfalls currently hinder the effective delivery of landscape scale projects and policies and is a topic that needed to be explored in the development of the toolkit in the following round.

In reflecting on the Panellists' input, credibility is mainly at the heart of these compounded governance issues. For example, Panellists mentioned the need for the following case studies to provide *believable* examples of what can be achieved.

- A set of landscape scale principles and professional experiences and attitudes will ensure *sound and consistent* landscape scale approaches in unique scenarios.
- An outline of the fundamental stages and steps that gives each project *integrity* around a flexible concept.
- Finding *trustworthy* and *unbiased* facilitators with a proven track record of delivery can provide *authoritative/effective* leadership across existing operational boundaries.
- An *equal* playing field where projects and stakeholders are valued regardless of the project's scale or size.

In simple terms, people and organisations have different skill sets. These skills will apply to some landscape scale projects, but not others. Achieving the most successful outcome involves achieving the 'best fit.' When considering developing a governance framework in this context, the aim should not be to provide a detailed guide on selecting people and organizations for a specific project. This would be inconsistent with the dynamic nature of landscape scale working. Instead, a more comprehensive governance framework should provide insight into the broader governance shortfalls that are exacerbated by working at the landscape scale, ensuring organizations take steps to address these areas individually, thereby leaving no significant gaps.

This would encourage individuals working at the landscape scale to bring people and resources together in the most appropriate way, ensuring that the right people, with the right skills, are brought together around the right project at the right time. For the governance framework to drive improvements in delivery, robust mechanisms for the recording of project goals and outcomes would need to be in place for all stakeholders – taking full cognisance of each project's unique character and allowing each stakeholder to develop a proven track record for the specific project characteristics to which they are best suited.

This can be achieved in two ways. Firstly, through the improvement of the existing governance arrangements, i.e., through 'progressive' change where the Toolkit is used to acknowledge the existing shortfalls in governance but also provides guidance and solutions to overcome them. Secondly, through 'transformative' change, a completely new governance framework is developed to replace the old, incorporating different thinking and doing.

8.2.4 Refined Theme 4 – Opportunities of Landscape Scale Working and Developing the Structure of a Proposed Toolkit.

As part of the Toolkit's development, the Panellists were asked to prioritize a list of proposed outcomes regarding their usefulness – see section 8.1.1. As a result of this exercise, it became clear the Panellists had different needs which were dependent upon their experience and disciplinary lens. To focus on the needs of one group, therefore, would be to exclude another. The challenge, therefore, became to create a structure that would make the most impact in terms of both policy development and operational guidance for project managers and practitioners implementing the landscape scale in practice. As a result, for ease of access and to recognise the panellists' input the first draft of the Toolkit was separated into two distinct parts: conceptual underpinnings and some operational guidance. The first establishes the theoretical underpinnings of 'landscape scale' in the form of universally agreed relevant definitions. This was followed by a set of critical ingredients considered essential to the landscape scale lens, translating these into eleven principles. The Toolkit's conceptual components were requested by the members of the panel from academia and those with experience within strategic policy development to facility greater clarity in understanding and applying the concept of 'landscape scale'.

Part 2 of the Toolkit presented some operational guidance to aid in the more extensive practical delivery of landscape scale approaches. This part of the resource also consists of two distinct components. The first is a generalized landscape scale process, which outlines the significant stages to be considered when developing a project or approach. The stages also signpost links and resources to relevant potential tools, which may help design partnership working to circumvent or mitigate potential barriers.

The second component is an ongoing collection of landscape scale case studies, which will help with the design of future projects by providing valuable examples of what can be achieved as well as contact points for further information. This section was championed by the panel members who were attempting to deliver landscape scale approaches and wanted a platform to share best practice and experiences. Figure 17 conceptualises the different parts of the landscape scale toolkit developed for Round 2 of The Delphi.

	Academia					Policy						Practice				
Panellist Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Collection of Case Studies	4	2	3	4	/	1	2	3	4	3	/	1	4	1	1	Round 1 Input Only
Fundamental Steps and Stages	3	1	1	2	/	/	3	4	3	2	/	4	3	4	3	
Explicit Definitions	2	4	4	3	/	/	4	1	2	4	/	2	1	3	4	
Landscape Scale Priniples	1	3	2	1	/	/	1	2	1	1	/	3	2	2	2	

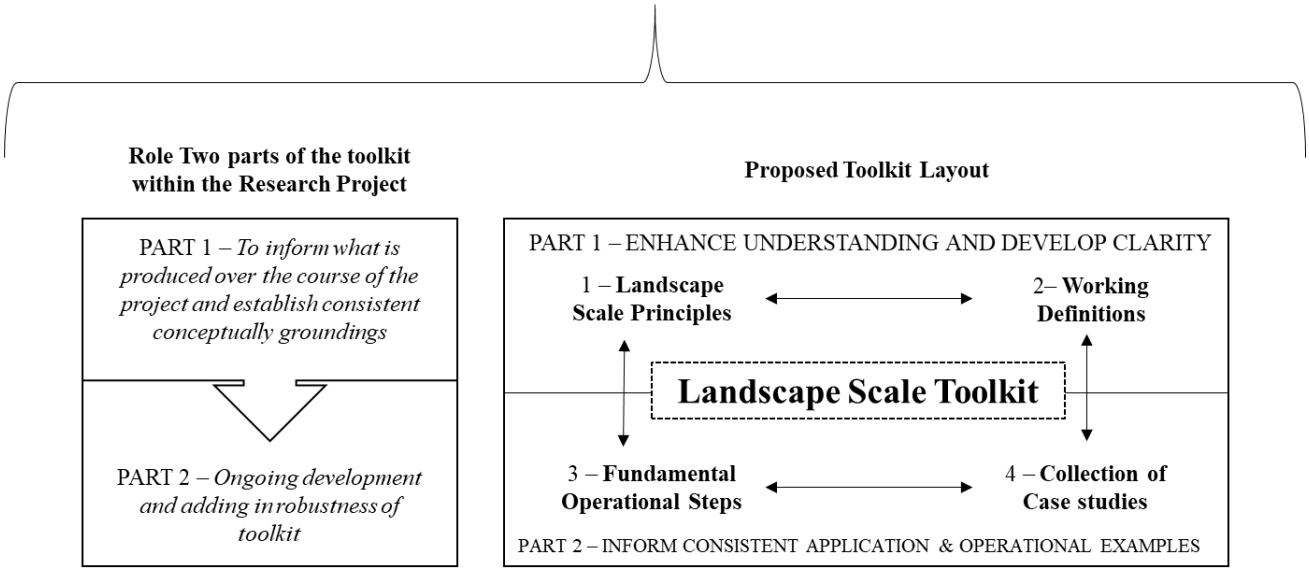

Figure 17 - The proposed layout of the first landscape scale toolkit resulted from two rounds of Panellist's feedback.

In line with the Panellists' contributions from the previous rounds, the project outcome consisted of two distinct parts. Each of these components was encapsulated in the PhD project's findings the Panellists found useful depending on their experience and employment. The Researcher felt it was important that all four elements suggested in Round 1 help clarify landscape scale and make the resource attractive and available to all potential end-users. This was also reinforced by the input from the panellists to the shortfalls in landscape scale governance during round two of the project. In which a variety of different tools were emphasized to help them overcome or mitigate these issues.

8.2.5 Theme No Longer Prioritised - Theme 6 the Focus on Water

In the interviews, the concept of water was continually mentioned (section 7.3.6). Consequently, it was initially seen as an essential aspect of the conceptualisation and delivery of landscape scale approaches. Upon further consideration, it became apparent that water was frequently mentioned within the discussion about landscape primarily because it is a common and defining feature, frequently forming a natural boundary. This is typically how humans perceive and interact with the world around them. In other words, the frequent references to water weren't there because they were necessarily essential in the development and application of landscape scale, but rather because they were a recognizable feature in the landscape and a useful reference point. Accordingly, this theme was not carried forward as a point of discussion but was used to help inform the landscape scale toolkit's delivery later.

8.2.6 Theme No Longer Prioritised - The Limitation Regarding Fragmentation as a Result of Land Ownership

A strong consensus developed around the barriers to landscape scale working resulting from land ownership at the end of Round 1 (section 7.3.3.2). Probing deeper into this, two Panellists - both with backgrounds in academia and policy development, commented in Round 2 that the basis of this theme was '*overly simplistic*' and '*an outdated notion',* Expanding on this, the two Panellists explained that landowners could not 'do what they like', because they are obliged to operate within the context of incentives, regulations, and policies, and in their opinion this was essentially being used as an excuse for poor application and implementation. Or alternatives was a result of a lack of resources to facilitate in-depth stakeholder engagement. In sounding this out with Panellists from practice, however, the point of problems with land ownership and, in some cases, problems with specific landowners, could constitute significant operational barriers and, at times, might even constitute "*the greatest limitation to landscape scale working"* (Panellist 7). The polarization of views suggests another route cause. Therefore, the question arises as to what extent problems around land ownership might be addressed by tackling other related challenges such as improving dialogue and active stakeholder engagement. As a result, landownership's specific issue was subsumed into discussions around stakeholder engagement and effective communication.

CHAPTER 9

ROUND 3 – DEVELOPMENT, TESTING AND REFINEMENT OF A LANDSCAPE SCALE 'RESOURCE KIT'

9.1 Introduction

This chapter unpacks the Panellists' feedback on Synthesis Report 2 (see Appendix 5) and the initial draft toolkit (see Appendix 6), circulating at the end of Round 2. This feedback was used to develop a more robust version of the landscape scale toolkit referred to as the landscape scale resource kit (see Appendix 7), which was then litmus tested with experts from a county council not part of the initial landscape scale resource kit development.

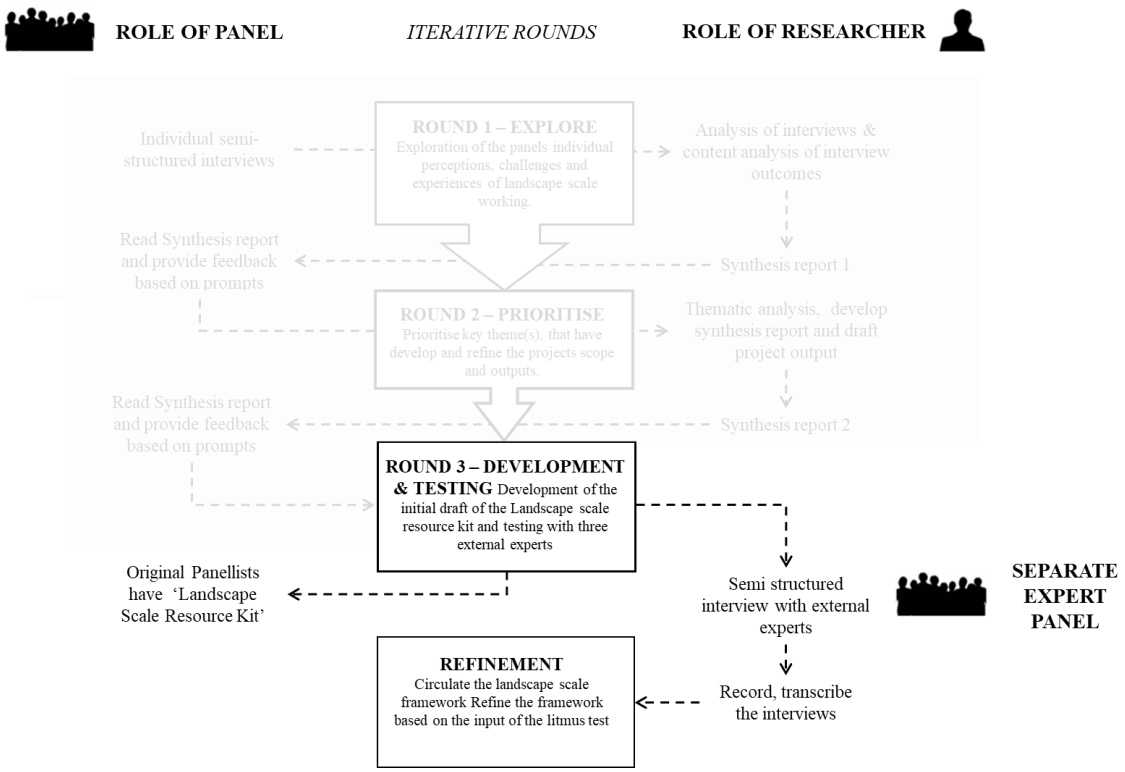

Figure 18 - The Third round of the applied policy Delphi including its input and output, into the broader research methodology.

9.2 Round 3 Results

The feedback for Round 3 began with Panellist 3 emphasising the need to change the project outcome from 'T*oolkit*' to 'R*esource Kit*.' In response to potential preconceived notions around the term 'Toolkit' and the effect this could have, potentially limiting the PhD's outcomes in the long term. While, initially, this subtle change in the project phrasing was perceived as simple semantics by the Researcher and unlikely to make any real difference to the project's impact, upon greater reflection, this change appeared to mirror similar concerns put forward by Panellist 9 in Round 1.

The results within the following sections focus specifically on the Panellists' feedback on the contents of Synthesis Report 2 and the refinement of the different components of the first draft of the Landscape scale Toolkit in light of their feedback and contributions. This is demonstrated in Figure 19.

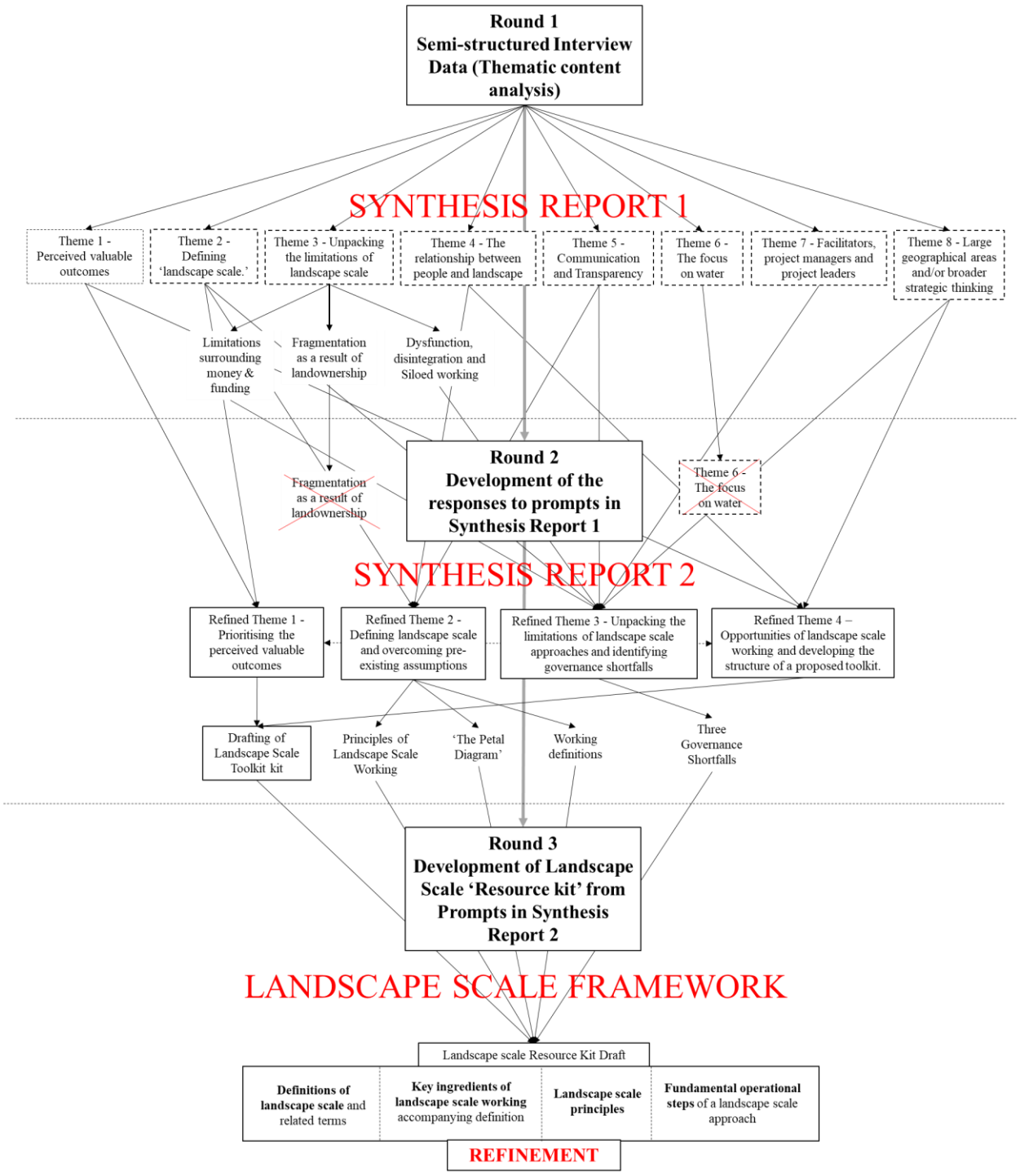

Figure 19 - The development of the landscape scale resource kit in response to the Panellist feedback in Round 2 of the Applied Policy Delphi.

9.2.1 Overall Feedback and Opinion of the Landscape Scale Resource Kit in its Current Form.

The Panellists were given four weeks to review the adapted version of the Landscape scale Resource Kit developed at the end of Round 2. Overall, the Panellists were optimistic about the project's current layout and the interpretation of their input to the research project into these different elements. For example, comments such as;

> "*Overall, I like the approach*." [Panellist 9]

> *"Yes, I'm happy with these three points in terms of designing a toolkit, which links to Figure 2"* [Panellist 3]

> *"Great template"* [Panellist 4]

Furthermore, a couple of the Panellists could already see the resource kit's value and began to reflect on their current or ongoing landscape scale approaches. One exception of this was provided by Panellist 2.

> *"Super impressed with the work and direction of the project. Nice job! It is shaping up nicely, and I found reading through the materials very helpful thinking about a research project we're ramping up in the "sagebrush landscape (or biome)" across the western U.S... the toolkit was helpful for me to think through how what we're doing ties into these other objectives and to see the bigger picture. Good stuff."* [Panellist 2]

This gave the Researcher considerable confidence, affirming the Delphi process had yielded an outcome in which the Panellists could both recognise how their inputs had been used and agree with how they had been presented as a meaningful output. Building upon this, Panellist 5 was much more reflective on the prompts within Synthesis Report 2 and while agreeing with the outcome emphasised it should be an evolving document. This would allow it to be strengthened beyond the scope of the initial PhD as the Toolkit is used in practice, and individuals outside the initial panel provide feedback on the elements in their day to day working.

> *" This is a useful skeleton framework. I think it could be built overtime to become more useful by cataloguing"* [Panellist 5]

Supporting the initial draft of the Landscape scale Resource Kit and the Synthesis Report 2, the Researcher provided the Panellists with a synthesis of the Resource Kit's perceived added value. This section reinforces the elements synthesised from the Literature Review and the Round 1 synthesis report's feedback. The Resource Kit aims to provide the foundations of a consistent application to landscape scale working while retaining some flexibility in applying the approach (an aspect the Panellists valued so highly). This flexible, yet enhanced, perspective is achieved because, at its core, the information throughout this document has been co-produced with experts from different disciplines to ensure its relevance and usefulness. Furthermore, flexibility has been embedded by paying attention to specific places and histories. This makes it essential for the framework to find the balance between providing enough detail to ensure consistency in adopting a landscape scale approach, but enough flexibility to be adapted for distinct applications.

Interestingly, the words 'holistic' and 'strategic' were continually used throughout the development of the research as part of a landscape scale orientated output. The meaning of these terms was never the focus of scrutiny or explicitly defined within the PhD, however. The Researcher and the supervisory team assumed that we, as users, knew what these terms meant in the work's context. In research, policy, and practice, these terms are often considered universally understood and therefore not subjected to detailed scrutiny. As a result, it may be valuable to define these terms in the context of the research project. This will mean that we (as users) can apply these terms in landscape scale approaches with clear understanding of what they mean, hopefully preventing them from becoming meaningless words we use without any real purpose.

- *Holistic* in landscape scale working relates to the whole or all of something, rather than just its parts.
- *Strategic* relates to identifying long-term, or overall, aims and interests and the means of achieving them.

Similar to the feedback on the layout of the Resource Kit, the Panellists were optimistic about it's perceived aims and opportunities. In most cases, they just replied as "yes" to the prompt, but one particular comment stated;

> *"Yes, to an extent, I agree with this interpretation. The point about interdisciplinary space is important – but not more important than it being a 'multi-functional' space. In this case it has a lot of factors in common with Green Infrastructure Planning in*

that you might bring a wide range of disciplines and evidence to bear on it" [Panellist 9]

In summary, the panel agreed the Resource Kit was indeed a valuable outcome. Not only did it capture the important elements distilled from the first two rounds of the Delphi, but they could explicitly see the value of the different elements of the resource kit. Despite the positive feedback from the panel and consensus around the contents, presentation, and aims of the project, the Panellists continued to provide input and comments on the various elements. These comments were critical in reflecting upon the Resource Kit and refining it before moving to test it with a fresh group of experts.

The section below outlines the Toolkit's specific components and the reflections and responses to the prompts from the panel at the end of Round 2. The prompts will be important in the refinement of these elements and how they will be presented to the external experts.

9.2.2 The Different Aspects of the Landscape Scale Resource Kit in Light of the Panellist Feedback during Round 2.

The section explores the Resource Kit's different components and how they relate to the key themes developed in the Delphi's first two Rounds. These appear in the same configuration and order in the amended draft of the Toolkit, developed in Round 2 (see Figure 17). After the initial collection and analysis of the Panellists' contribution to the Synthesis Report 2 and the Toolkit, the Researcher was initially disappointed. Until this stage, the Panellists were often optimistic about the project and its developments. However, the aim of Round 3 was to refine the current aspects of the proposed output for potential testing with a discrete group of experts. The results from Round 2 highlighted a problem: different experts required different outcomes. In response the Researcher attempted to create different resources in which different panellists could find value. Consequently, some of the panellists provided feedback upon elements of the Resource Kit which they originally had not prioritised and, in turn, didn't actually add value in their working experience.

9.2.2.1 Feedback on the Definition of Landscape Scale and Related Terms

First of all, the area of research defined as 'Refined theme 2'– defining landscape scale and overcoming pre-existing assumptions' remained a valuable and rich source of input for the panel members who continued to provide input to the project. The definitions provided to the

Panellists within Round 2 were arranged and presented as figures (see figure 20). This figure was designed to capture the inherent relationship between the different terms and the nested nature of the different definitions proposed by Panellists 4 and 5 within Round 2.

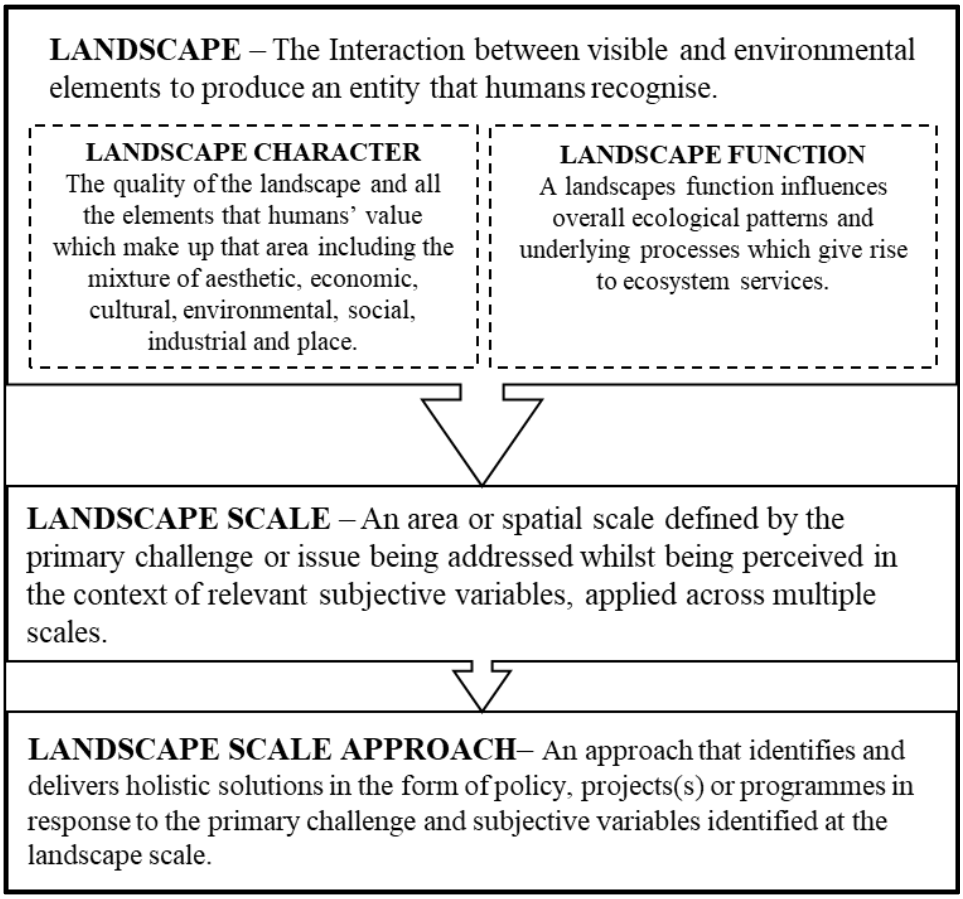

Figure 20 - The definitions of landscape, landscape character, landscape function, landscape scale, and landscape scale approach and their relation to one another according to the Delphi Panellists.

These definitions provide an essential topic for feedback from the panel, stimulating various responses, and alternative landscape scale definitions. Predominantly the comments from the panel revolved specifically around this last area, showing the Researcher's definition was perceived as challenging to grasp, abstract, hard to read, and bland.

> *"I can see the reasoning behind your definition, but it feels too academic and a bit difficult to grasp"* [Panellist 11]

> *"I understand how the definition was arrived at, but it seems bland and somewhat confusing"* [Panellist 4]

"I take most issue with the definition of landscape scale as that is the one in which landscape scale approach stems from" [Panellist 3]

"I find this definition a little too abstract" [Panellists 9]

This suggested the definition of landscape scale in its current form was not suitable and the Researcher may have 'overcorrected' the revised definition based on the Panellists' feedback. Finally, Panellists 3 and 4, whose work focuses on conservation, commented that limiting the definition of landscape scale to an area being managed did not accurately reflect the needs of conservation and ecology as animal ranges are not limited to an area being managed. Simultaneously, the Researcher's definition remained continually controversial and needed further refinement before testing with experts from Durham County Council. Potentially encouraging the research to reconsider the definition developed in Round 1 by Panellist 9.

Moving forward, the definition of landscape scale approaches provided with the first draft of the Toolkit seemed to be better received by the panel members—especially Panellists 4 and 3, who were critical of the landscape scale definition.

*"I like the definition of 'landscape scale approach' as, to me, this is a clear indication of how landscape can be studied … but I'd want to change the definition of 'landscape scale. "[*Panellist 4]

In response to this explanation, many Panellists provided alternative or supplementary definitions they felt that better encapsulated landscape scale working. These would potentially mitigate some of the problems identified around the definition currently sequestered within the Toolkit's first draft. These have been highlighted as follows:

Panellist 3 suggested - *"A Spatial scale defined by the scale of a primary challenge or issue being addressed with reference to an agreed set of objectives…"*

Panellist 4 suggested - *"One possibility is to think of landscape as the level or scale above the ecosystem but to indicate that the 'scale' is variable (without necessarily using the world 'multiple') and stressing context (without the need to talk about unspecified variables)"*

Panellist 12 suggested -*"An area determined by the way it is planned, used or managed to respond to or address a particular set of challenges. It can be defined*

at different scales (from neighbourhood, to catchment, to landform) dependent upon the set of challenges to be addressed."

The Researcher's interpretation of these definitions was intended to pinpoint the importance of the area in addressing a specific topic or an agreed set of objectives. This is fundamental in the definition of landscape scale, not just the spatial scale aspect, which became important. The definition was adapted to incorporate this aspect and can be found in the Framework's final iteration (Appendix 8). Following the input from the Panellists around the definition of landscape, the importance of the definitions 'landscape scale' and 'landscape scale approaches' was self-evident. The decision to define these two terms separately indicated a clear, but important, distinction between the panel members. The definition of landscape scale seemingly caused the issue while the definition of the landscape scale approach was positive and helped to mitigate the bland and abstract nature of the landscape scale definition.

The Definition was built upon the need for different and explicit definitions. During the Toolkit's development, it appeared as though the Panellists were keen to continue to develop the definitions of landscape scale. However, rather than focus solely on defining 'landscape scale' and 'landscape scale approaches', Panellists explored these concepts' in relation with other related definitions such as landscape function, landscape character, and landscape. In chapter 3, the Literature Review explored the inherent relationship between these terms. It became evident during the research project that the Panellists reiterated the importance of this relationship, emphasising the need to not only draw comparisons and distinctions between the terms but also clarify the relationship between them. Thus, all of the terms in Figure 20 were clarified and included in the dedicated framework to avoid any confusion.

9.2.2.2. The Key Ingredients of Landscape Scale Working & Accompanying Justification

In both the first two iterative Rounds, the Panellists explored the meaning of landscape scale. However, rather than being required to give an explicit definition, they described it in a way they felt most comfortable. This ranged from examples of their daily work, previously published materials, and explicit case study references. This provided a rich source of raw material for the Researcher to explore and analyse the landscape scale's key ingredients, working to accompany the definition. As part of the analysis process, the Researcher

considered the keywords in the circular figure to define a series of preliminary principles (see Figure 15).

This figure became known between the supervisory team as the Petal Diagram because it resembled a flower. Initially, this figure was not intended to be part of the resource kit and was purely a means of thematic analysis. However, after several discussions and adaptations with the supervisory team, it became apparent that with some refinement, the figure had potential value as an aspect of the Framework. The flexibility the Petal Diagram provided practitioners when accompanying the definitions produced in Figure 20 would help address the issue's adaptability in a landscape scale definition highlighted by Panellists 3, 4, 9 and 11 (see section 9.2.2.). A refined version of the diagram has been included in Figure 21. This figure includes the primary vital ingredients and provides four broad categories that have been explored below to help practitioners with signposting and navigation.

In order to test the Researcher's assumption, this figure was included as part of the Round 2 Synthesis Report for feedback from the Panellists. This was to see if the figure had potential value to them in practice and accurately captured the critical ingredients of landscape scale working. Ultimately this was to see if it would make a worthy addition to the Resource Kit as well as addressing the confusion and ensure the link between the key ingredients and the development of the principles was visible to the Panellists. The figure was accompanied by short narratives and the associated principles, which can be found below.

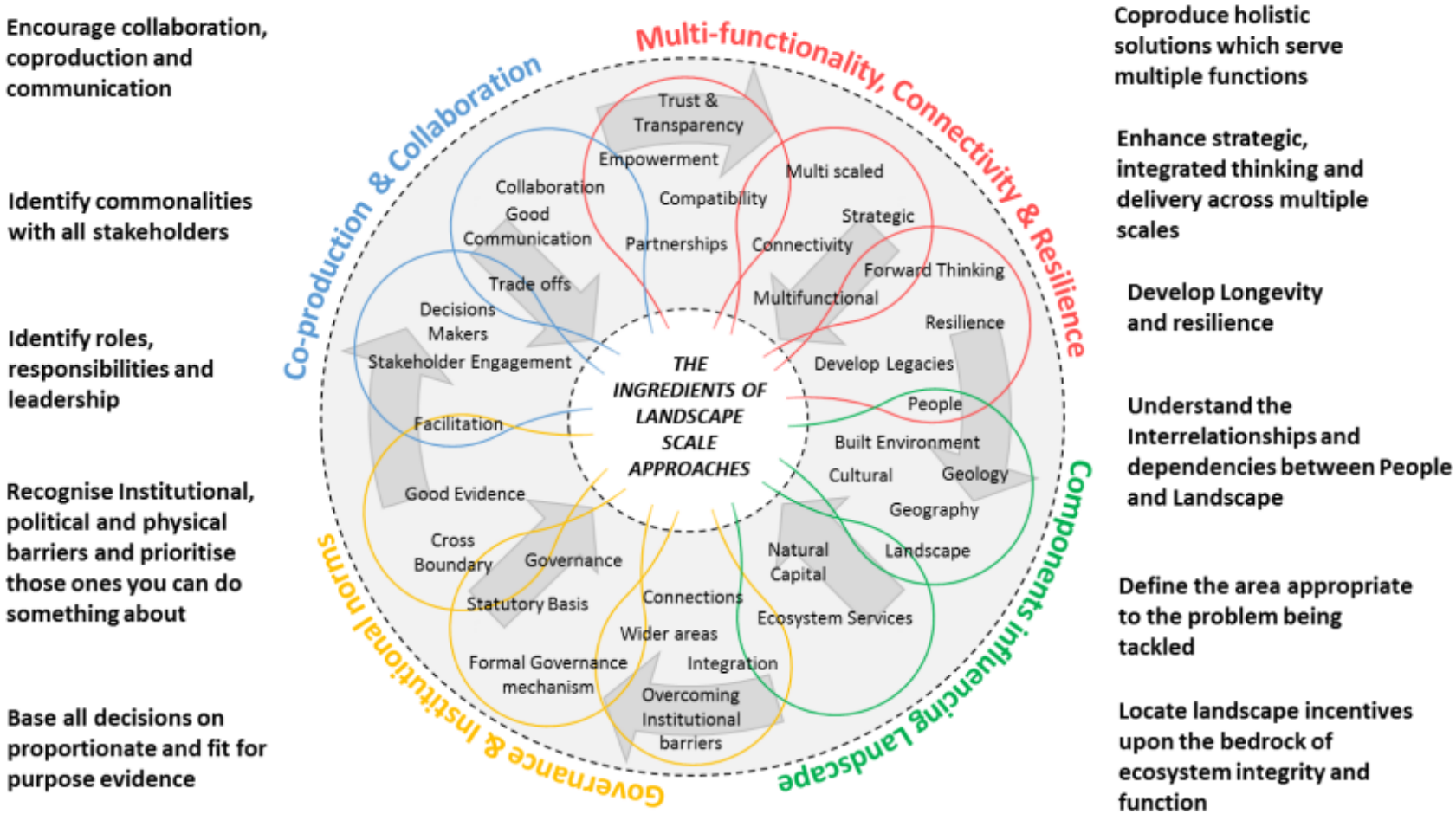

Figure 21 - Circle figure referred to as the petal diagram consolidating the Panellist's definition of landscape scale to be included in the landscape scale resource kit

9.2.2.2.1 Co-production and Collaboration

At the heart of a landscape scale approach is the need for effective communication between experts, stakeholders, and organisations. This communication must be explicit and free from bias wherever possible and maintained throughout, and after, delivering the landscape scale approach. Typically, however, landscape scale approaches involve many stakeholders. This serves to exacerbate the difficulties typically encountered during stakeholder engagement. In this context, the inclusion of the diagram within the resource kit goes beyond providing the principles to include a practical framework for its application. By considering all the different aspects, including those in the diagram, stakeholders will be able to contextualise their objectives with reference to those of other contributors. This will improve co-production and collaboration between existing interested parties and 'flush out' new stakeholders, whose needs and views may not have been identified or considered.

9.2.2.2.2 Multifunctionality, Connectivity and Resilience

When working within a landscape scale approach, the project, policy, or practical application cannot be designed and delivered in isolation from the broader landscape and ongoing projects. This means that consideration must be given to exploring the broader context of the approach and ensuring connectivity across multiple scales, i.e., local, regional, and national. Using the framework set out in the diagram, stakeholders will engage with a broader range of other interested groups and therefore understand other their needs better. This, in turn, will increase the potential for mutual leverage, i.e., the possibility for doing deals and agreeing on trade-offs between stakeholders – promoting the potential for compromise and the potential for success at all scales.

9.2.2.2.3 Governance and Institutional Norms

By definition, landscape scale working requires practitioners to look beyond their disciplines' reach, working together with partners to develop innovative and long-lasting solutions. Bridging the gaps between disciplines requires flexibility and innovation, and this can put pressure on existing governance mechanisms. To put it simply, using the diagram to ensure a more comprehensive range of issues is considered a more comprehensive range of stakeholders from various perspectives, increasing the exposure of the various governance frameworks to each other. This is a distinct advantage because potential conflicts between governance mechanisms, both internal and external, can be anticipated. Steps can be taken to address or mitigate any associated risk during the initial design and development stage rather than the delivery phase.

9.2.2.2.4 Components Influencing Landscape

In much the same way the diagram helps increase the exposure of the various governance frameworks, it also helps to ensure the various components influencing landscape scale are more comprehensive. The specific mention of words like people, geology, culture, built environment etc., may have different connotations for different stakeholders. Still, as specific and essential factors in landscape scale working, they must be considered. Therefore, the diagram acts as a catalyst in the design process, prompting stakeholders to consider a broader range of potential factors that they might otherwise.

9.2.2.3 Panellist Feedback on the Petal Diagram

Overall, the key ingredients diagram included in the Second Round Synthesis Report received positive feedback from the Panellists. With simple quotes like:

> *"I like it!"* [Panellist 2]

However, while the panel's consensus was positive and highlighted that this could be a useful supporting tool in the landscape scale Resource kit helping to potential support the perceived blandness of the definition, two Panellists, in particular, offered more detailed responses with regards to the Petal Diagram. These were Panellists 3 and 11. Panellist 3 agreed with the other panel members who responded to this tool. They felt to include it as part of the Landscape scale Resource Kit would require some steps to simplify it in the final iteration. Stating that:

> *"I think it is comprehensive and includes all major elements; I do think it would be advantageous to simplify it further, maybe put it out to academic literature or even a workshop to identify the most important aspects based on evidence"* [Panellist 3]

Whereas Panellist 11 felt the economic dimension was missing from the Petal Diagram and from their perspective, it should be an explicit aspect to be considered within the fundamental ingredients diagram.

> *"You can guess what I'm going to say is missing! The economic dimension"* [Panellist 11]

9.2.2.4 Feedback on the Landscape Scale Principles

In Round 2 of the Delphi Technique, the Panellists were provided with an initial set of eleven fundamental principles developed over the last two iterative rounds. These were presented as part of the Resource Kit for feedback and comment. Overall, the Panellist seemed optimistic about the eleven principles presented in the first draft, emphasising that in their opinion they cover the major elements of landscape scale working and were useful. For example;

> *"Yes, I think these do effectively capture the elements of a landscape scale approach, at least in terms of how I would seek to deliver it."* [Panellist 9]

> *"Yes these 11 principles capture landscape scale working*" [Panellist 14]

> *"I agree with the 11 principles of landscape scale approaches/working"* [Panellist 11]

In fact, one Panellist outlined the potential added value of these principles in the current daily working stating that:

> *"I think the focus on landscape function and Natural Capital are distinctive – but that reflects the shift in the policy framework that is evident, which is a useful feature"* [Panellist 9]

The principles presented to the panel for comment have been included below with a short description and narratives exploring their more profound meaning and how they were derived from the raw data collected within the rounds of the Delphi. It is important to note that these principles are not in any order of importance. Where appropriate, specific comments on each principle have been included.

9.2.2.4.1 PRINCIPLE 1: DEFINE THE AREA APPROPRIATE TO THE PROBLEM OR CHALLENGE

The first principle draws from the Panellists' input concerning establishing the appropriate 'size' of landscape scale approaches, a continuous and essential topic across all of Delphi's previous iterative rounds. At times, panel members struggled to look beyond their pre-existing landscape scale assumption as a sizeable spatial scale rather than representing the multiscale nature of landscape scale working, drawing upon previous examples and case studies from their collective experience. As a result of this observation, the first principle developed within the Resource Kit emphasised the need for practitioners to define and justify an appropriate and coherent area based on what they are trying to achieve. This linked directly back to the comment by Panellist 14 in the initial round of the Delphi concerning the governance shortfalls (section 8.2.3). They stated landscape scale approaches should be "outcome led." This, in turn, highlights the importance of designing landscape scale approaches based on outcomes of a particular approach.

Importantly, one Panellist was critical of this principle. Panellist 11 was somewhat critical of this principle, stating the use of the term "area" was not suitable in a set of landscape scale principles, and required further consideration and refinement.

9.2.2.4.2 PRINCIPLE 2: UNDERSTAND THE INTERRELATIONSHIPS AND DEPENDENCIES BETWEEN PEOPLE AND LANDSCAPE

Another critical element distilled from the first two iterative rounds, and proposed to the panel, was the importance of the human dimension of landscape and its impact on the delivery and management of landscape scale projects. According to the panel, attempts to understand the relationship local communities have with the landscape can yield more robust and effective policy and projects. This potentially minimises resource requirements and mitigates against the failure of projects in the long term. As a result, Principle 2 emphasises the importance of this relationship and encourages those practitioners working at the landscape scale to dedicate time to understand the inherent interactions between people and the landscape within their defined project area. This includes the competing myriad of connections that can be subjective and comparative.

9.2.2.4.3 PRINCIPLE 3: RECOGNISE INSTITUTIONAL, POLITICAL AND PHYSICAL BARRIERS AND PRIORITISE THOSE ONES YOU CAN DO SOMETHING ABOUT

Throughout the different iterative rounds of the Delphi, most Panellists highlighted the impact of barriers and boundaries on the delivery of landscape scale projects. This was evident in both the initial Round 1 interviews and manifested in developing the governance shortfalls within Figure 16, section 8.2.3. However, in attempting to apply landscape scale approaches, Panellists described a much more practical and pragmatic approach to overcoming some of these barriers. They highlighted the institutional, political, and physical barriers as "fixed" owing to their importance for other decision-making purposes, but through innovative thinking and persistence, some barriers could be overcome. This principle, therefore, not only highlights the importance of **explicitly** identifying the myriad of institutional barriers (i.e., the difference in organisations' priorities, policies, and processes), political barriers (e.g., related to administrative boundaries and elected representatives), and physical barriers, which may affect the scope and delivery of projects. It also stresses the importance of prioritising barriers which experts can actually effect.

9.2.2.4.4 PRINCIPLE 4: IDENTIFY COMMONALITIES WITH ALL STAKEHOLDERS

Stakeholder collaboration and engagement was a fundamental aspect of landscape scale approaches. All the Panellists emphasised the importance of timely and effective stakeholder engagement and warned about the impact on a landscape scale approach if this was not practised. Panellists 4, 5, and 14 all provided anecdotal evidence of past projects where engaging specific sets of stakeholders played a fundamental role in successfully delivering of a landscape scale project. Despite being contested by Panellist 13 and the theme being formally removed from discussions in the latter Rounds of the Delphi, it remained an important issue. It was, therefore, returned to in the development of the Landscape scale Resource Kit. As part of the initial discussions, some practitioners tackled conflicts by investing time and energy in developing personal connections and relationships with the involved stakeholders. This helped to facilitate a deeper understanding of the reasons for their decisions and, in turn, a greater possibility of developing shared aims and goals.

One important aspect to mention developed from the Panellists' discussions to support this principle was an input from Panellist 14. This Panellist worked at a local ecology trust and managed various landscape scale projects in the United Kingdom's Midlands area. Panellist 14 detailed an experience with their current project, which required them to go above and

beyond their current employment role to secure local stakeholders' input and build long-term relationships with all interested parties.

9.2.2.4.5 PRINCIPLE 5: ESTABLISH LANDSCAPE INCENTIVES UPON THE FOUNDATION OF ECOSYSTEM INTEGRITY AND FUNCTION

Into this broader research context, the Panellists emphasised the potential of landscape scale approaches to better incorporate the underlying ecosystem functions and services into policies and practices. Linking directly to the theme surrounding water, which was side-lined from the discussion at the end of Round 1 (see section 7.3.6). As a result, Principle 5 directly and explicitly encourages experts to deliver landscape scale approaches to place ecosystem integrity at that approach's heart. This encourages long-term preservation of different types of landscapes, but it can also provide an opportunity for practitioners to reap personal and societal benefits. Therefore, decision-making processes incremental to landscape scale approaches must protect and enhance natural functions and the integrity of ecosystems for the long term, directly addressing one of the governance shortfalls identified in Round 2 (section 8.2.3).

9.2.2.4.6 PRINCIPLE 6: IDENTIFY ROLES, RESPONSIBILITIES, AND LEADERSHIP

One aspect of the Delphi that arose during Round 1 and continued as a core ingredient of the landscape scale approach was the need for effective leadership and facilitation. In response to earlier prompts in the Synthesis Report 1, there was a consensus around the importance of facilitation within landscape scale approaches which translated directly into this principle. One example of this feedback was;

> *"The facilitation role is very important, as it is needed to develop a sense of shared objectives and ownership for a landscape scale project to deliver effectively"* [Panellist 9]

The Panellists provided detailed accounts of what makes a good facilitator within landscape scale approaches. The need for effective leadership revolved predominantly around the 'complex' and multi-faceted issues typically addressed within landscape scale approaches and a large number of stakeholders and individuals contributing to projects using it.

9.2.2.4.7 PRINCIPLE 7: ENCOURAGE COLLABORATION, COPRODUCTION, AND COMMUNICATION

Based on the Panellists' input in the first two rounds of the Delphi landscape scale approaches require collaboration and explicit lines of communication. This was not only because of the dynamic nature of approaches landscape scale working entails but also as a result of the increased number of stakeholders included in landscape scale approaches.

Through the first two rounds, the Panellists used various comments and anecdotal evidence to emphasise the importance of building trust between these stakeholder groups. For example, Panellist 14 explained their experience with the recent restoration of an old quarry surrounded by farmland. The expert was required to go to each farm in-person to introduce themselves and explain the work that was in hand at the quarry. At times he was invited in for tea to discuss the project, which would not have happened if the message was communicated via other means. As a result, the importance of fostering an atmosphere of trust was an essential principle of landscape scale working.

9.2.2.4.8 PRINCIPLE 8: ENHANCE STRATEGIC, INTEGRATED THINKING AND DELIVERY ACROSS MULTIPLE SCALES

Landscape scale projects operate across multiple scales simultaneously, and as defined in Principle 1, the area in which the project is delivered varies depending on the problem or issue being addressed. Therefore, it is essential to align and integrate project and policy goals and outcomes with more comprehensive strategic thinking and delivery. Furthermore, because of the dynamic nature of landscape scale working, it is vital to consider the implications and effects of any decision across these multiple scales.

9.2.2.4.9 PRINCIPLE 9: CO-PRODUCE HOLISTIC SOLUTIONS WHICH SERVE MULTIPLE FUNCTIONS

As explored in the Literature Review (Chapter 3) and the Conceptual Framework (see Chapter 4), landscape scale approaches, and research in general, is encouraged to take more trans and multi-disciplinary approaches to deal with the multifaceted issues which society faces. Within this research project, the Panellists also highlighted the value of this style of working in providing more resilient and effective solutions, sharing the costs and responsibilities of delivering landscape scale projects.

However, this does not overlook that all the involved stakeholders must fulfil their own agendas in return. When designing landscape scale approaches, developing solutions must

generate multiple benefits, which fulfil the necessary stakeholders' requirements. This can result from active collaboration with all appropriate stakeholders, which may require mutual trade-offs and transparency.

9.2.2.4.10 PRINCIPLE 10: DEVELOP LONGEVITY AND RESILIENCE

Through the research, many of the issues brought forward by the panel revolved around the failure of landscape scale approaches in the long-term. In many respects, they are ultimately undoing any achievements or outcomes in the short term regardless of any project or policy's success at the landscape scale. As a result, the Panellists emphasised the importance of practitioners delivering landscape scale approaches to outline a long-term strategy for any given policy, project, or program. This is likely to include defining explicit actions to ensure measurable transformational change, dependent on considering how changes and actions will be carried forward beyond the programme's end.

9.2.2.4.11 PRINCIPLE 11: BASE ALL DECISIONS AND INTERVENTIONS ON A ROBUST, PROPORTIONATE AND FIT FOR PURPOSE EVIDENCE BASE

This final Principle was taken directly from Panellist 15's semi-structured interview. They stated that it is important for experts to deliver landscape scale approaches to ensure they base all the decisions on robust and appropriate raw data. While this seems obvious and worthy of an explicit mention, the principle should lie at the foundation of any decision-making process. However, the fact the Panellist felt the need to highlight this in the initial discuss warrants more significant investigation into what is considered 'robust, proportionate and fit for purpose evidence' in the context of landscape scale approaches. As stated in the other Principles, landscape scale approaches encourage integrating the different knowledge domains and collaboration of an array of stakeholders.

The integration of different knowledge sources is littered with potential issues, including those revolving around accessibility ownership, (Torbjörnsson and Lundholm 2019) and confidentiality. Different stakeholders involved in a landscape scale process inherently draw upon their experience, backgrounds, and potential data sources. There is evidence in academic literature to suggest different data sources from different knowledge domains may not necessarily be comparable, or even coherent.

As a result, this final rule, while initially seen as a fundamental aspect of good decision making, encourages practitioners to evaluate the entire data collection process within the context of the landscape scale approach to ensure they can provide appropriate data. This

includes all forms of qualitative and quantitative data, stakeholder views, and contextual knowledge, drawing upon different levels of expertise. Evidence should be both qualitative and quantitative, as appropriate.

9.3 Fundamental operational steps of a landscape scale approach

During the initial semi-structured interviews, Panellist 10 hinted at the potential for common 'steps', encompassing a common process for landscape scale working that could be outlined as an aspect of the proposed Resource Kit.

> *"well, steps, I'm just talking about normally when you go through the thinking behind how you would do something, there's always a process, isn't there?"* [Panellists 10]

> *"I would be really, really interested in actually having some toolkit, whether you call it a tool kit or a…er… a, a action, you know, a plan of action for a lot of people to work in this and a more coherent way, something that you can say, okay let's look at the steps, what sort of things should you be looking at, erm you know something like that would be a thing really useful for a practitioner."* [Panellist 10]

Initially, the Panellist was hesitant to suggest there would be a standard operational process of landscape scale working, pinpointing that landscape scale is highly subjective and dependent on who would be applying it. However, the Researcher felt this was a worthy topic for exploration and began developing a series of operational steps common to landscape scale working. This 'process' featured as part of the Resource Kit and was designed to outline the fundamental components of landscape scale thinking in practice. The initial draft has been included in Figure 22.

With this concern in mind, this tool was developed to support other aspects of the Resource Kit in order to prompt experts to look at the other tools rather than to standalone. This device is built around a series of prompts and questions rather than having explicit instructions detailing each phase of a landscape scale project because, ultimately, these will differ. These questions were informed by other parts of the Resource Kit, such as the Principles and Critical Ingredients and were designed to make users think about the project or approach within the context of the landscape scale before signposting them to look at the other aspects of the Resource Kit.

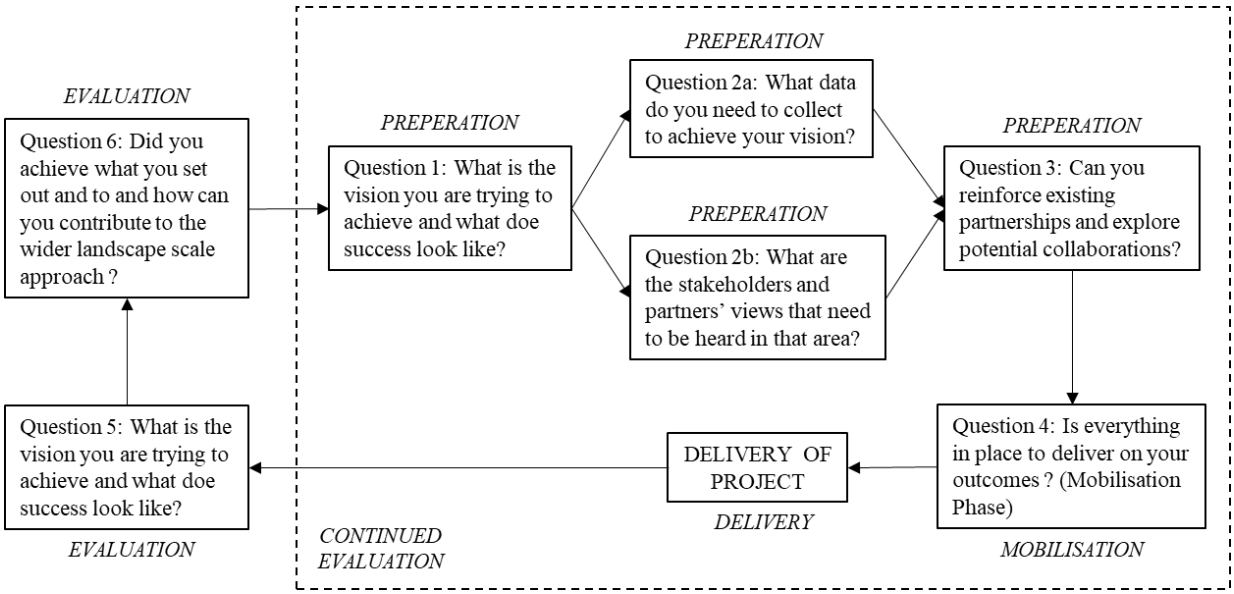

Figure 22 - The process of designing a landscape scale approach in the form of a generalized management process, following the above questions in order.

Following this figure, the Panellists were provided with a more detailed exploration into the different operational steps and associated prompts and was asked for feedback and input. This input has been listed on the following page.

QUESTION 1 - WHAT IS THE VISION YOU ARE TRYING TO ACHIEVE AND WHAT DOES SUCCESS LOOK LIKE?

From the outset of the project, plan, or approach, it is essential to establish the vision you are trying to achieve. This can vary depending on the problem being solved or the opportunity you are trying to exploit. Secondly, it is essential to explicitly outline what success will look like, which leads to the development of clear indicators, outcomes, and outcome trajectories. Making this explicit from the outset will make setting and measuring indicators much easier and ensure that any landscape scale approach remains on track.

However, working at the landscape scale adds another layer of complexity to the initial project development. Because of the multifaceted nature of the project landscape scale approaches, these outcomes must be developed in collaboration with the stakeholders. Allowing room for comprising and

Finally, the results and the project's expected trajectories should align with projects' consequences at other scales where possible, considering ongoing projects by other stakeholders. landscape scale may mean different things to different people. The variables involved are subjective, and any approaches have to operate across multiple spatial and temporal scales, delivering holistic solutions. It is, therefore, essential to establish the most appropriate scale(s) and a coherent area of study/influence from the outset based upon the 'visions.'

Coherent means a project area that is defined by the project's outcomes with meaningful boundaries and connections beyond it. Bearing in mind that pre-existing operational boundaries or an organization's designated working area may not always be the most appropriate project boundary. As a result, defining a coherent project area at the landscape scale may require a slightly different approach, and explicit attention, to how project boundaries are defined.

GUIDANCE & PROMPTS

- *What are the individual stages of your project or plan? Outline how you get from A to B, or use a back-casting strategy.*
- *What are the indicators to best capture/measure progress and the baseline variables?*
- *What change, problem, or opportunity are you trying to exploit?*
- *Has anyone done this kind of project before, and how did they measure baseline variables, set indicators, and measure success? Any lessons you can learn from this?*

QUESTION 2 – a) WHAT DATA DO YOU NEED TO COLLECT TO ACHIEVE YOUR VISION?

Establish the baseline ecological, social, and economic variables within the most appropriate area(s) and time and geographical scales. Data is often already available to help do this, and therefore it is not always necessary to spend resources collecting new data. Importantly, look outside of your primary discipline(s) and consider qualitative and quantitative data sources.

GUIDANCE & PROMPTS

- *What work has been done to record the baseline variables in the area? Is the existing data sufficient?*
- *What additional qualitative and quantitative data is necessary / would be useful?*

b) WHO ARE THE STAKEHOLDERS AND PARTNERS' WHOSE VIEWS NEED TO BE HEARD IN THAT AREA?

It is essential to identify stakeholders and prioritize whose voices need to be heard within the defined area. It is also necessary to understand their distinct interests by using stakeholder mapping and other tools and to develop a strategy to engage with those critical audiences at appropriate times throughout the project. This can help to reinforce effective partnerships and enhance the resilience of a project. When working at the landscape scale, it is vital to be clear about the specific roles, responsibilities, and lines of communication. This is important because, at the landscape scale, it is typical for no one or no organizations to have control over all of the different parts.' Finally, it is essential to understand the status quo within the area and actual/potential power relationships between various stakeholders, as this may influence your stakeholder engagement strategy.

GUIDANCE & PROMPTS

- *Who is the potential stakeholder within the area?*
- *Does your engagement strategy enable the range of views/interests to be heard and represented?*
- *Do any stakeholders dominate discussion and engagement?*
- *Is there a need to develop different strategies to capture all of the prioritised stakeholders' views effectively?*

QUESTION 3 – CAN YOU REINFORCE EXISTING PARTNERSHIPS AND EXPLORE POTENTIAL COLLABORATIONS?

It may be efficient and effective to strengthen relationships with existing stakeholders based on the goals and project outcomes you wish to prioritise. There may also be a case to establish new links and develop new partnerships if existing / old partnerships no longer work well or prevent relevant new stakeholders from participating. This allows you to reinforce your project outcomes and creates the opportunity to create synergies through alignment with other projects/people's goals and values. When designing landscape scale approaches, particular emphasis must be placed on the value of collaboration and effective partnerships. There must be trust and transparency between all those involved. Without this, effective holistic and strategic solutions operating across multi scales will be challenging to achieve.

GUIDANCE & FOOD FOR THOUGHT

- *Are there effective communication channels between you and your partners?*

QUESTION 4 – IS EVERYTHING IN PLACE TO DELIVER ON YOUR OUTCOMES? (MOBILISATION PHASE)

The dynamic nature of landscape scale working, and the number of people involved in the delivery (often with limited resources and relying on volunteers), means that time is needed to mobilize these different elements between project planning and delivery. At this stage, it is essential to reflect on your current resources and the proposed outcomes to ensure that you can deliver. Consider incorporating some form of 360-degree reviews to look at the other stakeholder's resources and deliverables as part of this stage. Make time for regular reviews and troubleshooting / learning lessons with appropriate action points/steps to adapt.

GUIDANCE & PROMPTS

- *Do you have all of the resources in place to deliver project outcomes?*
- *Do you and the other stakeholders have the resource in place to deliver your and their desired outcomes?*

THE FOLLOWING PHASE OF A LANDSCAPE SCALE APPROACH WOULD BE TO BEGIN THE DELIVERY OF THE PROJECT IN PRACTICE.

When working at the landscape scale, there is a great deal of preparation work that has to occur before launching your project and starting with the delivery. If the approach changes departments' birth, ensure that clear communication lines and strategies have been put in place.

GUIDANCE & PROMPTS

- *Consider how a formal launch of the project may help get more comprehensive support and publicity but be mindful of some people feeling left out (e.g., if not invited).*
- *Consider how much publicity is right and maintain useful media links and communication beyond the already actively engaged stakeholders.*

QUESTION 5 – IS EVERYTHING ON TRACK TO MEET YOUR DESIRED VISION AND MEASURES OF SUCCESS?

Measure your project's effect throughout using the indicators established at the start of the implementation phase to track progress. This should also facilitate identifying challenges or problems early on and necessary/fruitful adaptations, even making use of any unexpected opportunities if appropriate. Working at the landscape scale, the project outcomes/benefits must be shared with/across partnerships.

GUIDANCE & PROMPTS

- *How have the baseline variables changed?*
- *How has the project affected other measurable outcomes? To what extent are the impacts excellent or bad, and who benefits/loses out?*

QUESTION 6 – DID YOU ACHIEVE WHAT YOU SET OUT TO AND HOW CAN YOU CONTRIBUTE TO THE WIDER LANDSCAPE SCALE APPROACH?

It is useful to assess the impact at regular intervals formally and critically evaluate how well the landscape scale project partnership works. Addressing any problems early rather than letting issues faster may help keep the project on track and maintain trust and transparency. Importantly, with the help of the other sections of the process, lessons can be learned from success and setbacks and inform improvements during the current and future landscape scale projects.

GUIDANCE & FOOD FOR THOUGHT

- *How is the project performing? Is everything going to plan?*
- *What have you learned, and how will/should this influence future practice?*
- *What is the lesson learned (both success and failure), and use that in your evaluation and feedback?*

Similar to the feedback from the other elements of the Resource Kit outlined above, the panel's consensus surrounding the operational steps of landscape scale working was optimistic. Despite Panellist 10's initial reservations with this as an aspect of the resource kit, the others felt it was a valuable and useful aspect of the Resource Kit. One Panellist, in particular, likened the different steps as similar to project management guidelines, which was ultimately done on purpose by the Researcher to ensure that the steps were familiar to practitioners.

> *"Yes, although they are effectively good project management guidelines rather than being stages that are unique to a landscape scale approach?"* [Panellist 12]

Panellist 7 suggested that these steps can be completed multiple times, and practitioners can go forward and backwards through the process as the project develops.

> *"Yes - important to go back and forward through these steps."* [Panellist 7]

9.4 Feedback on the Governance Shortfalls Identified in Round 2

Finally, the array of comments received at the end of Round 2 surrounding the three governance shortfalls outlined in Synthesis Report 2. These were presented in the Resource Kit as a figure with an accompanying narrative like that shown in figure 16 (section 8.3.2). But can quickly be summarized as;

1) Governance Shortfall 1 - Poor communication, engagement, and partnership working with an ingrained culture of accepting failure.
2) Governance Shortfall 2 - Poor alignment of the resource allocation process within the need for bespoke project outcomes.
3) Governance Shortfall 3 – Difficulties in securing effective facilitation and strong leadership for multifaceted projects.

These shortfalls stimulated a great deal of discussion and input from the panel members at the end of the Round. Overall, Panellists agreed with the areas the Researcher had defined, emphasising they felt these were some of the major reasons for the landscape scale project failure and could see how they were arrived at, based on the previous iterative rounds. For example:

> *"I think these are well formulated and do identify the main issues and challenges that arise around governance for these kinds of projects."* [Panellist 9]

> *"I agree that all these shortfalls play a major part in the failure of many landscape scale projects to achieve the outcomes they aimed to."* [Panellist 11]

> *"I think these three shortfalls are great"* [Panellist 2]

In contrast, Panellists 12 and 3 emphasized that, based on their experience governance shortfalls 2 and 3 were the most significant. Panellist 3, however, did not recognise the first governance shortfall as an issue at all.

> *"I don't recognise the first of these three, which I don't see as specially related to landscape scale governance. It could apply to any governance arrangement. I think points 2 and 3 have some validity, but for me, the real*

issue about governance at the landscape scale relates to the variability of that scale." [Panellist 3]

"For me, 2 and 3 are the most significant shortfalls. The first one is relevant to an extent, but I'm not sure its unique to landscape scale working. You could articulate the three shortfalls you have identified as interrelated in that" [Panellist 12]

Furthermore, Panellists 1, 3 and 11 chose to build upon these governance shortfalls with specific critiques on their contents, solutions, or alternative governance shortfalls based on their experiences. Panellist 1 argued that, in their opinion, operating across multiple scales was, in fact, a driver of issues in landscape scale working rather than a symptom. Therefore, a solution to this deficiency may lie in addressing this issue:

"Similarly, can I argue that operating across multiple spatial and temporal scales is the driver/problem rather than a symptom of governance failures? So, is the solution bound up in finding the means of merging or finding common ground between short term (social, economic) with long term (ecological) timescales?" [Panellist 1]

Panellist 3 felt the heart of the governance issue at the landscape scale lay in the fact that landscape scale is multiscaled. This is the root of many governance issues because it is challenging to have a consistent governance approach when the scale of governance is challenging to define from the outset of a project. They also reiterated the lack of consistency across the different disciplinary and operational boundaries.

"It's tough to have the consistency of governance at a scale that is fuzzy. The other issue is that local government boundaries and those of water boards and natural resource management organisations are often not consistent with the landscape scale, so their management decisions cut across borders and boundaries. Where administration is coincident with a clearly recognised landscape, there can be more consistent and effective governance" [Panellist 3]

Finally, Panellist 11 provided a series of governance challenges based on their own experience working at the landscape scale. Which have been detailed on the following page

1) *"Partnership working failed where there is a desire for a range of organisations/people/individuals in that organisation to be involved in delivering the outcome, but they have a day job and competing priorities in their current role which prevents them from being actively involved in delivering and supporting the project."*
2) *"You need to have a leader to lead the landscape project – 'to direct operations. However, there must be also a representative from all the partners involved in the project on a steering panel/project board, whatever you want to call it."*
3) *"Funding is a major factor in the failure to deliver positive outcomes. You can have commitment and passion for delivering said outcomes, but if there is no funds to deliver it and funds are needed. However, please note funding is not the be-all and end all. It is not always needed. In some situations, you could get partners/land managers/farmers to provide positive management somewhere in return for something elsewhere. – 'in kind support' A bit like in the old days when people didn't have money they would pay for things with crops they grew or things they had made that were of value to someone else."* [Panellist 11]

9.5 Testing the Landscape Scale Framework with Experts Outside of the Initial Panellists

As a result of feedback from the supervisory team and the Researcher's further consideration, the first refinement before testing the toolkit was to change its name from 'Landscape scale Resource Kit' to 'Landscape scale Framework'. While this may seem a minimal distinction, It was felt that the term 'resource kit' misrepresented the outcome of the research, and may carry inherent limitations which could, potentially, limit the research's impact. The outcome was more than just providing resources to aid in developing and delivering landscape scale approaches but was attempting to establish some explicit conceptual underpinnings and provide operational guidance. A misleading name might hinder the uptake of the Researcher's outcome and limit the impact of the research. The term 'framework' better encapsulates the outcome of the research project, providing both conceptual and theoretical support for experts attempting to develop landscape scale approaches. i.e. the reference of a 'supporting structure' used to plan something offers a much better description of the project's outcome.

The following chapter outlines the informal fourth round of the Applied Policy Delphi technique entitled 'Test', which was actually a component of Round 3. From an early stage in

the methodological development, it was deemed essential to test the project's outcome as part of the Delphi and with experts discrete from the initial sixteen Panellists. First of all, a preliminary testing phase would help refine the 'final' iteration of the landscape scale framework before completing the PhD and ensuring a more robust and valid project outcome. Secondly, testing the framework with individuals from outside of the project would be a better way of measuring the impact of the research and its outcome, bring fresh perspectives, and validity to the proposed contents with experts who were not previously involved in the toolkit's development. This would work to reveal and potentially negate any bias that had become embedded in the work.

9.5.1 Structure and Content

The aim of this specific part of this Delphi was the testing of the research project outcome to ensure it performed as expected and fulfilled the perceived research project aim of aiding in the operationalisation of landscape scale working. The specific aims of the testing phase are as follows:

1. Identify an appropriate and available case study/set of experts to test the landscape scale framework outside of the research project.
2. Collect qualitative data on how the experts received the framework and how it performed to develop a landscape scale approach in practice.

In the first instance, the most recent version of the landscape scale framework (Appendix 7) was sent to the case study experts. When given approximately a week to review the Framework's contents, they provided feedback. Initially, a face-to-face meeting was arranged to explore the framework's content in greater detail; however, due to unforeseen circumstances, the meeting structure had to change to an online video conference. The meeting was organised to discuss the framework and the expert's perceptions of the work, after they had had the opportunity to assess it. The Skype meeting was recorded, transcribed, and analysed using a similar thematic technique employed in Round 1.

9.5.2 Identifying a Good Case Study for Testing

It was essential to identify a case study to test the Landscape scale Framework. The case study requirements were simple; 1) the experts had to be conducting in a self-defined landscape scale approach and, 2) they had to be willing to assess the Framework's value within their busy schedule. However, similar to the initial identification of experts to take part in the research

securing a set of professionals who were willing to test the Framework proved challenging. Many of the individuals who were approached either did not respond to the initial invitation email, were, unfortunately, too busy to dedicate time to the Research. Finally, some of the individuals from industry were reluctant to get involved in academic research. In the end, thanks to some ongoing professional contacts, Officers from Durham County Council were willing to assess the Framework and provide feedback on its use. The section below unpacks Durham County Council's considered experience and its suitability as a potential case study.

9.5.3 Durham County Council

Durham County Council is a local authority of non-metropolitan County Durham, situated in the north-east of England in the United Kingdom. In conjunction with the heritage lottery fund, members of the Council have been involved in the development and delivery of a variety of landscape scale projects. Including landscape scale in County Durham was a Heritage Lottery funded partnership programme and revolved around big projects such as; 'Mineral valleys', 'Living North Pennines', 'Limestone Landscapes', 'Heart of Teasdale', 'Land of Oak and Iron', and 'River Tees discovered'.

Consequently, Durham County Council provided a useful testing site because of their experience and explicit reference to landscape scale approaches. They would be able to provide first-hand feedback on the Landscape scale Framework. Three individuals from Durham County Council accepted the invitation to test the Framework and agreed to provide feedback on its perceptions. These experts had represented a variety of different landscape scale projects through the authority, and their titles were defined as:

Expert 1 - 'Landscape Delivery lead with the Landscape Team.'

Expert 2 - 'Seascape Developer for the Landscape Partnership Projects'

Expert 3 - 'Team leader City Council Landscape Team.'

To reduce the experts' time investment, and capture as much data as possible within the time frame, the Framework was discussed at a video conference. The outcomes of that meeting have been outlined below and used in the final edits and development of the Landscape scale Framework (see Appendix 8).

9.5.4 Feedback from the Case Study

The experts within the case study were only able to provide feedback on the Landscape scale Framework in its current format. Initially, they expressed confusion about what they required to do, the format, the size, and how to navigate the document.

> *"What do you need from us?"* [Expert 3]
>
> *"Where are the tools you describe?"* [Expert 2]
>
> *"We are not academics, right…we are working at various levels on the front line from you but with a similar definition of landscape scale"* [Expert 3]

After some reassurance from the Researcher, the discussion developed around the specific content of the Framework itself. To start, the Experts disagreed with the size of the Framework, stating it was too large and, given their time and professional pressures, the entire Landscape scale Framework, in its current format, was not necessarily accessible to practitioners. They felt a second refinement of the landscape scale was necessary and needed to be shorter and more manageable for non-experts to navigate.

Expert 1 put forward an exciting idea when looking at the definitions of landscape scale, highlighting the importance of 'thematic projects' as an essential aspect of landscape scale thinking.

> *"We consider thematic projects as also landscape scale as well; for example, we are currently funding hedgerow projects across the county"* [Expert 1]
>
> *"it is not restricted to any landscape scale characteristic, but a thematic concept and we/I define it would consider this landscape scale"* [Expert 1]

This is an important aspect to consider in the refinement of landscape scale projects in practice as it moves away from the concept of 'scale' being the defining feature and instead highlights that a landscape scale can be developed around a unified goal or theme. i.e. building upon the concerns of the original sixteen panellists in Section 9.2.2.

Secondly, Durham County Council's representatives used the landscape scale process as outlined in Figure 22, to discuss their approach to landscape scale projects. within these discussions they reiterated themes that emerged earlier in the PhD, which revolved around funding and the need to fit projects to suit funding requirements. Expert 2 stated that;

> *"The process, in reality, is very much based on funding package you are going for and the land availability"* [Expert 2]

Followed quickly by Expert 1, who said;

> *"Yes…this where the academic side of things differs widely from reality",* [Expert 1]

> "*There is quite a lot of artistic licence when you apply for funding*" [Expert 2]

> *"we fit the characters to the funding requirements, and we have to make that work. Otherwise, we have no funding!"* [Expert 2]

It was clear from the Expert discussions that the concept of landscape scale working could be used in many different scenarios, which were ultimately dictated by funding. As a result, the research had them precisely pinpoint what made these different projects landscape scale based on their practical experience; to which they responded with the following:

> "*It is over a **large tract of land**, in which we can fit, and give it some narrative that connect that land, whether it was artistic, landscape character or habitat."* [Expert 2]

> "*The landscape is that defining narrative in which you fit that theme or…*" [Expert 3]

Finally, the Experts criticised the different steps of the landscape process (see Figure 22), stating it, incorrectly, assumed there was a starting point. In reality, different stakeholders can enter into a landscape scale project at any time (often dictated by funding), and the Experts requested that the numbers be removed to reflect this point. They reinforced many of the same topics that had emerged from the first and second rounds of the Delphi. For example, they heavily reinforced the importance of flexibility in the Landscape scale Framework. In practice, this allowed them to 'mould' projects to fit into different funding avenues, without which they couldn't deliver outcomes.

Overall, there was a consensus amongst the Experts that the different elements of the Framework provided added value and could be used, with some refinement, in their current projects. However, they were clear that flexibility was key to the Framework being valuable to practitioners. The value to them was in the identification of the "*fundamental underpinnings of*

landscape scale". Upon reflection, it was felt the Framework in its current format did identify these criteria.

As a result, the issue may have been in signposting and navigation, rather than the tools themselves. The feedback from the panel was used to develop the final iteration of the Landscape scale Framework, which can be found in Appendix 8. However, the Framework's key elements and refinements have been broken down in the following chapter.

9.6 Refining the Landscape Scale Framework

The Experts from Durham County Council provided a 'litmus test' of the project panel's Landscape scale Framework. For clarity, the experts had no involvement in developing the Framework up to that point and were not members of the original sixteen participant panel. However, as critical agents in the delivery of landscape scale approaches, the value of 'litmus testing' the Resource Kit through them was considered particularly pertinent in producing a product that would land well with the target audience, thereby increasing its impact.

In exploring the need for this change, it was determined that Experts from the County Council recognised the value and supported the Landscape scale Framework's contents. i.e., the definitions, Key Ingredients, Principles, and the fundamental steps of landscape scale. However, the 'presentation 'as the Landscape scale Resource Kit did raise some concerns. The experts were overwhelmed by the Kit's size and found it challenging to navigate, which was evidenced by the fact that the Researcher found it necessary to prompt the Experts to the specific elements of the resource because they could not readily find the answers themselves.

The 'litmus test' using the experts brought to light a vitally essential but almost overlooked discussion point for the resource kits success – its aesthetics.

How a framework, tool, or policy document is packaged and navigated is crucial to whether it will eventually be used in practice. In essence, the experts represented a typical end-user, more specifically an end user who was not involved in the development of the landscape scale framework up until this point. If they could not pick up the Framework and use it without direct help from the Researcher, the likelihood is that no one else would either. The local authority experts' feedback is critical because they ultimately form a key agent in delivering landscape scale approaches.

As a result of this feedback, and in addition to the change in name described above, the Landscape scale Framework was heavily edited, significantly reducing its overall length.

Furthermore, a specific signposting page was added as a guide, and which consisted of a series of typical questions which had arisen frequently during the research. Once clicked, the questions direct the reader to the most appropriate tool to answer that question.

This version of the Landscape scale Framework has not been included in the main body of this document, primarily to keep the size of the PhD thesis manageable. Secondly, the final, refined, version of the Framework was not circulated back to the initial sixteen Panellists, but will be taken forward into further research and as result it may be considered inappropriate to include these elements because the original panel have not provided validation and feedback. With this in mind the refinement of the Framework is a fundamental part of the unique outcome of the research and this final revised version of the resource can be found in Appendix 8.

The following section includes some of the key refinements made to the elements of the Resource Kit for the reader to understand how it was revised based on the feedback to Synthesis Report 2 and the litmus test. The following three pages present the updated version of Figure 23, the nested definitions, Figure 24, Figure 25 and Figure 26 which show the operational steps of landscape scale working.

9.6.1 Revision to the Definitions of the key terms

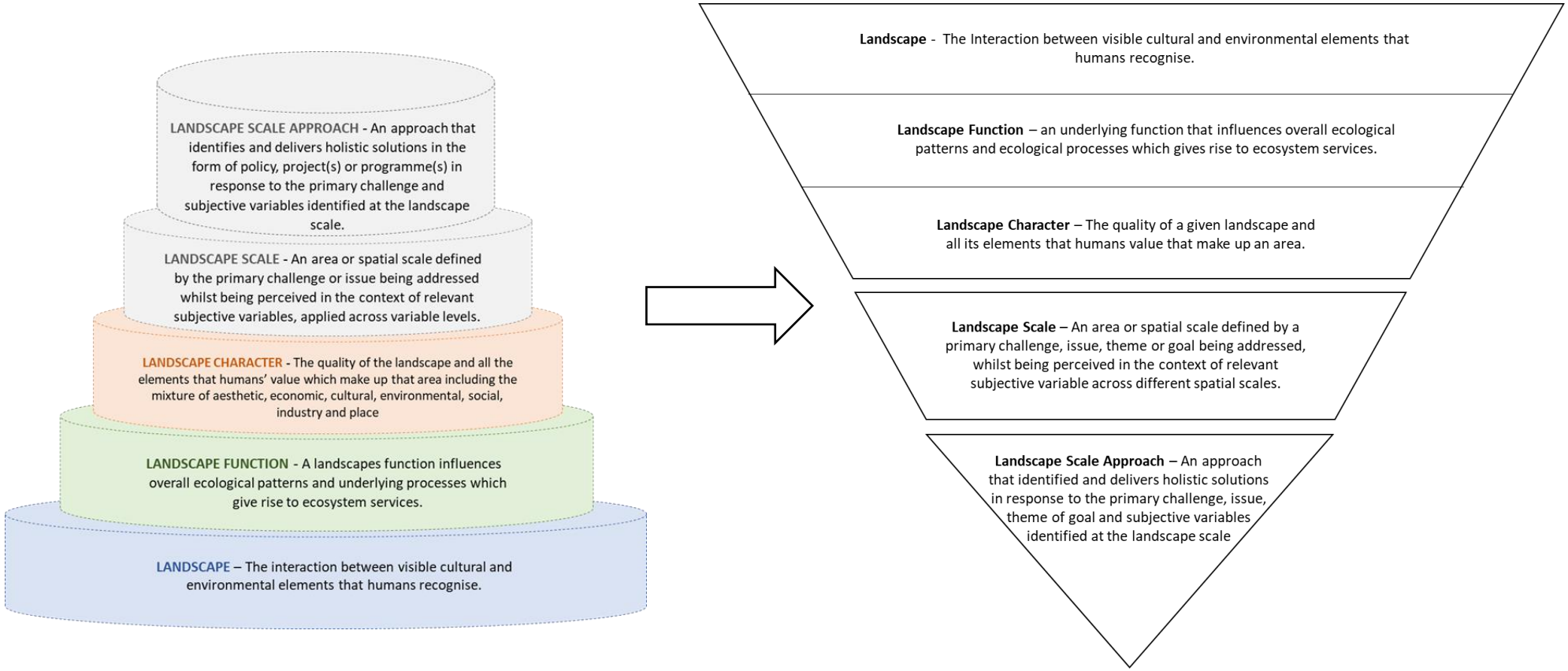

Figure 23 - Revised definitions and figure developed after the Round 3 and the feedback from the Durham County council experts.

The most immediate and obvious changes to the Definitions Diagram after the testing was in the structure and clarity of the Figure. All unnecessary colours were removed in favour of a single black and white diagram. The was done to simplify the final figure and to make it easier to print for practitioners who were unlikely to print in colour.

Secondly, the entire figure was rotated by one hundred and eighty degrees from the initial stepped pyramid style figure developed at the end of Round 3 to an inverted pyramid. This was done to better emphasise the nested nature of the definitions, beginning with the overarching definition of landscape, landscape function and landscape character. Furthermore, an explicit distinct was made between the definitions of landscape scale and landscape scale approach by separating the two definitions. This was done to emphasise that these two definitions were developed as a result of the research, but they still maintain the nested characteristics.

Furthermore, there were subtle changes to the wording of the definitions themselves to enhance the clarity and to incorporate some of the final feedback from the panellists. Notably, the removal of the phrasing "*in the form of policies, projects or programmes*". This was not considered incorrect by the panel of experts, but they felt it limited the outcomes of the landscape scale approach to these different entities, which was erroneous. They emphasised that landscape scale working can yield numerous outputs and only mentioning this explicitly in the definition may limit those experts willing to use the definition.

9.6.2 Revisions to the Petal Diagram

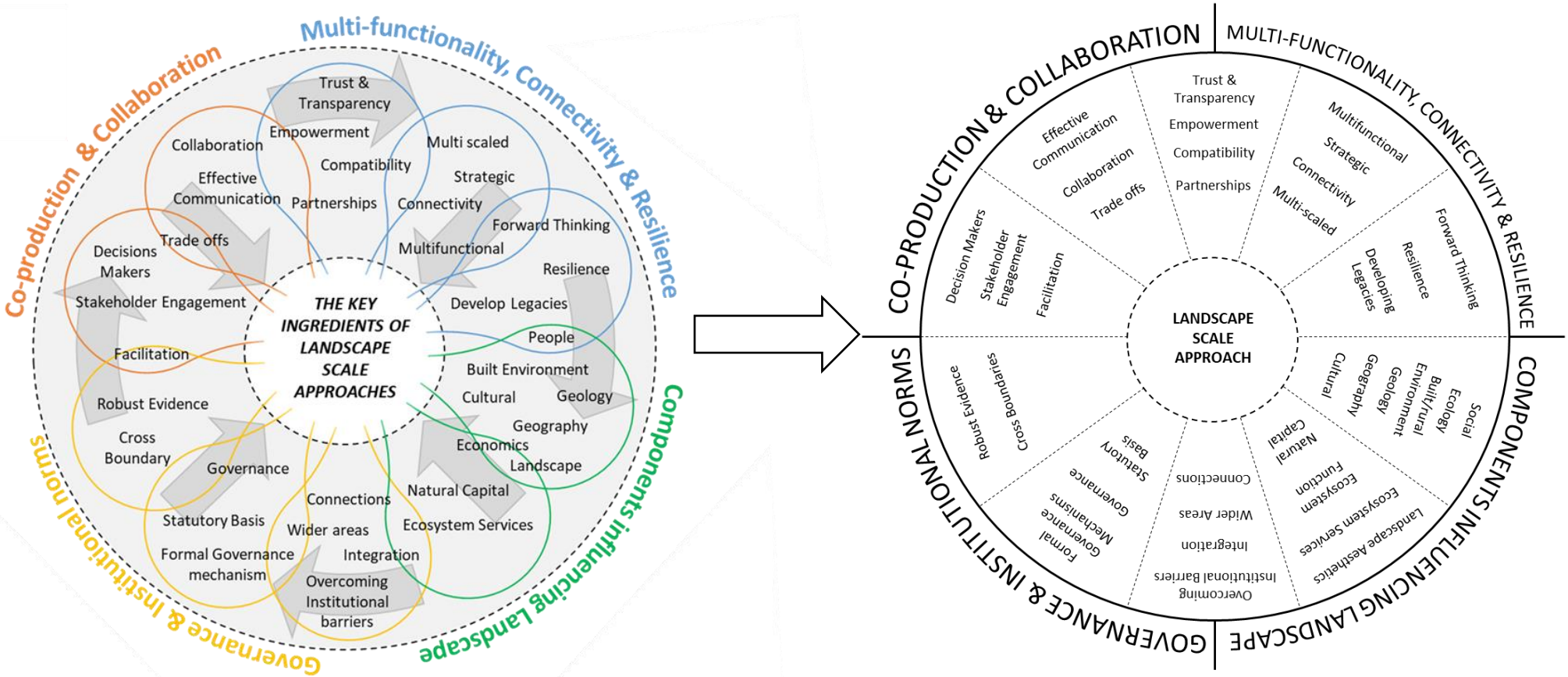

Figure 24 - Revised petal diagram developed after the Round 3 feedback and feedback from the Durham County council experts.

Based on the feedback from the participants in the testing phase there were some minor aesthetic changes made to ‘The Petal Diagram’. These changes were made as a direct result of the feedback around clarity from the three experts. All of the text with the figure was edited and all unnecessary background colours and shading was removed. Furthermore, the colours palette was changed to black and white to make the document easier to print for experts to use and disseminate the material more freely.

9.6.3 Revised Operational Steps of Landscape Scale Approach

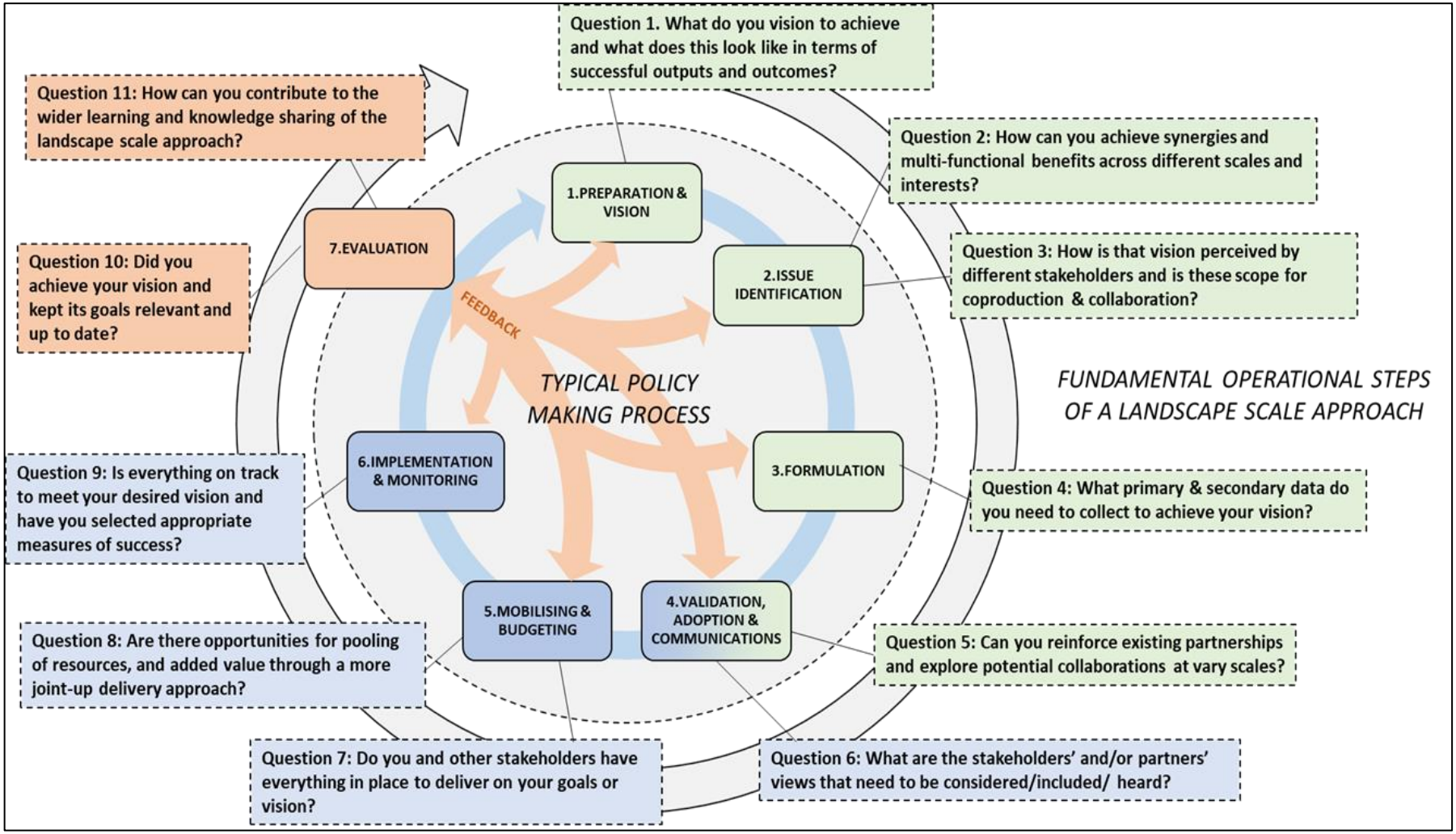

Figure 25 - Operational steps developed before the Round 3 feedback and feedback from the Durham County council experts

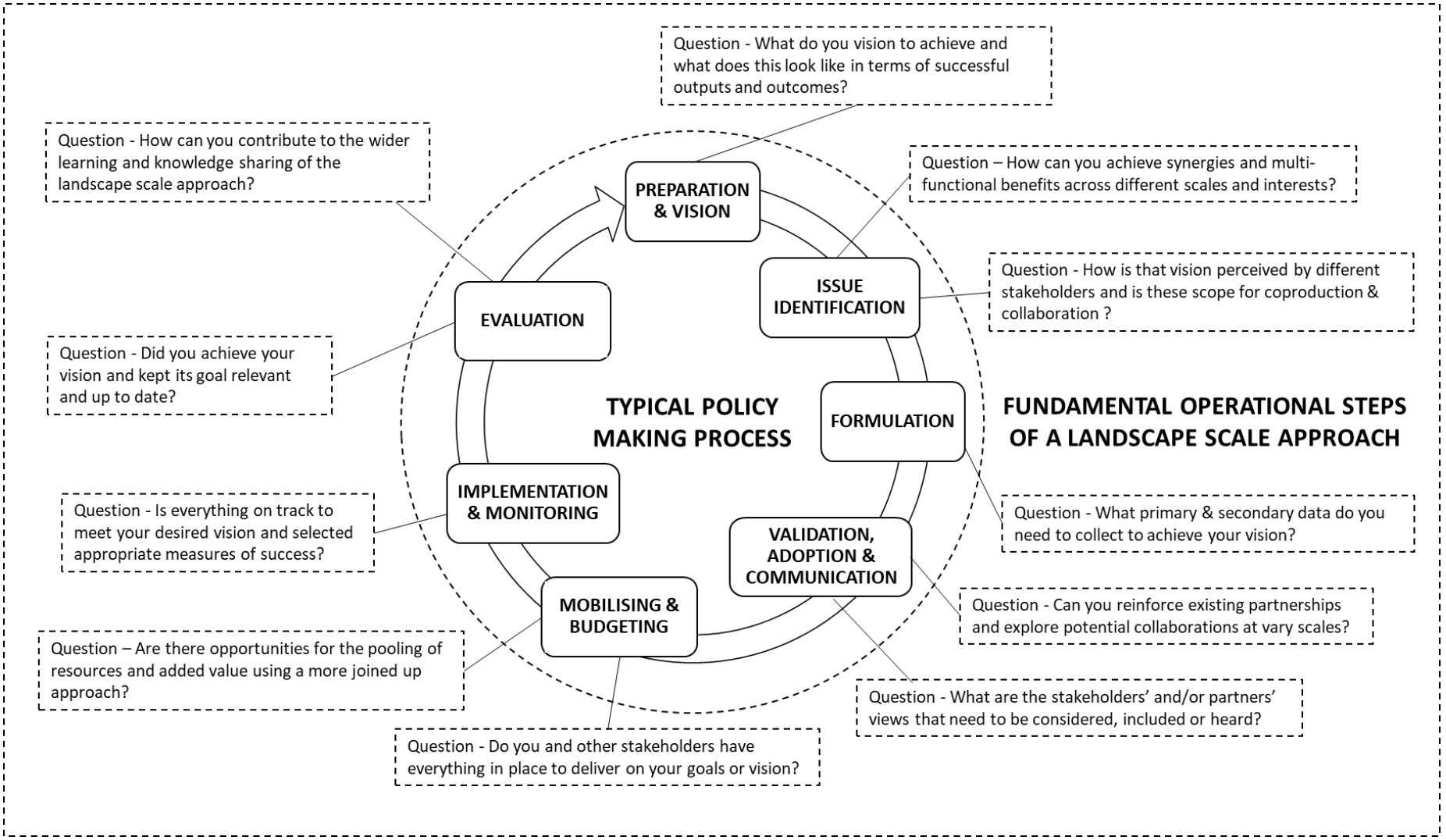

Figure 26 - Revised operational steps developed after the Round 3 feedback and feedback from the Durham County council exper

Finally, during the final testing phase of the research project the fundamental operational steps of a landscape scale approach also had some minor amendments. Similar to the other outcomes the most obvious change was a shift to a simple black and white colour palette. This was done to enhance the clarity of the figure as well as to make it easier to print and disseminate amongst different practitioners.

However, there were also some very subtle changes made to the Figure's contents which have a profound impact on how it is interpreted and used in practice. First, all the numbers associated within the questions were removed from the Figure. This was in order to account for the feedback from Durham County Council's Experts, where they emphasised that experts could enter and leave this process at different stages. As a result, the numbering of the questions can mislead individuals into think that it must because completed in a specific order, when in practice this is not what happens. By changing this, the Researcher was essentially pinpointing that it is the consideration of the question at each phase and not the order in which you complete them. Furthermore, in keeping with the wider feedback which influenced the edits to the figures the "Who Figure" was simplified. The 'feedback' arrows which swept across the whole figure were removed, as it was felt that the circular nature of the process naturally hinted at the need for feedback.

CHAPTER 10
DISCUSSION

10.1 Introduction

Through the form of a discussion, this chapter highlights the critical issues raised throughout the course of this research project and identifies the specific added value it provides in the context of the wider academic literature. More specifically, this chapter explores the benefits of using the Delphi technique as a solitary research approach, recognising its suitability for producing pragmatic research outputs for multifaceted problems. Five specific areas of added value were identified. For the purposes of structuring a comprehensive and clear discussion, this chapter has been structured around the following key themes.

1) **There is real power in the process** – Within Glass, (2011) PhD thesis, "*The Power of the Process*", she used a Delphi technique as a solitary methodological approach to explore, prioritise and develop a series of sustainability indicators for assessing the extent to which upland estate management in Scotland delivers sustainability goals. Within the context of this research project, the transdisciplinary research approach in the form of the applied Delphi technique, brings together national and international experts from different disciplinary perspectives to co-produce a Landscape scale Framework. There is real power in the process, therefore, takes an in-depth look at the specific details of the Delphi process used for this research project with a view to identifying the specific added value it provides over and above that already articulated by Glass et al., 2013 – namely, the value of the Delphi technique in addressing messy, complex policy problems with minimal resources and time.

2) **The landscape scale framework** - The Delphi technique helped to collaboratively develop several new and innovative 'tools' through the research project. These tools take the form of an agreed definition of landscape scale, a collection of key ingredients, a list of landscape scale principles and finally, simple operational guidance to aid in applying landscape scale in practice. Additionally this provided, a basic layout for identifying and presenting landscape scale projects as case studies. These 'tools' help to provide conceptual clarity in the development and delivery of 'holistic' landscape scale

approaches. Having produced these outputs as part of the research project, it is important to set out, and critically reflect upon, the specific added value in the broader research context and consider the implications of that added value for academic community and most importantly, practice.

3) **Exposing the governance crisis** – A consistent and reoccurring theme across the iterative rounds of the Delphi concerned the barriers and limitations imposed on landscape scale working. These barriers and limitations exposed a greater governance crisis because barriers control the way we make decisions and problems with governance, therefore, undermine the ability to work effectively. This part of the discussion reflects on the three crises of governance identified throughout the research project, to determine their specific implications for delivering approaches at the landscape scale and is an important output of the project.

4) **The Researcher's Role in the Project –** The Researcher played a central role throughout the research project as a 'leader' 'facilitator', a 'creator', a 'manager' and even at times, an agony aunt. Any bearing or influence the researcher might have had on the project outcome must therefore be fully understood and a section of the discussion chapter has been devoted to this.

5) **Reliability of the Research Output -** This section of the discussion focuses specifically on the techniques and the format of material and outputs, as opposed to the specific content. The discussion themes relate to a more philosophical reflection on the research project and its outputs by assessing if the methodology and output are scientifically reliable and can be repeated, reused, and reshaped in future research work. This section of the discussion also looks at the validity and added value of the 'Landscape scale Framework' as a tool which will be used in practice by experts.

10.2 There is real power in the process

The Applied Delphi technique, adapted to address the specific research opportunity, forms the 'backbone' of this research project, the Landscape scale Framework, and the final thesis structure. This research project emphasises the value of the Delphi technique as a platform for researchers to develop practical tools for exploring complex and diverse research problems - and reinforces the observations made by Glass (2011) in terms of recognising *'the power of the process'*. In applying the methodological approach, the Delphi did indeed provide an 'unbiased, opportunity space' in which panellists could provide inputs based on their own experiences and perceptions of landscape scale. This is consistent with the importance of the Delphi design highlighted in section 5.4.3 (Pp.63) and the core elements defined by Linestone and Turoff (2002) and others. This PhD provides a specific example of an Applied Policy Delphi technique being adapted to serve as a solitary methodological approach - capable of providing a valid research output using a controlled environment for knowledge sharing between interdisciplinary experts. The following section explores the power of the Delphi process more deeply, with consideration of the benefits it provided in the context of this specific research project.

In the context of framing this discussion, it is important to understand at the outset the structure of the Applied Policy Delphi and the nature of the iterative rounds used to develop the Landscape scale Framework. The Delphi used in this research project was separated into three iterative rounds. Each round had a specific aim and a desired output - see Chapter 6 Figure 11 (Pp.74). Whilst providing a simple structure and a basis for data collection, the contributions of panellists within each round quickly began to overlap. By way of example, during Round 2 of the Delphi technique, the aim was to develop a consensus around a specific project output. However, many of the panellists used this round to comment on the perceived tools and to provide feedback on these tools from the perspective of their own experience, reflecting and expanding upon the outputs of Round 1 by introducing new material. This places an additional responsibility on the Researcher to achieve consensus, finding a balance between delivering against a project timescale and integrating new material after rounds are supposedly 'completed'. However as per the experiences of (Glass 2011), allowing the introduction of new material and giving contributors an opportunity to reflect on the outputs of previous rounds, increased motivation and provided a basis for knowledge development and enhanced social learning. This gave the Panellists the opportunity to digest the material, apply it to their own experiences and then provide additional input from what they have learnt. This process of

reflexive learning between rounds builds directly upon the work by Meppem, (2000) and Glass et al., (2013). It also shows how the process of reflexive social learning between participants can be facilitated by blurring of the iterative rounds within a Delphi technique. This creates an outcome which is ultimately greater than the sum of its parts.

Originally, the influence of these overlapping rounds on the output of the project was underestimated by the Researcher but thanks to careful Delphi design as outlined in Chapter 5 i.e. the semi structured interview and the use of prompts continued within the Synthesis Reports, the Researcher was able to adapt the research approach and account for new data. This contrasts with the historic and more common use of the Delphi technique which utilises successive questionnaires to develop consensus (Hasson *et al*., 2000). Surveys are common for data collection within the Delphi technique (Skinner *et al*., 2014) and the use of more iterative forms of Delphi will undoubtedly place greater pressure upon researchers who often need to deliver against tight deadlines. The advancement in digital technology, the impact of these delays should be mitigated via 'e-Delphis' (Hall *et al*., 2018).

The paragraph above outlines the implications of the overlap between rounds in terms of data collection, the Panellists' project motivation, and the aspect of social learning. However, facilitating the overlapping between rounds also had benefits in terms of the project outputs. For example, the Petal Diagram shown originally in Figure 15 (Pp. 112) was created by the researcher for his own use in Round 1 of the Delphi as a component of thematic analysis to develop a set of common principles for landscape scale working. In light of contributors' wider feedback across rounds as well as input from the Researcher's supervisory team, the Petal Diagram was presented to the panel as a 'new tool' for use in Round 2 which aimed to 'prioritise the Panellist's' inputs rather than 'explore new material'.

A failure to give proper consideration to the potential 'blurring' of results across iterative rounds when using an applied Delphi, technique, risks exacerbating the determination of issues and process of achieving consensus - as defined by Hasson *et al*. (2000). In practical terms, 'blurring' results may force a researcher to overlook or discount valuable developments brought forward by a panel of experts in later stages of a Delphi simply because they are inconsistent with the round's specific aim.

To mitigate against this risk and to harness the benefit of affording flexibility between interactive rounds, the outputs from each round of the Delphi were distilled into two, separate, synthesis reports with open-ended prompts. These reports provided the primary mechanism for

discussion across the iterative rounds, conveying key themes from one round to another. It was a challenge for the Researcher to balance the production of these reports with the available time and in a way that maintained Panellists' motivation. Synthesis Reports serve as a beneficial mechanism for facilitating discussion and developing project outcomes. They allow researchers to focus panellist feedback on specific aspects but are not widely referenced. Whilst the use of synthesis reports-maintained motivation and limited panellist attrition as observed within broader academic literature (see; Linestone and Turnoff, 2002), use of the term 'synthesis' may be a matter of concern for external researchers. The term 'synthesis' implies that the previous rounds' results were compounded or brought together by the Researcher. Within an Applied Delphi approach similar to the one implemented within this research project, a great deal of responsibility falls to the researcher to accurately capture the results and present them to the panel of experts. This is explored in greater detail in Section 10.4 (Pp. 183).

The adapted Delphi technique brought together a panel of international experts from different disciplines to share their own personal experiences of the landscape scale anonymously. Using an 'expert-led approach' as a mechanism to expose a lack of definitional clarity around the concept of landscape scale, has not been recorded before in academic literature, although it has been used in a similar way to illuminate a wicked policy challenge (Glass, 2011; Glass *et al*., 2013). Approaching the research opportunity in this way provided a new perspective, different from the meta-analysis approaches utilised in research to explore the meaning and application of landscape scale in practice (Natural England, 2007; Pfund, 2010; Sayer *et al.*, 2013), content analysis of academic literature to establish the meaning of landscape (Scott and James, 2007), and the reassessment of existing theories to provide practical blueprints (Donaldson *et al.*, 2017).

In terms of rigour and transparency both the Delphi and meta-analytical approaches face challenges. The Delphi does allow for active discussion and reflection amongst a group of experts and as such avoids some of the pitfalls that a meta-analysis approach may face (Borenstien *et al*., 2009; Greco *et al*., 2013). For example, the research cannot correct for poor design or bias in the original studies, which will reach broader conclusions. Furthermore, meta-analysis has been criticised for the 'summary effect', where the summarisation of, ultimately, different studies leads to incorrect conclusions (Bailar, 1997). In turn, such conclusions are subject to researchers' judgments and expertise, incorporating personal biases or expectations that may influence results. In contrast, the **Delphi technique, when applied in similarly to**

this PhD research, allows researchers to repeatedly 'test' the outcomes of each iterative round with first-hand sources of data, mitigating against these risks.

The Delphi approach encourages outputs that are greater than the sum of its parts, something which Glass *et al*. (2013) referred to as 'the power of the process'. In the context of her use of an applied Delphi technique, Glass et al., (2013) emphasises that the Delhi process allows participants to reflect and contextualise their thoughts in light of the input of others and that in many ways, this was just as important as the outcome. The same observation was made in the context of this PhD research. This type of research provides opportunities for social learning through ongoing communication and interaction (Reed *et al.,* 2010). Thus, the opportunity to reflect and communicate (albeit anonymously) with other international experts from different disciplinary lenses, allows participants within the process to move freely towards s opposed to being 'pushed' towards consensus.

The Delphi technique also aligns well with transdisciplinary research, as well as social learning goals within the research process; and it is important here to note the broader research context in which this PhD project sits. Not only does this research project contribute towards the knowledge of using the Delphi technique for PhD research and complex research-policy-practice challenges (Skulmoski *et al*., 2007; Davidson, 2013; Avella, 2016), but it also provides an example of how the Delphi technique can be used to develop conceptually robust and practical research outcomes which have real-world applications and value.

The Delphi technique also fits into the overarching shift towards more inter-and transdisciplinary approaches (Waite and Plewes, 2013); partly in response to the need for a greater degree of understanding of the complex problems of humanity, more significant uncertainty, and the demands for research to engage with a variety of knowledge sources (Pohl *et al*., 2008; Guimaraes *et al*., 2018). This shift is not only reflected in the framing and content of academic publication but is also visible in the changing requirements for successful funding bids (Tommey *et al.,* 2015). Furthermore, it also emphasises that where an array of outcomes are being produced in the form of frameworks, toolkits or indicators, the *process* in which those outcomes are being produced is still essential.

Upon reflection, the Delphi technique was a viable and effective methodological approach within the context of this research project. Despite its inherent challenges and the increased pressure facilitation placed on the researcher, it provides a valuable methodological approach to exploring, developing, and preliminarily test a practical outcome.

10.3 The Landscape Scale framework

Overall, the research project can be considered successful because it has fulfilled the specific research aim of producing a Landscape scale Framework. The final version of this resource can be found in Appendix 5 and this section of the discussion aims to critically review the toolkit's various components and to draw out the specific added value of the frameworks' different elements, specifically those that set it apart when compared with current academic literature.

10.3.1 Definitional clarity

In support of the literature review contained in Chapter 2, panellists emphasised that within the field, definitions were 'nested', with landscape scale approaches incorporating the broader definitions of landscape, landscape function, landscape character and, finally, landscape scale. Having worked through the iterative rounds of the Delphi, the panellist did, in principle, reach a consensus around specific definitions for many of these terms. These definitions have been outlined as part of the Framework (see Appendix 5). The majority of Panellists developed these definitions based upon their own experiences and by referring to overarching policy documents such as the definition of landscape contained in the European Landscape Convention (2009) which emphasises the importance of people's perceptions and recognises the complex interaction of natural and social variables that make up a defined area. By applying the Delphi technique therefore, and despite the assumption that landscape scale lacks a definition and is inherently difficult to define as discussed in Chapter 3, experts from different disciplines were able to coalesce around a basic definition of landscape scale. Moreover, the definition that arose, was not necessarily consistent with the definition contained in broader academic literature. A great deal of emphasis is often placed on landscape scale as a large entity or as a series of connected or 'nested' approaches across a large entity. This builds upon the epistemological roots of the term within ecology and conservation, and the definition of landscape scale which has perpetuated within these fields of study for decades, Mentzger and Décamps, (1997) and which is continually referred to in the broader international academic debate by authors like Pfund (2010), Tabor *et al*. (2014), Mattsson *et al*. (2020).The influence of the epistemology is also visible across international policy documents, frameworks, and strategies with one notable example worthy of further discussion being the Lawton report (Natural England white Paper, 2011). This Report has critiqued the development of environmental policy in the United Kingdom with the mantra of "bigger, better and more joined-up" being commonly used to encapsulate the core aspects of the seminal report. It must

be recognised that the Natural England White Paper proposes essential aspects of environmental management and includes the importance of connectivity and holistic thinking but within the context of the mantra, the term "bigger" comes first.

According to the panel experts, the continued emphasis on landscape scale as a large-scale entity is inaccurate. When adapting the landscape scale to suit different practical requirements across different disciplinary lenses, the expert panel emphasised that the 'size' of the landscape scale was defined by the objectives, priorities, and issues being tackled as part of the approach, not by the physical size of the project.

From this perspective, a landscape approach could be as small as a hedgerow or as large as a national park - a notion that is in complete contrast with the continued academic debate around landscape scale and it is in this context that, and by reflecting on the distinctions made by the panel of experts between the terms 'landscape scale' and the 'landscape scale approach', that this thesis brings both new insights and much needed clarity to the academic debate. Within the research project, the term 'landscape scale approach' was used to denote the actual delivery of holistic solutions in policy, project(s), or programme(s) based upon an objective, priority, or problem. According to the Panellists, the 'landscape scale approach' is delivered at the 'landscape scale', a defined spatial scale or area that exists while also perceiving other variables across different scales. Clarifying the distinction between the terms 'landscape scale' and 'landscape scale approach', was therefore a unique and specific output of the iterative rounds of the applied Delphi used for this piece of research work and is of relevance to both the ongoing academic debate and the theory of landscape scale, as well as its practical application through landscape scale approaches. In simple terms, by teasing out the issues with the panellists, this research provides greater definitional clarity between the 'concept' of 'landscape scale' and the 'practical' delivery of 'landscape scale approaches' which are not the same.

To be considered a 'landscape scale approach', practical development and delivery of the approach require individuals to develop holistic, multifaceted solutions to achieve the goal and solve challenges consistent with the area or spatial scale defined at 'the landscape scale'. The critical feature here is the development of holistic, multifaceted solutions.

The use of the term 'landscape' in '**landscape scale approaches' does not refer to the landscape as a spatial scale in which practitioners should work but instead, refers to the inherently multifaceted nature of landscapes**. This opens the discussion around the

relationship between developing holistic solutions within landscape scale approaches and the essential aspects of the landscape. The explicit use of the term 'holistic' within the definition of 'landscape scale approaches', may link to multi-functionality and the importance of addressing landscape scale projects from a range of perspectives. This is essential in order to successfully realise positive outcomes for a broader range of stakeholders and ensure landscape scale projects or policies leave a viable and relevant legacy.

Other scholars have also grappled with the importance of developing multi-functionality and holistic solutions at the landscape scale (Fischer *et al*., 2017; Hölting, 2020). Interesting contemporary research work regarding the multifunctional nature of landscape highlights the need for practitioners to enhance collaboration between stakeholders across spatial scales and sectors and the transition toward more sustainable land management practices (Hölting, 2020). It is here in which the concept of the landscape scale and the Landscape scale Framework may provide a helpful direction.

The Framework outlines the conceptual and operational guidance to develop approaches that operate across spatial scales and to integrate different stakeholder groups. This Carter *et al*. (forthcoming 2021) – work this project researcher collaborated in. The Landscape scale Framework contained in Appendix 5 shows uses a circular diagram to encapsulate the landscape's multifunctional aspects and is adapted from Tudor (2014). The diagram demonstrates the different variables that define 'landscape' from physical, social, and personal perspectives and define five-dimensional scales of taking a landscape scale approach. Together, the contents of the Framework produced as part of this thesis helps practitioners understand the distinct features that contribute to the multifunctionality of 'landscape' and develop 'landscape scale approaches' that at their core, are defined by holistic solutions and multifunctionality.

10.3.2 Principles of Landscape Scale approaches

To support use of the Landscape scale Framework and to establish consistency of approach, ten landscape scale principles were also developed as part of this research project. In simple terms, landscape scale principles provide a 'set of rules' to help practitioners develop landscape scale approaches that are effective and are a vital aspect of the design process Donaldson *et al*. (2018) as well as other examples across academic literature such as Ahern & Cole (2012) and Sayer *et al*. (2010).

The development of landscape principles is not unique to this research project. However, their co-production using transdisciplinary research, in contrast to the overarching meta-analysis more typically employed to elicit core principles from past working and case study examples, most certainly is. examples of which include Forman (1995), Ahern & Cole (2012), Sayer *et al*. (2010). This research project therefore provides a new perspective on the development of landscape scale approaches, one that overcomes some of the bias typically inherent in met-analytical approaches. The following section compares and contrasts the landscape scale principles produced with this research project with those produced by Ahern & Cole (2012); Sayer *et al*. (2010). For simplicity, the key differences have been encapsulated in Table 4 which is adapted from (Cater *et al*., *forthcoming* 2020). For ease of reference and for the purposes of emphasising the specific added value of this PhD research the immediate differences between the principles produced by this thesis and pre-existing landscape scale principles have been highlighted in red.

Integrated Approach to Landscape Scale Ahern and Cole (2002)	**10 Landscape Scale Governance Principles produced in this Thesis**	**10 Principles for a Landscape Approach to reconciling agriculture, conservation and other competing land uses** Sayer *et al*. (2013)
1 Be based on an area with **coherence and integrity** 2 Recognise that landscapes can exist at **all scales** 3 Take a **holistic approach**	**1 Define the project scale appropriate to the challenge(s) and enhance strategic, integrated thinking and delivery across multiple scales**. An appropriate and coherent area is identified for a Landscape Scale project based on current/necessary/desirable characteristics. **The chosen boundaries are likely to differ from existing administrative or political boundaries**. – Landscape Scale projects **operate across multiple scales simultaneously**. Therefore, it is important to **align** and integrate project and policy goals and outcomes with wider strategic thinking and delivery. Furthermore, because of the dynamic nature of Landscape Scale working, it is vital to consider the implications and effects of any decision across these multiple scales.	3 **Multiple scales** - Outcomes at any scale are shaped by processes at other scales
7 Understand that edges and boundaries are **zones of transition**	**2 Understand the interrelationships and dependencies between people and landscape** – The **inherent interactions between people and the landscape** must be identified and understood when working at the Landscape Scale. This includes the myriad of cultural, social, emotional and economic connections, which can be **subjective and comparative.**	1 **Continual Learning and adaptive management** – Landscape processes are dynamic; learning from outcomes can improve management
4 Involve a **wide range of disciplines and perspectives**	**3 Encourage collaboration, coproduction and communication** – Landscape Scale approaches require collaboration and **explicit lines of communication**. Because of the dynamic nature of approaches that Landscape Scale working entails, it is important to foster an atmosphere of trust that involves communication across disciplinary boundaries, sharing / aligning resources and responsibilities and co-designing and co-delivering solutions. **This includes the need to share lessons learnt**.	5 **Multiple stakeholders** – All stakeholders should be recognised, even though the efficient pursuit of negotiated solutions may involve only a subset of stakeholders 10 **Strengthened stakeholder capacity** – People require the ability to participate effectively and to accept various roles and responsibilities

6 Focus on **maximising multiple benefits**	**4 Identify commonalities with all / among stakeholders** – It is essential to identify common aims, goals and outcomes with stakeholders and **organisations in 'safe' spaces** within the defined area. Doing so via a transparent and proactive approach can help conflict management and overcome barriers relating to land ownership and different interests or priorities. This is likely to include exploring organisations and participants' values and reasons for their decisions.	2 **Common concern entry point** - Solutions to problems need to be built on shared negotiation processes based on trust
7 Understand that edges and boundaries are **zones of transition**	**5 Establish landscape incentives upon the foundation of ecosystem integrity and function** – Landscape character and landscape functions are fundamental to how we perceive, **'value'** and reap personal and societal benefits. Therefore, decision-making processes as part of Landscape Scale approaches must protect **and enhance natural functions and the integrity of ecosystems** and their corresponding flows of services and assets for the long term. **Concepts such as 'natural capital' and 'ecosystem services' are used to help capture and assess 'value'.**	4 **Multifunctionality** – Landscapes and their components have multiple purposes, each of which is valued in different ways by different stakeholders
3 Take a **holistic approach** 6 Focus on **maximising multiple benefits**	**6 Co-produce holistic solutions which serve multiple functions** – Solutions developed within a Landscape Scale approach must generate multiple benefits. This can be a result of effective collaboration with all appropriate stakeholders. Trade-offs need to be explicitly acknowledged, and the way they are mitigated must be transparent.	8 **Participatory and user-friendly monitoring** – Accessible learning and sharing information
	7 Recognise institutional, political and physical barriers and prioritise that one can do something about – Project leaders need to **identify the myriad of institutional barriers (i.e. the difference in organisations' priorities, policies and processes), political barriers (e.g. related to administrative boundaries and elected representatives) and physical barriers which may affect the scope and delivery of projects.** Prioritise those barriers that can be done within the available	6 **Negotiated and transparent change logic** – Trust among stakeholders is a basis for good management and is needed to avoid or resolve conflicts

	timeframe and participants' realm of influence and networks.	
	8 Identify roles, responsibilities and leadership – Landscape Scale approaches tend to be 'complex and multi-faceted with various stakeholders and individuals contributing to policy-making, project planning and delivery and across the various areas/sub-projects of Landscape Scale working. Therefore, it is essential to have effective project management with clearly defined roles, responsibilities, and milestones. **This may require formal leadership and champion(s) to direct and coordinate work.** Securing the support of a political champion and/or influential elected members may be very useful.	7 **Clarification of rights and responsibilities** – Rules on resource access and land use need to be clear as a basis for good management
	9 Base all decisions on a proportionate and fit for purpose evidence base. All decisions must be based on qualitative and quantitative evidence (including data, stakeholder views, contextual knowledge), drawing upon different expertise at all levels.	
5 Agree **forward-looking outcomes and objectives**	**10 Develop longevity and resilience** – It is essential to outline a long term strategy for a given Landscape Scale policy, project or programme. This is likely to include defining explicit actions to ensure measurable transformational change and/or considering how initiated changes and actions will be carried forward beyond the policy/project/programme end.	9 **Resilience** – System-level resilience can be increased through an active recognition of threats and vulnerabilities

Footnote – font in bold shows the similarities between the different principles, and font coloured red shows the added value and/or differences highlighted in the PhD research.

Table 4 – Table Summarises the final Landscape Scale principles produced compared with the Landscape Scale principles produced by Ahern and Cole (2002) and the 10 Principles for a Landscape Approach produced by Sayer et al. (2013). From Carter et al. (forthcoming 2021)

As can be seen by the contents of the table above, the landscape scale principles developed as part of this research project bear many similarities to those published by Ahern and Cole (2002) and Sayer *et al*. (2013). Whereas these similarities add nothing new to the debate, they are an important validation that the co-produced, transdisciplinary approach used within this research project, and adequately cover the existing ground, as well as providing additional insights when compared with earlier published work on the (integrated) landscape (scale) approaches.

All of the landscape principles emphasise the importance of integrity as well as the experts' ability to design and deliver desired outcomes across multiple scales. The landscape scale principles developed within the research project also emphasise the importance of approaches operating across multiple scales **'**simultaneously'. The expert distinction of the term 'simultaneously' may seem a minor one, but contemporary academic literature has pinpointed the influence spatial scale has on the relationship between ecosystem services and broader decision-making. For example, in the context of the ecosystem, Qiu *et al*. (2018) observed relationships between regulating services such as soil retention and water quality across three spatial scales. Despite this, factors regarding drainage and the amount of surface water runoff could differ dramatically across different spatial scales. In the context of specific biodiversity, Chase *et al*. (2019) identified huge scale dependencies of species richness in anthropogenic pressures. This emphasises how developing an understanding of how biodiversity is changing, requires explicit recognition of the influence of the spatial scale on that change, Lagabrielle *et al*. (2018) explored a multi-scale spatial planning method, implemented simultaneously at the local and national levels, to prioritise ecosystem management. This work attempted to mitigate against 'scale mismatch' that occurred within traditional planning mechanisms in South Africa. These three examples, taken from the wider contemporary literature, highlight how simultaneous consideration of spatial scale is an essential variable within environmental decision-making. Mismatches between different scales are prevalent and directly influence the relationship between ecosystem services and our species richness. What is clear from this research project is landscape scale can facilitate this multiscale approach. Developing landscape scale approaches using co-produced, transdisciplinary research methods, therefore encourages experts to consider their own project designs within the context of the broader landscape and with different foci. Encouraging experts to think across multiple scales simultaneously could indicate that the landscape scale principles developed as part of this research project also have application in fields outside of Planning. The landscape scale principles presented within the landscape scale framework make an explicit reference to

identifying the different boundaries imposed within any given area. Based on the outputs from the iterative rounds of the Delphi, this typically refers to physical boundaries in the form of hedgerows, trees, water bodies, roads, buildings, etc. and anthropogenic boundaries.

The thematic issue of institutional, physical, and anthropogenic boundaries across environmental science is well explored in contemporary literature (Perz *et al*., 2010) and has also been also prevalent throughout this research project. The panel of experts continually articulated issues in terms of the anthropogenic, institutional, and physical boundaries they perceived when delivering landscape scale approaches. Many authors have identified the adverse effects anthropogenic and physical boundaries can impose on projects and in response, many have provided a variety of different mechanisms to help overcome these boundaries. Principally, these mechanisms seek improve decision making by better integration of stakeholders and enhancement of transdisciplinary working (Perz *et al*., 2010). Whereas these mechanisms deliver multiple benefits and help to prevent silo working they fail to recognise it is often impossible for practitioners to resolve every limitation placed upon them. Acknowledging this fact and including it within the landscape scale principles developed as part of this research project, may appear sub-optimal but in recognising practitioners cannot overcome all the barriers they encounter. This means it is important to focus limited time and resources on those physical and anthropogenic boundaries professionals can affect. In this context, Pesch's (2014) findings, which related specifically to institutional boundaries, but can be extrapolated to other forms of boundary, are of relevance. According to Pesch (2014), institutional boundaries sometimes exist to address underlying societal issues or to hold actors accountable for the actions and decision that they make. To influence such boundaries as part of a landscape scale approach might therefore risk potentially unforeseen consequences, simply resulting in a different type of problem, in this context, the inclusion of a landscape scale principle that specifically mandates practitioners with a level of discretion as to which barriers they address, is a positive step.

Whilst many of the landscape scale principles set out in Table 4 are amendments of, or additions to, those put forward by Sayer et al. (2010) and Ahern & Cole (2012), Principle 9 is an important new addition. Principle 9 focuses predominantly on the decision-making process and the importance of a proportionate and a fit for purpose evidence base that supports that process. This may seem self-evident in that the making of better decisions requires better evidence. However, its inclusion as a specific output of this research project is entirely consistent with the broader current debate in environmental sciences concerning knowledge

generation, resource capacity and commitment- a pressing theme highlighted by the first international Collaboration for Environmental Evidence (CEE) conference held in August 2016 (Cooke *et al.*, 2017). Inclusion of this theme as a principal requirement of the landscape scale concept will therefore underpin the process of data collection, broadening the evidence base and providing a platform for experts to peer review. In turn, this will also help to facilitate more holistic thinking and more joined-up working in the development of landscape scale approaches by potentially providing a meeting place outside of traditional disciplines, thereby mitigating the risk of silo-working identified by (Ahern & Cole, 2012),

The Researcher initially interpreted the panel's expressed need for specific definitions around the landscape scale as a lack of governance in terms of principles, policies, and process. However, the iterative rounds of the applied Delphi technique helped to provide much greater insight into this aspect of the research, exposing the fact that both academics and practitioners alike valued the nebulous nature of the existing concept as this allowed for greater freedom to mould individual projects to fit with specific funding requirements. The need to retain this flexibility, therefore gave rise to the development of the 'Petal Diagram' (see Figure 28). This diagram outlined the key ingredients of the landscape scale arising from keywords used by the expert panel during the iterative rounds of the Delphi. These key ingredients were grouped together under four themes: 1) Co-production and Collaboration, 2) Multifunctionality, Connectivity and Resilience, 3) Decision Making and Institutional Norms, and 4) Factors Influencing Landscape. Reflecting upon the completed version of Figure 28, co-production, collaboration and multifunctionality, and connectivity are common themes of landscape scale approaches across academic literature. The idea of enhancing connectivity across spatial scales and between different stakeholders is prevalent across academic literature and an essential aspect of conservation policy and frameworks working at the landscape scale. However, the concept of resilience is not causally related to landscape scale approaches but is a vital aspect of this research project. This emphasised the need for longevity within landscape scale approaches and moreover, for the setting and securing of long term aims for each project.

The structure and arrangement of' the Petal Diagram is in direct response to the landscape scale definition and the landscape scale principles identified as part of the research project. The Petal Diagram is therefore an attempt to provide an accessible and practical tool for practitioners to use when designing and developing landscape scale approaches. In this context, the outputs of this specific research project address directly the gap identified by Donaldson et al. (2017), - producing a practical tool to assist practitioners in developing landscape scale approaches that

have different combinations of foci. Based on the very positive feedback received from the expert panel during the testing phase of the landscape scale framework, the Petal Diagram succinctly draws together the key ingredients of a landscape scale approach, presenting the major considerations in such a way that the petal diagram provides a useful 'tool' to disseminate the requirements for effective landscape scale working across a much broader audience

In the context of the Petal Diagram's usefulness as a 'tool', it is important to mention the inclusion of several overarching themes which featured prominently during the iterative rounds of the Delphi but which were not explicitly taken forward in terms of the development of the landscape scale resource kit. One such example is water, a theme which repeatedly came to the fore during Round 1 of the Delphi. In its various forms and functions, catchments, lakes, rivers, reservoirs canals etc, water is a key feature of the landscape. It is therefore a prominent feature in the landscape scale debate; a fact which is true to such an extent, that it can dominate discussion, consume vast amounts of research time and thwart attempts to operationalize landscape scale approaches across different disciplines. Although, present in the Petal Diagram and clearly an important aspect of working at the landscape scale, protracted discussions discussion of these overarching themes was discouraged.

10.3.3 A Crisis of Governance

One of the major issues identified by the panellists during the iterative rounds of the Delphi was the perceived 'crisis of governance'. During the initial stages of data collection, Panellists discussed the various limitations and barriers they experienced when trying to develop and deliver landscape scale approaches. These limitations were synthesised into three distinct areas of governance, which can be briefly summarized as follows:

Governance Shortfall 1 - Poor Communication, Engagement, and Partnership Working combined with an Ingrained Culture of 'hiding' failures. This important finding was supported by the mantra of '*people are listening without hearing, looking without seeing and failing to share experiences essential to underpin future improvement.*'

Governance Shortfall 2 - Poor Alignment of the Resource Allocation Process with the Need for Bespoke Project Outcomes. This was supported by the mantra '*There is a limited amount of time and money available for landscape scale projects with current arrangements for allocating 'process' rather than 'outcome' led'*.

Governance Shortfall 3 – Difficulties in Securing Effective Facilitation and Strong Leadership for Multifaceted Projects. Which was supported by the mantra '*There are many ways to get to the finish line, but the course must be well organised, signposted with someone setting the pace.'*

In the context of this piece of research work, the three governance shortfalls outlined above, represent the key barriers and limitations to holistic delivery and wide scale uptake of landscape scale working. These shortfalls therefore need to be discussed and analysed further, Governance Shortfall 1 is directly linked to the challenges associated with more collaborative and participatory forms of governance. According to scholars such as Armitage *et al*. (2012), the shift towards more participatory environmental governance is a widespread phenomenon across environmental decision making. The challenges associated with increased participatory working include engagement and communication challenges between large numbers of different stakeholder groups. Considering the wider academic literature, difficulties associated with communication and engagement of different stakeholders within Governance Shortfall 1, are not unique to landscape scale approaches and instead, represent a common governance issue related to more participatory forms of environmental working (National Academy of Sciences, 2016; Margerum and Robinson, 2016). Encouraging practitioners to consider the multifaceted nature of landscape across different spatial scales simultaneously, might therefore encourage a more holistic response. There is also a risk however, that encouraging a landscape scale approach might exacerbate the problem observed with participatory approaches, potentially making more challenging to achieve a desired outcome.

Further consideration of the panel's inputs over the iterative rounds confirms this as a legitimate risk. Throughout, Panellists explicitly highlighted a lack of appropriate tools to facilitate the shift towards participatory approaches. The various stages of the Delphi, therefore distilled a perception amongst panel members that these kinds of barriers and limitations 'go with the territory' and are unavoidable in terms of the day-to-day delivery of projects. As a result, there is a current tendency towards mitigation of these barriers and limitations on a case-by-case basis rather than the root causes. By way of example, one Panellist stated they would change their stakeholder engagement approach depending on who they were attempting to engage in the process. Such actions may be commonplace and seem entirely pragmatic but unless well documented, considered and shared in academic research, they become part of the problem, not the solution.

In turn, this makes a clear case for the view of the panel in terms of the need for 'progressive change' in environmental governance. This might involve stimulating a change from the highly disintegrated planning system (Scott *et al*., 2013) to one that is capable of dealing with landscape scale challenges and supports social-ecological system approaches; In support of the panellist's view is the work by Lockwood *et al*. (2010), which discusses a series of sound governance principles for use in designing governance institutions that are legitimate, transparent, accountable, inclusive, and fair. According to Lockwood, transparency and accountability are sound principles of institutional governance design. In this context, the expert panel's frequent references to the lack of a 'safe' mechanism for reporting failures, was of particular concern. In articulating this point further, panel members described this as a function of the mechanism. From the panel's perspective, there is as much value in documenting failures as there is in recording success as only in this way can the process of learning take place. The broader academic literature supports this sentiment wholeheartedly. For example, Köhler (2018) emphasises the importance of learning from failed sustainability projects. Dietz (2003) outlines several criteria for good environmental decision-making. one of which makes particular reference to environmental decision-making being a 'social process' and as such is a chance for learning, Dietz (2003) states that;

> *"All good decision processes are social processes. They are social in the sense that they involve many people speaking with many voices. They are also social in that they continue over time. We will never be certain that any particular decision is correct. But we can hope that we will learn from successes and failures and that over time the process of making decisions will improve. Thus, a good decision process must involve both social and individual learning."*

In short, failure (and by definition its acceptance and recording) is essential to a good environmental decision-making process. The question therefore remains why failures are not reported and the implications this has in respect of landscape scale working.

At the turn of the millennium, Dietz (2003) drew on an array of epistemological research to understand the challenges associated with learning from both positive and negative experiences and why, in terms of environmental decision-making, there appears a reluctance to draw from these experiences. In part, Dietz (2003) attributes this to the fact that environmental science is often rooted in the physical sciences (see Chapter 3, the Literature Review) is therefore inherently reliant upon scientific theory and less confident engaging with qualitative

experimental data of the type more commonly found in the social sciences. such as designing and implementing corrective and summative judgments to work. However, the increasing emphasis on participatory working and the requirement to integrate different knowledge sources into environmental decision making (as seen in Chapter 2, the conceptual framework) will inevitably involve some aspects of human behaviour. To more readily acknowledge failure within existing governance will therefore include a requirement for social learning processes and inevitably therefore, an acceptance and improving familiarity with handling more 'messy' forms of data.

Building further on this, Coburn (2003) explicitly highlighted that local knowledge differs from professional knowledge and argues the former can improve planning in at least four ways; 1) *epistemology*, adding to the knowledge base of environmental policy; 2) *procedural democracy*, including new and previously silenced voices; 3) *effectiveness*, providing low-cost policy solutions; and 4) *distributive justice*, highlighting inequitable distributions of environmental burdens, importantly noting that not all positive changes in decision making come from positive environmental projects but can also be learned from missing or negative experiences.

The literature suggests the need for greater tolerance of failure in landscape scale working but what is also clear is current governance systems show an obvious and important bias towards positive project reporting and failures, or unsuccessful elements of a project are not reported for fear of losing funding. Ultimately there is a clear need for a 'safe' reporting mechanism that will embrace both failures and success. Discenza & Forman (2007), provide several categories to help quantify project failures. Further consideration in terms of the academic debate around the capture, recording, and positive application of 'failure' may therefore improve governance and help towards the development of more integrated landscape scale approaches.

Governance Shortfall 2 refers to the difficulty of aligning the resource allocation process and the need for landscape scale approaches to deliver bespoke project outcomes. In the context of the iterative rounds of the Delphi, this was highlighted by the mantra 'There is a limited amount of time and money available for landscape scale projects but current arrangements for allocating these resources are 'process' rather than 'outcome' led'.

According to the expert panel, this problem manifests in several ways. First, in a tendency for practitioners to adapt the design, delivery, and implementation of a specific project to fit the specific funding requirements. Within academic literature, the dynamic between 'funding' and

scientific research has already been explored. For example, there is a recognition by different publics that science and researcher is directed by funding and other resources (DiMento and Ingram, 2005)—highlighting that on a fundamental level, all stakeholders are aware that there is a relationship between funding and research. Contemporary literature highlights the positive aspects of these relations. For example, Arnott *et al*. (2020) demonstrated that the escalating funding requirements for more collaborative environmental approaches yield measured changes in strengthening research practice and enhanced connections between research outcomes and knowledge use.

Despite this, it is exceedingly difficult to find valid academic sources which explore the negative connotations of this relationship, especially the strategic alteration of a project proposal to meet funding criteria and thereby secure the necessary funding.

The outcome of a project is the central aspect that defines the design, delivery, and implementation of a landscape scale approach. Their 'watering down' or alteration of the approach to achieve a better fit with available funding criteria is not consistent with a landscape scale approach. In an ideal world, funding would be moulded to fit the bespoke requirements of a landscape scale project - not the other way around. Governance Shortfall 2 may therefore limit the effectiveness of the delivery of landscape scale approaches in both the short and long term. An important output of this research project therefore is that it shines a light on this challenging and contentious issue which will require further consideration by environmental decision-makers in the future.

Also falling within the sphere of Governance Shortfall 2 is the important issue of legacy. Throughout the iterative rounds of the Delphi, the expert panel identified a heavy focus of funding and resource allocation on 'how' a specific output could be delivered, ignoring in many cases the resilience of solutions, and the maintenance of the outcome in the long term. In brief, project proposals and funding mechanisms did not consider the issue of legacy and in this context, did not plan for the future. This is significant because as outlined by (Turner, 1990; Fahrig, 1992), landscapes are dynamic entities that fluctuate over time. Contemporary experts defining landscape components, explicitly feature 'temporal scales' as a defining feature (Khoroshev and Dyakonov, 2020; Carter *et al*., forthcoming 2021). In this context, legacy is often a key driver for success in landscape scale projects. Importantly therefore, this finding is not in line with the broader academic literature which clearly emphasises the importance of temporal scales in the management, monitoring, and delivery of projects across the various

aspects of landscape science, including stakeholder perception of landscapes (Westling *et al*., 2014), cultural landscape scales (Crumley *et al*., 2017), ecosystem services (Vigl *et al*., 2016), conservation and biodiversity distribution (Dornelas *et al*., 2013), as well as many others. Across the iterative rounds of the Delphi, the panel expressed the clear view, that in this respect at least, theory does not translate into practice on the ground. Without full and proper consideration of longevity within the budgeting process, it is therefore not surprising that those designing and developing landscape approaches struggle to build proper resilience in their projects. It is therefore an important finding of this research project that temporal scales and longevity into landscape scale approaches are not well embedded and that building resilience into landscape approaches will require a fundamental change in governance, specifically in the way projects are specified and funded.

In the context of the shortfalls in governance identified above, it is perhaps unsurprising that across the iterative rounds of the Delphi, the project panel also identified the difficulty of securing effective facilitation and strong leadership for multifaceted projects as a further governance concern. This governance shortfall was articulated using the mantra '*There are many ways to get to the finish line, but the course must be well organised, signposted with someone setting the pace',* emphasising the importance the expert panel placed on the facilitator's role in securing successful outcomes for landscape scale projects.

Within the context of current landscape scale projects, 'authority' is often shared or lacks clarity. With a large number of potential stakeholders, interests, skills, and expertise will vary widely. Exacerbating this issue further will be unique nature of the landscape scale concept itself which designed to inherently flexible, dynamic and operate at multiple scales. In the absence of strong leadership, maintaining a clear focus on specific project goals can be difficult, suggesting the need for a much more robust governance framework that recognises the specific requirements of the project, allocates roles across the different stakeholders to achieve a 'best fit' but then also ensures any gaps in skill mix are identified, appropriately funded, and filled. As highlighted throughout this piece of research, partnership working, collaboration, communication, engagement, and the development of holistic solutions are core aspects of landscape scale working with the balance of these requirements unique to each landscape scale project. One individual with all the skills required to manage and maintain oversight of such a project will be hard to find, form an expensive investment and, in some cases, may not exist at all. The ability to fund and recruit appropriately to fill gaps in the skill

base for each unique project will be key but focusing the landscape scale approach with an unrelated budgeting process will almost always be sub-optimal.

10.4 The researcher's role in the project

Historically, there has been little recognition of the researcher's role within a Delphi technique (Glass (2011). According to Glass, the researcher is an active catalyst of information and is key in the development process throughout the Delphi technique. With this fact in mind, this aspect of the discussion explicitly focuses on the research's role within the Delphi technique and explores the specific implications this may have on the outcome of the research project.

Throughout the duration of the research, the researcher fulfilled multiple roles (which the supervisory team referred to as different 'hats'). These roles included but were not limited to;

'Researcher/academic' – The Researcher must be in touch with the major theoretical developments in the scientific field of inquiry and draw upon them to ensure that the discussion within the approach is conceptually sound.

'Practitioner' - It was important for the Researcher to perceive the participants' experiences from their perspective and to attempt to facilitate conversations around practical outcomes.

'Agony Aunt' – At times, the Researcher provided panellists with a 'consoling ear' allowing panellists to share their frustrations and difficulties they experienced with their work and colleagues.

'Facilitator' – The Researcher had to make a conscious decision at times to follow some aspects of the panellist input, providing timely support from other participants (anonymously) and making connections between different data and information in order to create something new (Freeman 2007)

'Peer Reviewer' – The Researcher is aware and critical about the outcomes of the project.

'Leader and even Showman' – Despite the fact that participants had a key role in shaping the project outcomes, the Researcher was ultimately seen as the project leader and as such, co-coordinated meetings, set deadlines and, wherever possible, provided incentives to panellists to provide input and complete tasks. Fulfilling this role required the Researcher to appear charismatic, interested, and enthusiastic about the project inputs and outputs to ensure the continued support of the panellists. This directly challenges the preconceived notion outlined

by Novakowski and Wellar (2008) that the Researcher should be perceived as an 'impartial moderator' who does not directly input or impact upon the outcome of the research.

Panellist attrition is a key risk factor that undermines academic research and did affect the project. In the context of this research project, great care was taken to construct a panel of experts that reflected a wide range of expertise across a range of different disciplinary lens. The loss of one or more panellists therefore had the potential to skew the outcome of the research. The role of the Researcher in mitigating against this risk through the wearing of so many 'hats' was therefore seen as a positive influence on the outcome of the research. Consistent with anonymous nature of the interview process used across the iterative rounds of the Delphi, the Researcher's input was also seen as valuable in terms of improving the quality of the research outputs. By forcing Panellists to reflect upon their own as well as the input of others from previous rounds and encouraging them to draw upon their previous experiences, the researcher actively teased out the important issues and help to stimulate new ideas. . In this context, the outputs from this research project therefore support the findings of Glass (2011) which proposes the researcher as a fundamental catalyst of information and ideas if carefully planned. Given the positive perception of the role of the researcher by members of the expert panel. This research project would go further, proposing the Researcher as the **keystone** that holds the project together with optimisation of the Delphi technique dependent upon the ability of the researcher to wear all these different hats.

10.5 Reflexivity: the outcomes reliability, validity and added value

Given the fact that due to time constraints, there has not yet been the opportunity to test the outcomes of this research in practice, to what extent can the findings of this research and the contents of the Landscape scale Framework be considered valid and reliable. Issues of validity in qualitative research continue to be widely debated n academic research (Whittemore et al., 2001). Based upon the historical definitions of 'reliability' and 'validity' that support positive research approaches, scholars such as Golafshani (2003) have emphasise the need to redefine what is met by these terms when considering the multiple ways of establishing 'truth'. In response to this need, academics have explored the different ways to establish validity in qualitative research, Whittemore *et al*. (2001). draws together key literature from the 1990's exploring validity criteria in qualitative research and dividing them into 'primary' and 'secondary' characteristics. In the context of Whittmore's work, primary characteristics consist of 'credibility and authenticity', referring to conscious effort of the researcher to accurately interpret the data's correct meaning and present it in an accessible and realistic manner with

‘criticality and integrity’, referring to the critical appraisal and analysis of those results against existing or past work. Secondary characteristics being 'explicitness', 'vividness', 'creativity', 'thoroughness', 'congruence', and 'sensitivity'. In comparison, Golafshani (2003), encapsulated these terms more broadly, dividing them into ‘trustworthiness’ ‘rigour’ and ‘triangulation’ - citing Creswell & Miller’s (2000, p. 126) definition of triangulation “*as a validity procedure where researchers search for convergence among multiple and different sources of information to form themes or categories in a study*”. In contrast, contemporary research has somewhat challenged the importance of ‘rigour’ in qualitative research. Thomas and Magilvy (2011) state that “*qualitative rigour itself is an oxymoron, in which the research emphasis is on the researcher and the participants as a journey of discovery which in and of itself does not lend itself to rigorous boundaries*”.

In the context of this wider research, it can therefore be challenging to establish the validity of qualitative research but using the work of Golfashani (2003), Thomas and Magilvy (2011) as a basis to proceed the validity of the outputs of the landscape scale framework were be measured against the following criteria.

1. The overall research projects’ trustworthiness’ in the form of credibility and authenticity of the presentation of material and evaluating the panellist’s responses, the data collection methods and the coproduction of knowledge that led to the current iteration of the landscape scale framework.
2. The research criticality and integrity achieved through triangulation to explore different perceptions and experience from different knowledge sources.
3. The elements of ‘explicitness’, ‘vividness’, ‘creativity’, ‘thoroughness’, ‘congruence’, and ‘sensitivity’ throughout the iterative rounds resulted in the landscape scale framework's current version.

The research project highlights the importance of ‘packaging’ when it comes to the material’s presentation is just as important as the material itself. The research outcome’s name changed three times throughout the course of the project to better represent its contents. Furthermore, the Durham County Council Experts highlighted the difficulties in navigating large documents and the long-term effects on the research outcomes.

CHAPTER 11
CONCLUSION

11.1 Introduction

The following chapter summarises the essential findings and outcomes of this research project. This is followed by some basic policy and research, and recommendations for the future of landscape scale research. There are also some potential avenues of further research that arose during the project. Finally, the chapter closes with a more personal reflection on the Landscape scale Framework and how the Researcher's experiences and knowledge of landscape scale changed throughout the project duration.

11.2 Summary of findings

This research project aimed to aid more effective delivery of landscape scale programmes, policies, and projects across different disciplinary lenses. Although the expert panel proposed many different tools throughout the iterative stages of the Delphi, it became very clear after the first round that Panellists preferred different tools to aid in the development of landscape scale approaches and that the kind of tool required depended greatly on each Panellist's current area of work and experience.

Despite the expressed need for bespoke tools to suit individual requirements, the Researcher also identified significant value in combining the tools produced into a single, holistic research output in the form of a Landscape scale Framework. The combination of the different tools proposed by the experts formed a unified conceptual and operational skeleton. Consistent with the initial aim of the research project, the Framework is a co-produced holistic ‘toolkit’ that provides both the conceptual underpinnings and operational tools to aid experts charged with the delivery of landscape scale approaches. In this respect, the research project has achieved what it initially set out to do and can be considered successful.

However, no less valuable was the research methodology, namely using an applied Delphi technique to engage a panel of experts in the co-production of the landscape scale framework. The use of the Applied Delphi technique brought a unique perspective to the challenges currently faced by those trying to implement a landscape scale approach. The anonymous, iterative nature of the Delphi combined with the unique use of synthesis reports to distil the

issues revealed the need for various tools to assist in practical application and a lack of conceptual underpinnings worked against different disciplines coalescing to reach consensus. This manifested in persistent difficultly establishing an agreed definition of landscape scale, an issue that had become so pervasive that even after developing consensus around a definition for landscape scale, the Panellists continued to provide input and further refine the definition even after the first draft of the Framework had been developed. This appeared linked to the Panellists' inability to separate the definition of landscape scale from their own experiences in the form of case studies and working examples. The critical distinction made by the Panellists between the theoretical concept of "landscape scale" and its delivery in terms of "landscape scale approaches" further emphasised this critical distinction. The definition of 'landscape scale' remained a source of rich discussion amongst Panellists even after the initial draft of the landscape scale resource kit had been produced (and personal contact between the Researcher and Panellists continued). Whereas the definition of 'landscape scale approaches' seemed much more palatable to members of the expert panel because they could see the direct application to their work.

Notable as a research outcome regarding the definition of landscape scale in planning was the consensus reached amongst panel members that the spatial scale does not define landscape scale approaches. Put simply, landscape scale approaches are not limited to large scale projects. This is in direct contrast to the more typical definition perpetuated in academia, policy, and practice. Instead, a landscape scale approach is defined by its objectives and is defined by the development of holistic solutions which use the multifaceted nature of landscape to develop and deliver strategic solutions. This, in turn, forces practitioners to consider various aspects relevant to landscape scale working, which is why the operational elements of the landscape scale toolkit, such as the operation steps and petal diagram, became so important as they helped to specify what elements must be considered as part of landscape scale working.

Having achieved consensus around the definition of landscape scale and developed greater clarity in terms of its conceptual underpinnings, the Researcher was able to identify several clear, consistent, key ingredients and principles of landscape scale working. This would suggest that despite the diverse range of experiences and disciplinary lens in which the expert panel perceived landscape and landscape scale working, there was indeed a common 'language' all Panellists could understand and therefore engage more widely and more effectively. As well as validating the applied Delphi technique as an effective qualitative methodology for data gathering in this field, this research highlights the potential of landscape scale as a concept to

provide a 'meeting place' for experts from diverse disciplines to come together and work effectively. However, in terms of specific added value, this research project slightly challenges the observations by Ahern & Cole (2002), where experts often perceived co-production working outside their disciplinary lens. In contrast, the development of the landscape scale framework within this research project provides a common thread through different disciplines in the form of landscape. As a result, experts can converse and develop solutions. Although this may seem like a subtle change in wording, the difficulties the Panellists found in separating the concept of landscape scale from their own experiences are fundamental aspects of the research, highlighting that the ability for practitioners to ground the landscape scales approaches within their disciplinary lens is key to enhancing its wide scale delivery.

In addition to the requirement for an agreed definition and conceptual underpinnings, another outcome of the research work was the identification of three distinct governance shortfalls as acting as barriers to landscape scale working. In brief, these shortfalls are as follows; 1) Poor communication, engagement, and partnership working with an ingrained culture of accepting failure; 2) Poor alignment of the resource allocation process with the need for bespoke project outcomes; 3) Difficulties in securing effective facilitation and strong leadership for multifaceted projects.

The three deficits identified above were a consolidation of the barriers and limitations encountered by practitioners when attempting to deliver landscape scale approaches. Crucially, with limited resources and a need to utilise those resources effectively, governance shortfalls that undermine, resource allocation, stakeholder engagement, longevity, and long-term resilience, are fundamental in nature. All these areas are highly active aspects of contemporary research and serve as a validation of the findings of this research project; they will be integral to the successful delivery of environmental projects. Also highlighted by this research is that although shortfalls in governance experienced by practitioners were not unique to landscape scale working, the impact of these shortfalls was exacerbated when attempting to design and deliver holistic, multi-faceted, landscape scale projects with an increasing emphasis on interdisciplinary working. In turn, this highlights a much bigger question around contemporary governance structures and how they fail to facilitate holistic, multi-dimensional solutions. In attempting to overcome these challenges, practitioners are forced to control what they can, i.e. create and work within their silo or take on extra transformative measures, often outside of the typical employment role, to make projects work.

11.3 The Landscape scale framework as a research outcome

The landscape scale framework and the individual tools contained within it went through a number of different iterations during the course of the Delphi technique. Not only did the elements of the framework evolve to suit the requirements of the experts on the panel, but the perception of the framework by the expert panel also evolved, with the name changed three times to better represent its contents, from 'toolkit' to 'resource kit' and finally, 'framework'. The 'final' version of the landscape scale framework developed within this research project can be found in Appendix 8. As an output, the final version of the landscape scale framework has already proven to be of value to experts working at the landscape scale, and in this context, this research project has fulfilled its aim. Given the range of expertise and varying backgrounds represented by the expert panel and the positive feedback received from the panel regarding the framework's potential utility, the landscape scale framework co-produced by this research project can be considered innovative, robust and has broad applicability. In this context, the landscape framework will significantly impact the successful implementation of landscape scale approaches. This notion is supported by international calls for research on overcoming the challenges for governance regarding landscape scale working. For example, within the open-access journal 'Land' ISSN 2073-445X, a call for research papers for December 2020, asked for ways that governance, policy, and values interact and promote multifunctional landscapes that foster social-ecological integrity, thus contributing to biodiversity conservation.' (MDPI, 2020). This call for research focused on landscape scale governance and the processes for decision making in landscape conservation. Not only does this validate the findings of this research project, but it also supports the pressing need for the specific output of this research PhD – the Landscape scale Framework. 'Land' ISSN 2073-445X comes four years after the Researcher originally identified this research opportunity. Although a little behind the curve from the author's perspective, it will provide a useful avenue for publication, allowing disseminating this research to a broader, international audience. From this perspective, it is timely.

11.4 Potential impact of the framework in current landscape scale approaches

The following section briefly explores the potential application and impact of the landscape scale framework in a practical example. Notably, thanks to the ongoing professional relationships developed as a direct result of the adapted applied Delphi technique employed

within the research experts at the environmental agency identified the value of the framework. Particularly in an innovative catchment scale project currently in the development and scoping phase called 'River Trent Partnership' based in the East Midlands of the UK. This section draws upon the preliminary collaborations between the researcher and these experts to understand how the landscape scale framework can add value to their project. First, section 11.4.1 outlines the core aspects of 'The River Severn Partnership' a national pioneering project in which the River Trent Partnership is attempting to build upon using the case study template created within the Landscape scale Framework. Following this, the section briefly critiques 'The River Severn Partnership' based upon the limited amount of published material. Finally, the section uses the results from this critique to highlight potential areas of improvement or missed opportunities which could aid in the development and delivery of the River Trent Partnership, which is current in the initial exploration and scoping phases.

11.4.1 Case Study – Facilitating a landscape scale approach to the innovative River Trent Partnership in the UK.

Currently the United Kingdom's Environment Agency is developing a series of catchment scale partnerships across the country. Arguably these partnerships seem to broadly align with the concept of the Catchment based approach (CaBA) (CaBA, 2021). The CaBA attempts to facilitate the work between over one hundred catchments across the United Kingdom to develop a strategic and inclusive, civil society-led initiative that works in partnership with government, local authorities, water companies, businesses and more, to maximise the natural value of our environment, for the benefit of all stakeholders. A pioneering project which appears to be loosely aligned with the CaBA is the River Severn partnership (RSP) (RSP, 2021). The RSP is a relatively new project with the aim of making "*the Severn Catchment Britain's most vibrant and resilient river network; where an exceptional quality of life, prosperous local economies and an outstanding natural environment is driven by a programme of innovation to reduce flood risk, secure future water resources and improve and deliver shared natural assets*.". The key aspects of this project have been outlined using the template for case study format as defined in the final draft of the Landscape Scale Framework in section 11.4.3.1.

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11.4.3.1 Unpacking the River Severn partnership using the template created within the Landscape Scale Framework

Project Title: *River Severn Partnership (RSP)*

Scale: *Defined catchment scale.*

Discipline/lens(es): *The RSP appears to be engaged with a wide variety of interrelated disciplinary lenses at its cores seeming to focus on the aspect of resilience and climate change. But explicitly bringing together the disciplines of economy, environment, energy, resources, jobs, tourism, flooding, droughts, transport, growth, water sources, people, agriculture, and housing.*

Project aim:

1. *To make the Severn Catchment Britain's most vibrant and resilient river network; where an exceptional quality of life, prosperous local economies and an outstanding natural environment is driven by a programme of innovation to reduce flood risk, secure future water resources and improve and deliver shared natural assets.*
2. *To achieve this aim, the partnership will look to help people, businesses, and the environment along the River Severn to be prepared for and resilient to the impacts of climate change, across an area which covers the Rivers Severn, Teme, Warwickshire Avon and Wye. Proposals to achieve this include options for flood risk management, improving water quality, environmental enhancement and developing an integrated approach to water resource storage and management.*

Contextual Setting: *Project is based in the United Kingdom, estimated size of 21,000km2 and encapsulates eleven independent management catchments. Figure 27 is provided by the RSP website as a map to encapsulates the overall catchment in the context of the UK.*

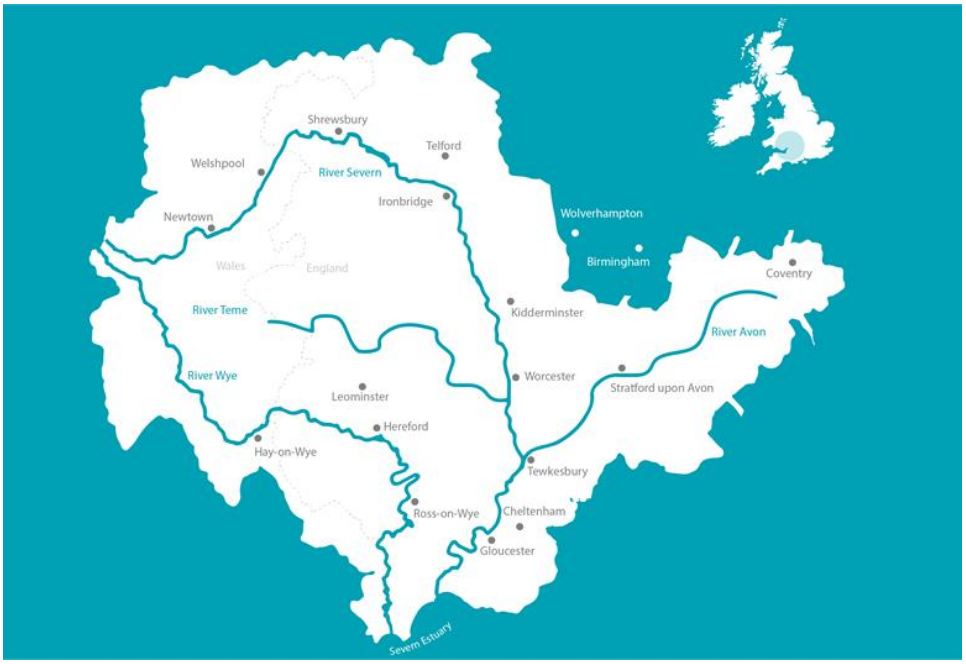

Figure 27 – Map of the Rover Severn Catchment (Adapted from RSP, 2021)

What kind of landscape scale approach was used: *Project is not referred to as a landscape scale approach but as a catchment based approach which operates at the catchment scale. The application of the landscape scale approach has been used to critique the work in order to inform a similar project in the Trent valley.*

Who is involved: *Environment Agency, Shropshire Council, Telford and Wrekin Council, Herefordshire Council, Worcestershire County Council, Wychavon District Council, Wyre Forest District Council, Malvern Hills District Council, Worcester City, Gloucestershire County Council, Tewkesbury Borough Council, Powys County Council, Marches LEP, Worcestershire LEP, Gloucestershire LEP, Greater Birmingham and Solihull LEP, Water Resources West, Severn Trent Water, Natural Resources Wales, Severn Rivers Trust, Local Nature Partnerships, Wildlife Trusts, National Farmers Union, Natural England, Homes England, Birmingham City University, CLA, Midlands Connect, Forestry Commission, Dŵr Cymru Welsh Water*

Core Achievements*: Unknown, currently no explicit results published at this stage.*

Opportunities, Barriers & Challenges:

To highlight the opportunities, barriers and challenges the following figure was created and provide to quickly outline the key aspects of the work

Figure 28 – Map of the River Severn Catchment (Adapted from RSP, 2021)

Lessons learnt

Unknown, currently no explicit results published at this stage.

Important Links

River Severn Partnerships Website - http://www.riversevernpartnership.org.uk/

11.4.3.2 Critiquing the River Severn partnership

The RSP was a national pilot project and as a result there is limited amount of current data on the project's success beyond the RSP website. The following section uses one tool within the landscape scale framework to critique the RSP project and assess the potential added value a landscape scale approach could have added to the project. Namely, the key ingredient or 'petal' diagram to quickly explore the key ingredients considered as part of the RSP project.

Figure 29 uses a simple colour coding system consisting of green, amber, and red to assess the consideration of the landscape scale key ingredients within the RSP project. *red* pinpoints ingredients which do not feature in the RSP website. The key ingredients that are highlighted *amber*, are explicitly referenced but currently have no accessible raw data or supporting evidence and finally the key ingredients highlighted *green* are explicitly referenced, with some degree of accessible supporting evidence. It is important to note that this analysis was conducted using the limited information available on the RSP project website (RSP, 2021).

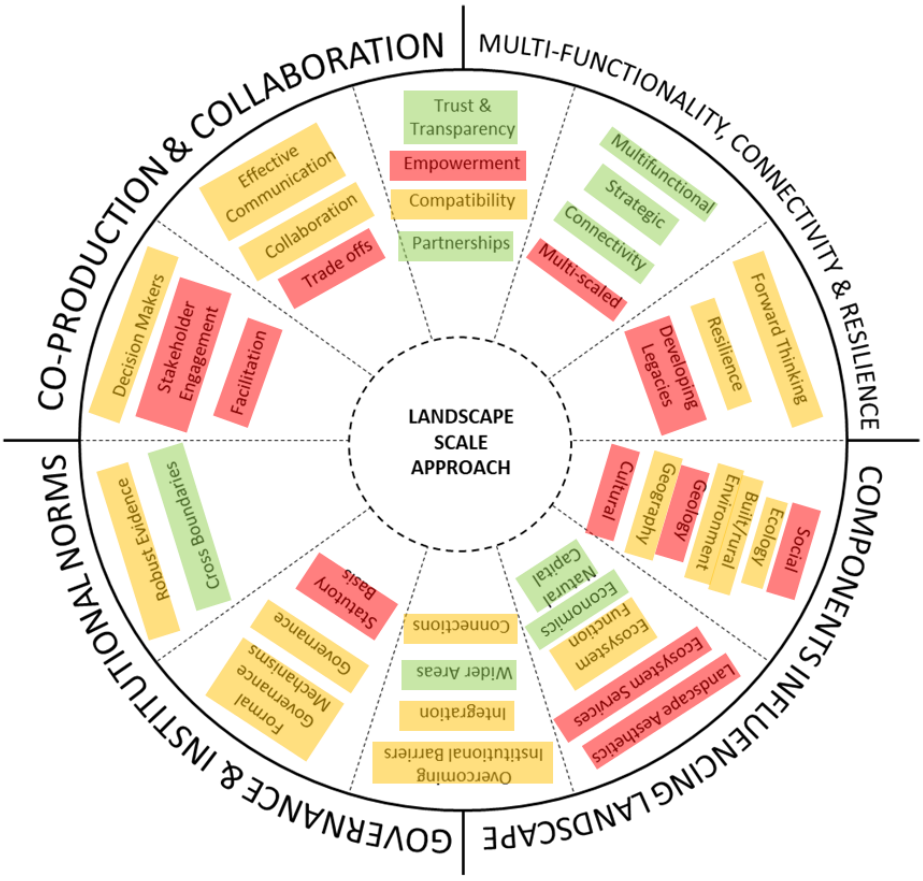

Figure 29 – Simple critical review of the RSP using the key ingredients in the petal diagram

Overall, based on the information provided by the RSP website (see; RSP, 2021) a large proportion of key ingredients of the landscape scale approach were referenced in the RSP project. However, despite many of the key ingredients being explicitly referenced only nine were highlighted green because they were justified or supported with evidence/greater exploration. Critically, twelve of the key ingredients across the petal diagram were highlighted red because they could not be explicit identified as an aspect of the RSP project. The follow

section briefly explores these 'red' key ingredients across each of the four characteristics of the petal diagram, starting with co-production and collaboration.

Co-production & Collaboration – First, the RSP website did indeed highlight an array of organisations, local authorities, trusts, unions, and commissions who were involved within the Project. These organisations appeared to be key decision-making entities within the River Severn Catchment. However, there does not appear to be any explicit evidence of how this collaborative process was conducted or what key aspects were discussed at different stages. Following this a critical key theme which was apparently absent from the RSP project was an inclusive and transparent stakeholder engagement process. According to the RSP website in a section entitled "*Forward plan – partner and community engagement"* it is stated that *"community engagement will take place over the coming months […] to understand all of the areas that could be potentially impacted by future proposals*". This suggests that in the early stages of the project development there was not an explicit community engagement strategy, and the local community were only involved in the project development after the proposals had already been defined and were moving into the implementation phases. The relationship between people and place, and the importance of explicit and timely community engagement in a landscape scale approach, is a fundamental ingredient continually emphasised throughout the research project. A failure to successful engage with local communities from the outset leads to long term issues in which practitioners are forced to engage with local community groups outside of their job role and ultimately it can hinder the longevity of a project solutions by not taking advantage of local community resources, knowledge, and experience.

Building from this, the project explores a lot of different themes and refers to the need for a "*joined-up approach*" involving many stakeholders. Furthermore, there is reference to a defined plan for effective collaboration and communication between the identified stakeholder groups emphasising the consideration of these key ingredients. However, there is little supporting evidence to inform these key ingredients. For instance. the events page on the website is a year out of date with no new events being planned (online or otherwise). Secondly, beyond the identification of the partners involved in the Project there is no clear explanation of the roles in which they serve or the mechanism by which the project facilitates collaboration between these entities. In short while the RSP project emphasises the need for co-production and collaboration between different stakeholders, it does not appear to have integrated local communities from the outset of the project or hasn't defined explicit mechanisms to facilitate

this co-production and collaborations of different stakeholder groups. Issues which the research project pointed out as leading to critical project failures (see Figure 16).

The RSP aims to bring together a wider range of different stakeholders and actors with different requirements, views, and perceptions. Secondly the project seemingly engages with a wide array of themes especially resilience and climate change. This explicitly brings together economy, environment, energy, resources, jobs, tourism, flooding, droughts, transport, growth, water sources, people, agriculture, and housing. Initially, such a broad reaching mandate is aligned with the principles of a landscape scale approach, bringing together transdisciplinary experts. However, at its core, the project appears to lack a central thematic issue or topic in which all work can be grounded. One key ingredient of a landscape scale approach is the need for a central thematic issue, topic of underlying goal. The failure to acknowledge an underlying thematic issue in which all stakeholders can embrace and engage with using their own disciplinary lenses undermines a landscape scale project. There is an abundance of sources that highlight the challenges of multiple stakeholders with conflicting opinions. To mitigate against this a landscape scale approach is grounded in a widely accessible thematic issue. This encourages experts to focus on an agreed goal to negotiate trade-offs between those individuals.

Finally, as an additional note, the website functionality is poor. The website continually fails to load, and its contents are outdated. While this may see an overly critical analysis of the project the website is a key source of engagement and resource sharing for projects like this. A poorly functioning website limits the project communication and outreach reducing transparency of the work and minimising engagement of potential stakeholders. Building upon the topic of transparency however, beyond the website functionality the project itself appears to promote transparency, the website clearly encapsulates the aims and objectives of the work, highlighting key partners (with links) and broader material.

Multi-functionality, connectivity, and resilience – The second characteristic of landscape scale approach revolves around the important of multi-functionality in a project solution or proposals. The connectivity of those solutions across disciplinary lens and spatial scales and finally considering the concepts of resilience and longevity of any proposals. After a preliminary review of the limited information on the RSP project website these characteristics did indeed appear to be critical characterises of the project with the exception of two key ingredients which the researcher chose to highlight red, which were ‘multi-scaled’ and ‘developing legacies. Clearly, the RSP project is attempting to elicit a catchment scale approach

bridging pre-defined anthropogenic boundaries and develop a partnership between regional authorities and institutions. However, a landscape scale approach requires the consideration of multiple scales simultaneously. In which projects that are developed at the catchment scale for example and aligned and coherent with regional and local scales policy, projects and proposals. While the RSP project focuses at the strategic catchment scale it is vital to explicitly consider and explore other spatial scales. Based on the preliminary information and the apparent lack of an explicit local community engagement strategy the project may not have considered the implications of decisions at the local scale. Despite the explicit focus on resilience as a critical aspect of the RSP project, the concept of longevity does not appear to be an explicitly considered key ingredient of the project. The consideration of legacy in any aspects of the work must be considered from the outset.

Components influencing landscape – Unfortunately, five of the key ingredients within the characteristic of the components influencing landscape were of the colour coded red and not considered to be explicit referred to in the RSP project website. The RSP project was not a landscape scale approach and as a result it is unsurprising that the project did not engage with the 'components' of the landscape and the high number of 'red' key ingredients is not necessarily an indication of a poor project. However, on the other hand, one key ingredient which was not explicitly referred to in the RSP website and may have profound implications of the success of the project is the ingredient of 'ecosystem services' and in conjunction the consideration of 'ecosystem functionality'. These two ingredients are fundamental in development of an effective landscape scale approach and critically underpin environmental decision-making processes. An understanding and acknowledgement of the services that the landscape provides the local community as well as a clear understanding of the underlying function of the landscape leads to more effective decision making. Importantly, the RSP is attempting to develop a catchment scale partnership, bringing together traditionally separate entities and stakeholders under a unified approach or partnerships. Given the innovative nature of this project, its aim and the inclusion of a variety of stakeholders across the regional spatial scale, an explicit exploration into the landscape scale ecosystem services and the ecosystem functionality would be critical in understanding delivery and implications of the project on the landscape at the catchment scale.

Governance and institutional norms – Finally, the last characteristic of a landscape scale approach revolves around governance and institutional norms. In practice with the limited amount of data from the pilot project it is difficult to unpack if and how the RSP engaged with

governance and institutional norms on a practical level. It is safe to assume that through the engagement of many local authorities and overarching institutions the experts will naturally bring an appreciation of wider frameworks, legislation, regulations and policy instruments into the discussions and work. However, developing a catchment scale project lacks a statutory basis and as a result it may be difficult to embed/deliver.

In conclusion the follow broad themes were identified through the preliminary analysis of the limited data available on the RSP project using the Petal Diagram of the landscape scale framework.

1. The need for a more **robust and representative stakeholder identification and engagement strategy** that looks beyond the regional scale at local authorities, NGOs and institutions and brings together a more representative cross scale stakeholder group.
2. The **explicit Integration and empowerment of local stakeholders from the outset of the project**, encouraging them to shape the proposals before they are formed as well as take ownership over certain element of the project and tailor its outcomes to meet local user requirements.
3. The need for the selection and defined **project facilitator** who is responsible for reinforcing project accountability, equity, and progress at all phases. As well as forming the cross disciplinary and cross scale contact point for the different stakeholders.
4. The need to identify of a **clear thematic issue or topic with which to anchor the project and build a basis from transdisciplinary discussion and collaboration**. The RSP project is trying to achieve a great deal but lacks a centralised theme to build upon.
5. The need to develop an **explicit multi-scaled approach considered the alignment of the project's outputs, goals and aims across different spatial scales** not just focuses at the strategic catchment scale.
6. **Define a transparent and fair process for co-production collaboration which can be accessible by different stakeholders' groups** and actively followed through a working website.
7. The RSP **project seemingly did not engage with many of the key ingredients defining the components of the landscape including social, geological, and cultural elements**, this may help to ground the work in other disciplinary lenses and bring in missing stakahdoelr groups.

8. **The landscape scale approach draws explicit attention to the key ingredients of ecosystem services and landscape functionality. It is unclear how the RSP project engaged with these two ingredients in the context of the catchment scale approach**.

Interestingly, a similar project is current in the very early stages in a neighbouring river catchment currently referred to as the **River Trent Partnership (RTP)**. Through the ongoing professional relationships developed as a direct result of the adapted applied Delphi technique experts within the environmental agency are exploring the potential of a landscape scale approach to the RTP to integrate the benefits outline above.

Experts attempting to plan and deliver the have express and interest in the landscape scale approach and have begun to engage with the different aspects and the outcomes outlined within to develop such an approach.

11.5 Limitations of the research and its outcomes.

This section explores the limitation of the research project and its outcomes. Namely it explores the conceptual boundaries of the study, the limitations of the testing phase and the limitations of the framework itself as an outcome. First, the overall project was considered successful and the adapted applied Delphi technique that was used in the research did indeed provide an excellent platform for the development of an academically robust and practically useful tool in the form of the landscape scale Framework. However, the research project had limitations in which it is important to reflect upon in greater detail to understand their implications on the research and its outcomes.

First, the conceptual boundaries of the research and highly refined nature of the literature review. The concept of landscape in and of itself is a widely debated, transdisciplinary topic integrating the research from across different disciplinary lenses (Förster,*et al*., 2012; Antrop, 2017; Francis *et al*., 2021). As a result, the research was required to engage with a wide variety of academic material across different disciplinary lenses. Prioritising and arranging this material was a challenging task within the context of the PhD research, not only because of the time constraints on the project itself but because of the need to consolidate the literature into a cohesive and accessible narrative to support the research project and its findings. As a result, to find the balance between depth and breadth of this material, the conceptual framework and literature review focused predominantly on reinforcing the epistemology of the concept of

landscape scale and its application in core disciplinary lenses in which the PhD project was aiming to provide meaningful outputs. In short, the researcher was inspired by the theoretical timeline of 'landscape' created by Antrop, (2004) and used that figure as the basis to outline how the concept of landscape scale drew on this pre-exiting material and then how the concept of the landscape scale was being applied across different disciplinary lenses. The decision could be considered a limitation of PhD research and other researchers may be critical of the focused literature review given the broad scope and application of the landscape scale concept. However, the focused literature review provided a coherent basis to ensure the research could draw upon the key aspects landscape and landscape scale research in a pragmatic timeframe. Furthermore, explicitly refining the scope of the literature review form a crucial part of the deductive aspect of the philosophical positioning and was supported by the involvement of international experts in panel which provide a practical source of knowledge to supplement and support the focused literature review.

Secondly, it is important to reflect on the limitations of the testing phase employed within the research project. The testing phase was the final step of the adapted Applied Delphi technique and was designed to test the outcome of the research with an independent group of experts. Initially this testing phase was initially planned to be more comprehensive. In which a group of independent experts explicitly unpack the different tools within the landscape scale framework and discuss their implications in a real-world example. Potentially even implementing some aspects of the landscape scale framework in practice. However, due to unforeseen circumstances the testing phase had to limited in its scope. Rather than unpacking all of the different tools individually within the Landscape scale Framework three experts from Durham County Council provided feedback on the framework as a whole entity exploring its format, accessibility, and packaging and if it was helpful to them in their practical work. On one hand this limited testing phase could be considered a limitation of the research project, in which the output, namely the Framework was not explicitly tested outside as a defined part of the research project and therefore may not necessarily be considered a reliable practical output. However, with this in mind, the Delphi technique inherently mitigated against this limitation. Each of the iterative rounds formed a crucial aspect in the validation of the research outcomes. Within each round the sixteen experts reflected upon the contents of the research project based on their practical experience and as a result shaped the landscape scale framework to meet them. Furthermore, while the testing phases may not necessarily have been as comprehensive as initial planned it still provide critical feedback on the landscape scale framework. the experts

from Durham County Council highlighted challenges in accessing and navigating the different tools of the Framework and expressed concerns about its clarity. All of which provided crucial amendments to the research projects final output.

Finally, another limitation of the research project which is important to highlight is the shift in data analysis during round 1 of the adapted Applied Policy Delphi. Originally, the data collected in the semi-structured interviews was going to be analysed using NVivo a text-based analysis software in a similar approach to Glass, (2012). The use of NVivo would have streamlined the qualitative data analysis of the raw data collected and overcome the traditionally 'muddled' nature of analysing qualitative data (Hilal and Alabri, 2013) in which qualitative text-based analytics tools are becoming increasingly popular (Selvi, 2019). However, analysing the data using NVivo required the rapid transcription of audio material from the semi-structured interviews into text so that it could be analysed through the software. Unfortunately, due to the Researcher's own personal limitations the material from the semi-structured interviews could not be rapidly and accurately transcribed at an acceptable pace. It was paramount that the Researcher maintained the quick pace of the rounds of the Delphi to keep induvial motivations and mitigate against panellist attrition, which ultimately would have led to a failure in the research. As a result, the Researcher had to change the data analysis method in Round 1 to a thematic content analysis using a series of mind-maps to map out each panellist critical themes and then identify aspects of conflict and consensus. On one-hand this type of analysis is arguably less valid than a text-based analysis as it is subject to the Researcher's own bias and therefore could be considered a limitation to the research. However, on the other hand thanks to the adapted applied Delphi techniques inherent self-validation process from round to round the panellists were actively encouraged to validate the outcomes and direction of the research at multiple stages. Therefore, if an theme had been misrepresented in Round 1 the panel would have highlighted it.

11.6 Further research & Recommendations

10.6.1 Defining Landscape Scale and Landscape Scale Approach

The primary outcomes of this research are the redefining of the term ‘landscape scale’. The separation of the terms ‘landscape scale approach’ from the broader concept of landscape scale marks a clear distinction between the theoretical concept and the practical delivery of approaches within the theory. However, just as important is the consensus reached amongst panellists that spatial scale is not the defining feature of a landscape scale approach but rather the multifaceted nature of landscapes. This contradicts much of the wider academic literature in which the term is often used to define a large scale or strategic approach. In this context, redefining landscape scale has significant implications for academics, policymakers, and practitioners alike as it fundamentally changes the way we define and identify landscape scale working. To test the impact this research is likely to have in the future, further research is recommended to review previously delivered landscape scale approaches. This research would aim to determine if these approaches were ‘landscape scale’ and what aspects of the landscape scale were neglected.

Further research is also required to expose the definitions produced by this research to a broader audience. Great care was taken to ensure representation from policy, practice, and academia on the expert panel, but exposure to other fields can only help refine and enhance the definitions. This by publishing the Landscape scale Framework and making it freely accessible to practitioners.

10.6.2 The need for further testing and refinement of the landscape scale framework

The Landscape scale Framework produced by this research project is at an advanced stage of development and is now ready to be tested through application s in practice. Consistent with this, the researcher has already started to explore ways of making the landscape scale framework available to a wider audience – allowing greater scrutiny and testing. There are several options to do this. The first is to ask the pre-existing group of panellists to provide feedback on the Landscape scale Framework's final iteration, essentially adding another stage of refinement and reflection outside the scope of the initial PhD research. As the existing Panellists have invested vast amounts of time and energy into developing the current version of the framework, this may be preferable. That said, limiting further research to the existing panel would be inconsistent with Principles 4 and 6 of the Framework itself, namely, that

transparent communication and information sharing are key to developing landscape scale approaches. It would also run the risk of the law of diminishing returns, missing opportunities to bring new and different perspectives to the research, making it more robust and even more widely applicable.

The research provides an accessible and preliminary tested set of landscape scale ingredients that can be used to develop landscape scale approaches. However, it also provides the first coordinated 'big step' towards mainstreaming landscape scale approaches based on clearly defined definitions, characteristics, and principles developed by consensus. The next step must therefore be to increase exposure.

10.6.3 The development of a knowledge-sharing platform.

In Round 2 of the Delphi, the expert panel highlighted the need for a resource that would make the learning from the toolkit available to a wider audience. This 'resource 'might take the form of a database, allowing for collecting case studies, providing a platform for individuals to share landscape scale experience and approaches. Initially, the Panellists referred to the development of a 'community of practice', and this idea was incorporated into the initial draft of the landscape framework. However, given that the creation of such a resource would require the application of the framework over a prolonged period of time, it was not possible to incorporate this requirement within the scope of this research. Nevertheless, drawing upon the experience of the expert panel throughout the Delphi process meant that a collection of general case studies had started to accrue. Still, there remains the need to collect and share an archive of successful and unsuccessful projects to realise the notion of 'community practice'. This is strongly recommended in terms of an area for further research.

10.6.4 Building longevity and resilience into project proposals from the outset

The failure to consider longevity and resilience in landscape scale proposals is a significant cause for concern. Without exception, the expert panel members agreed that plans for the maintenance of projects in the longer terms and once the initial funding had run out were lacking. The database or 'resource' referred to in 11.5.3 above will provide quantitative and qualitative data on the success and failure of landscape scale projects and make this data widely available. In this context, the application of the Landscape scale Framework will accumulate a more comprehensive and richer source of data, and this could be interrogated to determine the linkages between actions taken at the planning stage and the level of resilience achieved across

a wide range of projects. In other words, it would allow analysis of what works well and what does not in the context of achieving long term success. This further research will be key not only in providing insight into those factors that help build resilience but will also help to lay the foundations for greater accountability by determining what works well and holding people accountable for the decisions they make at the planning stage.

11.5 Personal reflections

This research project has achieved its goal of co-producing a research outcome to aid the more effective delivery of landscape scale programmes, policies, and projects. However, it would be fair to say that the Researcher underestimated the research opportunity in terms of its scope and complexity. In the context of this research project, the use of the Delphi technique was extraordinarily time consuming. On reflection, this was considered a function of the subject matter involved and not the Delphi process itself. The lack of basic definitions, conceptual underpinnings and shortfalls in governance meant members of the expert panel came from vastly different places. As a consequence, it took much longer than expected to establish a common lexicon and build consensus. Therefore, delivering on the research objective involved compromise and the sacrifice of some of the loftier ambitions the Researcher perceived for the research at the outset. The hope was to explicitly test the final version of the Framework in a real-world setting over the entire duration. However, the Delphi's additional time, which included additional steps over and above those generally undertaken in a Delphi technique, such as the production of synthesis reports, meant this was not possible within the available time. The litmus testing undertaken in lieu of the full-scale field test was more than sufficient to confirm the Framework's utility. Still, the Researcher would have preferred testing the individual components in a real-world setting to refine the output better.

The use of the applied Delphi technique was central to achieving the research aim. Although its use resulted in some level of compromise around field testing, in other respects, the Delphi far exceeded the Researcher's expectations, going beyond achieving consensus to building meaningful, long term, professional relationships, which helped maintain motivation. The Delphi approach put extra pressure on me as an early career researcher. The Researcher had to maintain a project leader's position, organise his time and workload. There was also a lot of managing the sixteen other Panellists to ensure tasks were completed in a timely and appropriate manner. Many members of the panel were established international experts with extremely busy schedules. Having regular communication with such esteemed professionals

was an entirely new experience and one the researcher had to grow into. That said, the Delphi tested us all and without the strong relationships that the Delphi technique itself helped to foster, the research project might have failed.

Secondly, it is essential to reflect on the research process as a whole on a personal level to understand better the Delphi approach's impact on the research and how it influences my perceptions of landscape scale. The Delphi approach was extraordinarily time-consuming but, ultimately, rewarding research methodology to use in the research project. In addition, it encouraged developed or meaningful professional relationships, which were valuable in maintaining the Panellists' motivation in the project. But the development of this professional relationship extended beyond the PhD project's scope, and I still maintain ongoing working relationships with many Panellists. For an early career researcher, these types of relationships are precious and often challenging to attain. As a result, the Delphi approach has provided personal value outside of the research project.

Finally, the PhD was an undoubtedly challenging piece of research work. Overall, this research project was considered a success, establishing a coherent landscape scale framework to aid in delivering landscape scale approaches within planning. It has helped provide much needed definitional clarity, and operational guidance on applying the landscape scale approaches in practice. It represents, however, only the first step into the landscape scale concept. The research path in the future is an interesting yet challenging one.

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APPENDICES

Appendix 1 - Copy of the invitation letter circulated to the potential panellists.

Appendix 2 - Semi-structured interview guide used in Round 1.

Appendix 3 - Round 1 individual thematic analysis of recorded interviews (Mind Maps).

Appendix 4 - Output of Round 1 of the Delphi Technique ‘Synthesis Report 1’

Appendix 5 - Output of Round 2 of the Delphi Technique ‘Synthesis Report 2’

Appendix 6 - Output of Round 2 of the Delphi Technique, the initial draft of the ‘Landscape Scale Toolkit’

Appendix 7 - Output of Round 3 of the Delphi Technique ‘Landscape Scale Resource Kit’

Appendix 8 - LANDSCAPE SCALE FRAMEWORK most recent iteration based on external panel comments (not validated or provided to internal panel within the research project).

Appendix 1 – Copy of the invitation letter circulated to the potential panellists

What Kind of Landscape Scale Works?

Wider Research Work at Birmingham City University and Northumbria University

Dear [INSERT name here]

Re: Invitation to participate in an applied research project to help inform the delivery of Landscape Scale objectives within policy and practice in the United Kingdom.

The rationale for the research

My name is Louis Durrant. I am emailing you to invite you to participate in an applied research project as part of the wider research work at Birmingham City University and Northumbria University. I am conducting a 'Delphi' process to aid in the Landscape Scale's operationalisation, working by exploring current perceptions, challenges, and opportunities across different disciplines. The PhD is trying to create a 'safe space' where you, as panellists, can be involved in the co-development of a resource that is fit for your purpose. It will also allow you to learn from experts across different disciplines to see how they use and interpret Landscape Scale. This will be achieved over a series of anonymous iterative rounds (Figure 1). The collective views of approximately fifteen-panel members on key questions will be collated, analysed and fed back to help identify areas of consensus, conflict and gaps in the shared knowledge. These areas will be developed into 'key themes, which will be used to prioritise the research depending on YOUR (and the other panel members') inputs. Thus the research approach has been developed with a large degree of flexibility, allowing you to shape the research course.

Your role as a Panellists

As a key panellist, you have been identified to take part because of your specialist expertise [INSERT what do they do?]. In particular, your current research and involvement in projects [INSERT what kind of work]. This research project will give you the opportunity to voice your experiences and thinking concerning Landscape Scale, working with other experts at your own pace in a safe and anonymous environment. It will also provide a unique opportunity to learn from experts across different disciplines with the ultimate aim of developing a form of transdisciplinary 'resource kit' based on the panellists' requirements. The research consists of five iterative rounds conducted over six months, starting in June 2017 and continuing until December 2017 (Figure 1). As a panellist, your input will be required periodically for a total of approximately ten hours (reading summaries and constructing responses to set questions) at various points over the six months.

Figure 1. Proposed Research Approach

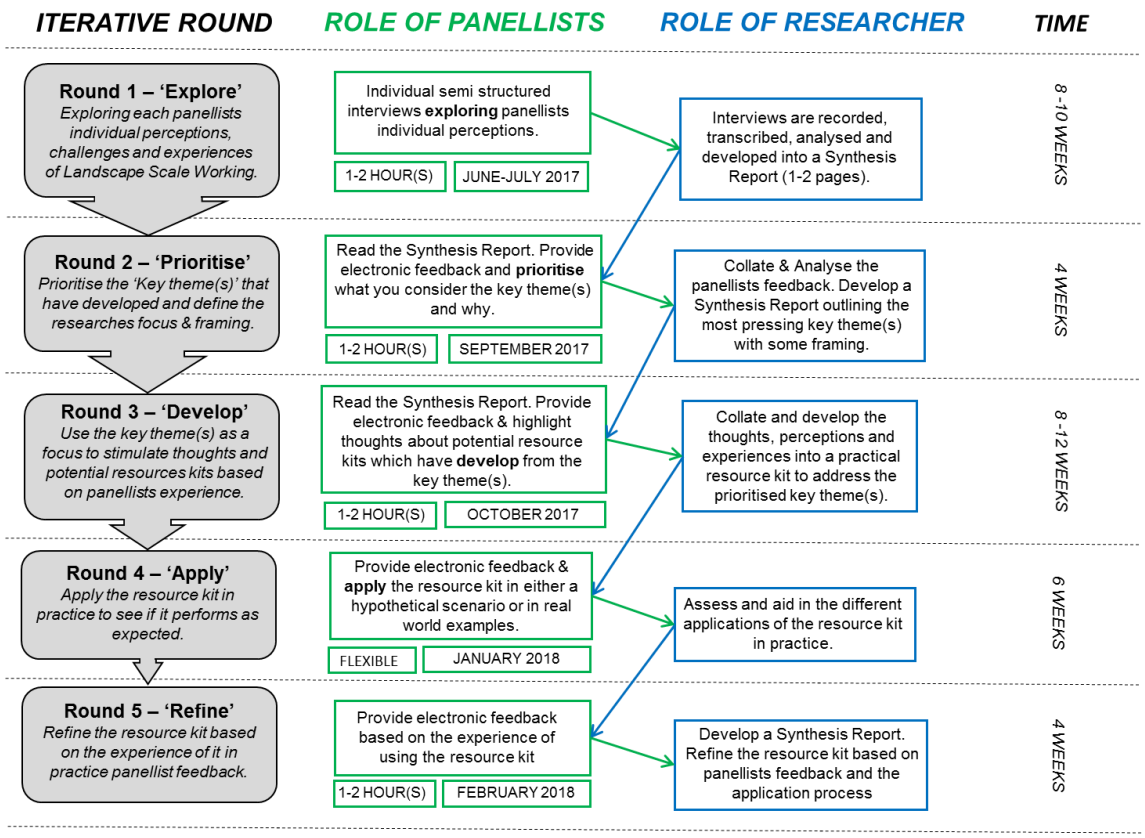


Figure 1. The Proposed Research Approach – The five iterative rounds are used to explore, develop and apply a resource kit to operationalise the Landscape Scale.

The Delphi Process will be based on email iterations; I feel it is essential to break with convention and meet you face-to-face in Round 1 to maximise the initial

capture of your experience, expertise, and what you most want from this type of research. This provides the glue to anchor the project for all my panel.

Thus, round one of the research consists of an individual semi-structured interview that will explore your individual perceptions/experience of working/researching at the Landscape Scale. Below is a list of prompts to give your insight into the type of questions that will be asked in the interview.

- What would you most like to get out of this project?
- What challenges and opportunities have you come across while using the Landscape Scale?
- Can you draw from your own experience to explain how you have used Landscape Scale?
- Some people would say that the concept hasn't made the effective transition from concept to practise: what's your take on this?

If you have questions regarding the research or your role as a panellist, please feel free to contact me directly at (**07734 229 216**) or alternative via email (**louis.durrant@mail.bcu.ac.uk**)

I hope this has peaked your interest, and I look forward to working with you.

Sincerely,

Louis J. Durrant BSc(Hons) Dilpa MSc *AFHEA*

Birmingham City University, PhD Research Student (Planning)

School of Built Environment, Faculty of Computing, Engineering and The Built Environment

Appendix 2 – Semi-structured interview guide used in Round 1

Semi-structured Interview Guide

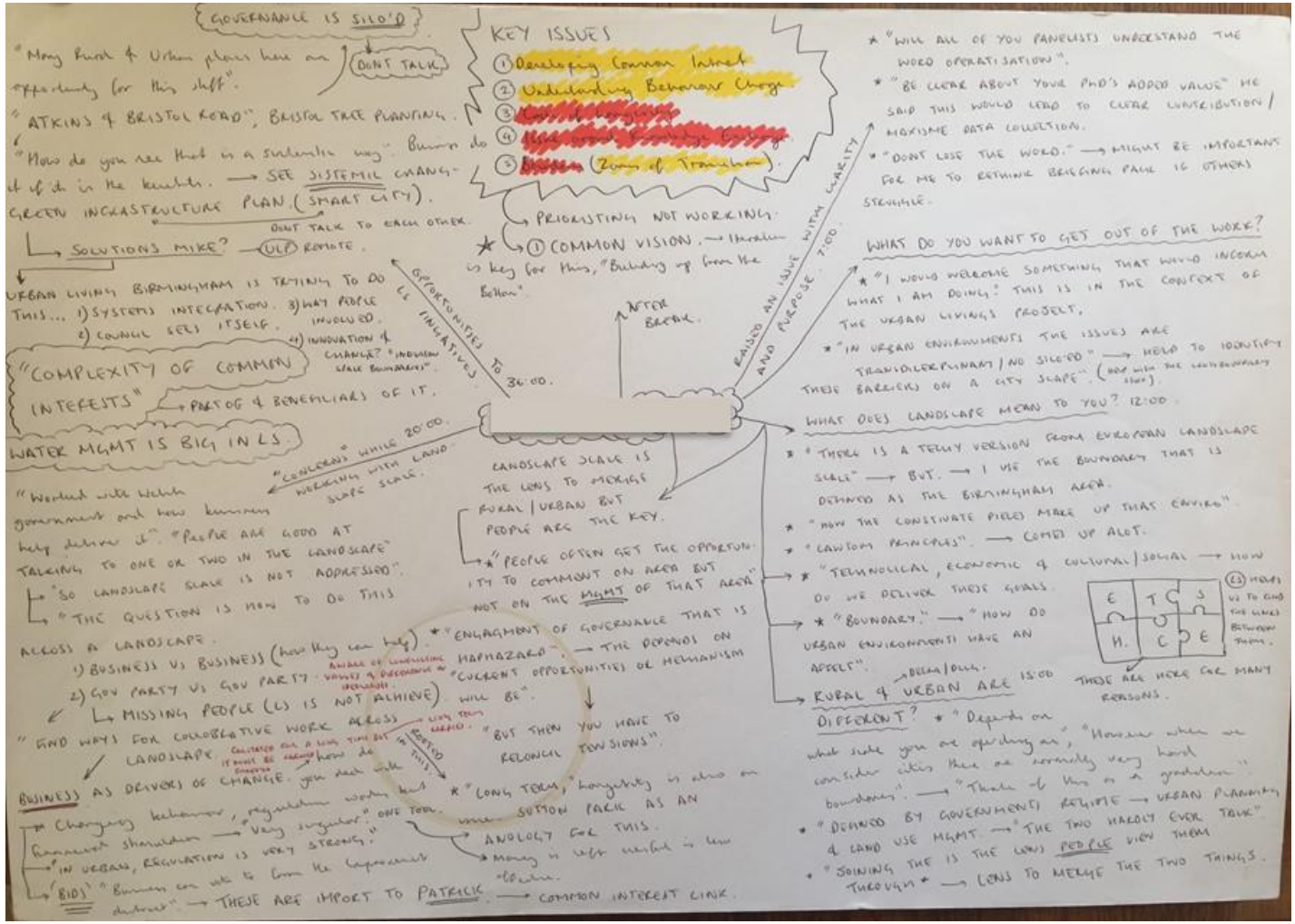
A guide to assist in the Round 1 interviews and to help the discussion remain within the scope of the research project

Section	Prompts (Aim of each section)	Emergency Questions	Rationale
Introduction and setting the scene	▪ I am introducing myself. ▪ Thank the panellists for their time. ▪ Refer to the briefing material and rationale behind the research. ▪ Emphasise panellist's ownership of the process. ▪ Ensure the consent form has been signed and returned.	1) Do you have questions about the briefing material or your involvement in the research project, or the project's aim? 2) Delphi Process before we proceed with the interview?	Introductions We are breaking down the methodology. Create a 'safe place' for panellists to share experiences. Check project and process is understood, and participants are happy to engage with it freely.
Exploring panellists' perceptions of Landscape Scale	▪ Explore how the individuals perceive their work in the context of the Landscape Scale. ▪ Develop and unpack their theoretical framing. ▪ Potential to see how their work fits into the broader context of Landscape Scale.	1) After reading the briefing letter what do you want to get from this project? 2) What does the term Landscape Scale mean to you? 3) What are your biggest concerns with working at the Landscape Scale?	Develop individual's theoretical framing. Outline the potential added value that the Landscape Scale provides their discipline. Quickly highlights what the panellists

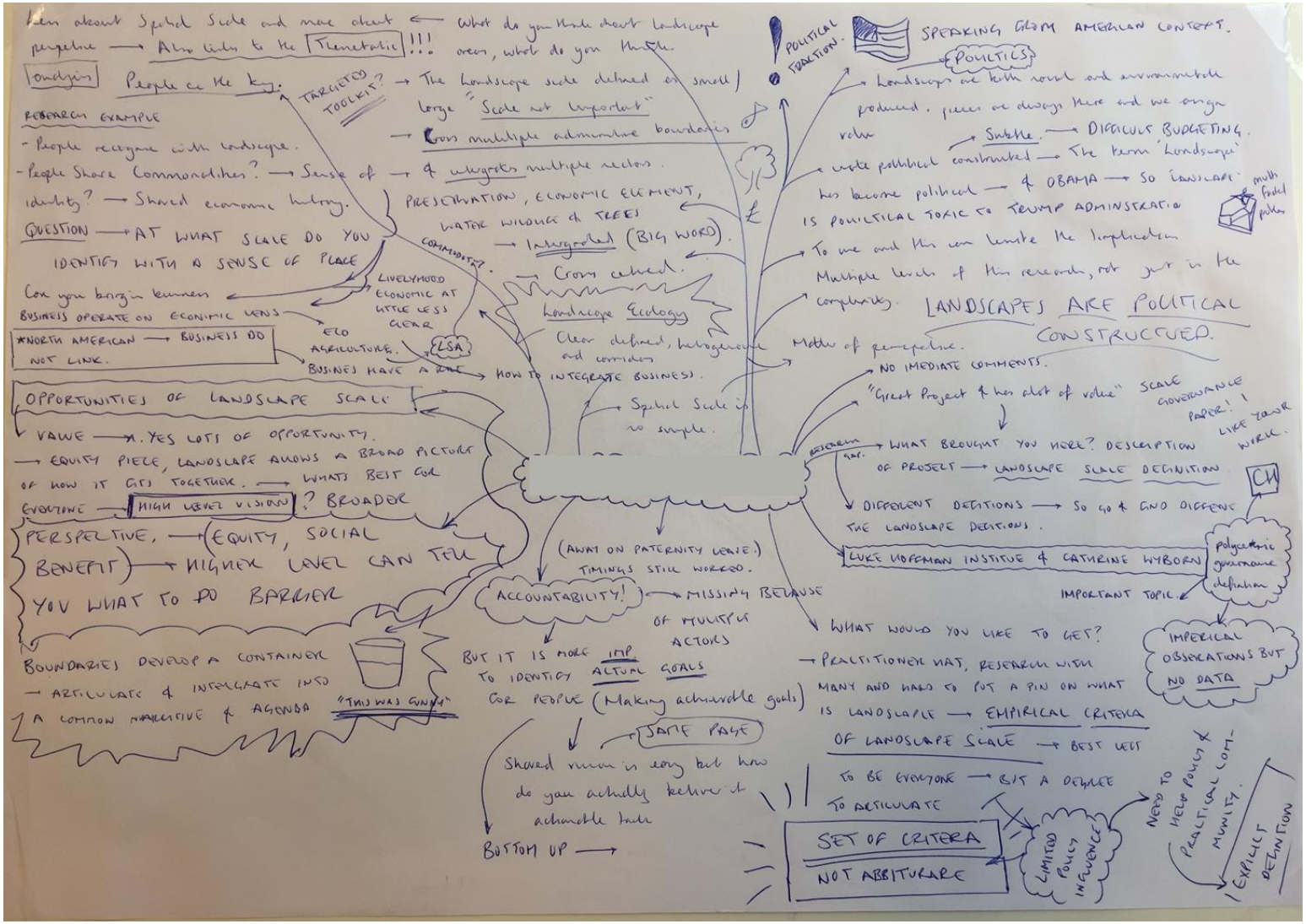
		4) What challenges have you come across? 5) What opportunities has Landscape Scale working provided you with? *6) How do you feel about Landscape Scale?*	considers to be key themes. Establish the panels' baseline knowledge of the concept.
Relating Concept to real world examples	▪ Identify the 'key issues' relevant to working at the Landscape Scale. ▪ Discuss practical day to day factors which are associated with working at the Landscape Scale. ▪ Explore the extent to which the panellist's perceptions of Landscape Scale is in line with other interpretations	1) What have you found to be the key issues while working at the Landscape Scale? 2) What do you consider to be the most pressing? 3) Could you provide examples from your own work to specific aspects that you raised?	▪ Apply the wider theoretical aspects of Landscape Scale to practical applications. ▪ Discuss initial core principles or key aspects which helps to develop a practical definition.
Ownership of the Process	▪ Invite thoughts and comments about the process and the aim of the research projects. ▪ Get justification from academics and practitioners about the validity of the research topic.	1) At this early stage what kind of outcome would you like to see from the project? 2) In terms of my PhD goal, have you any comments or suggestions with regard to the aim/objectives and approach	▪ Ensure the panellists steer the aims/goals of the project in line with the needs. ▪ Share the responsibility of the process.

Appendix 3 – Round 1 individual thematic analysis of recorded interviews (Mind Maps)

Panellist 1

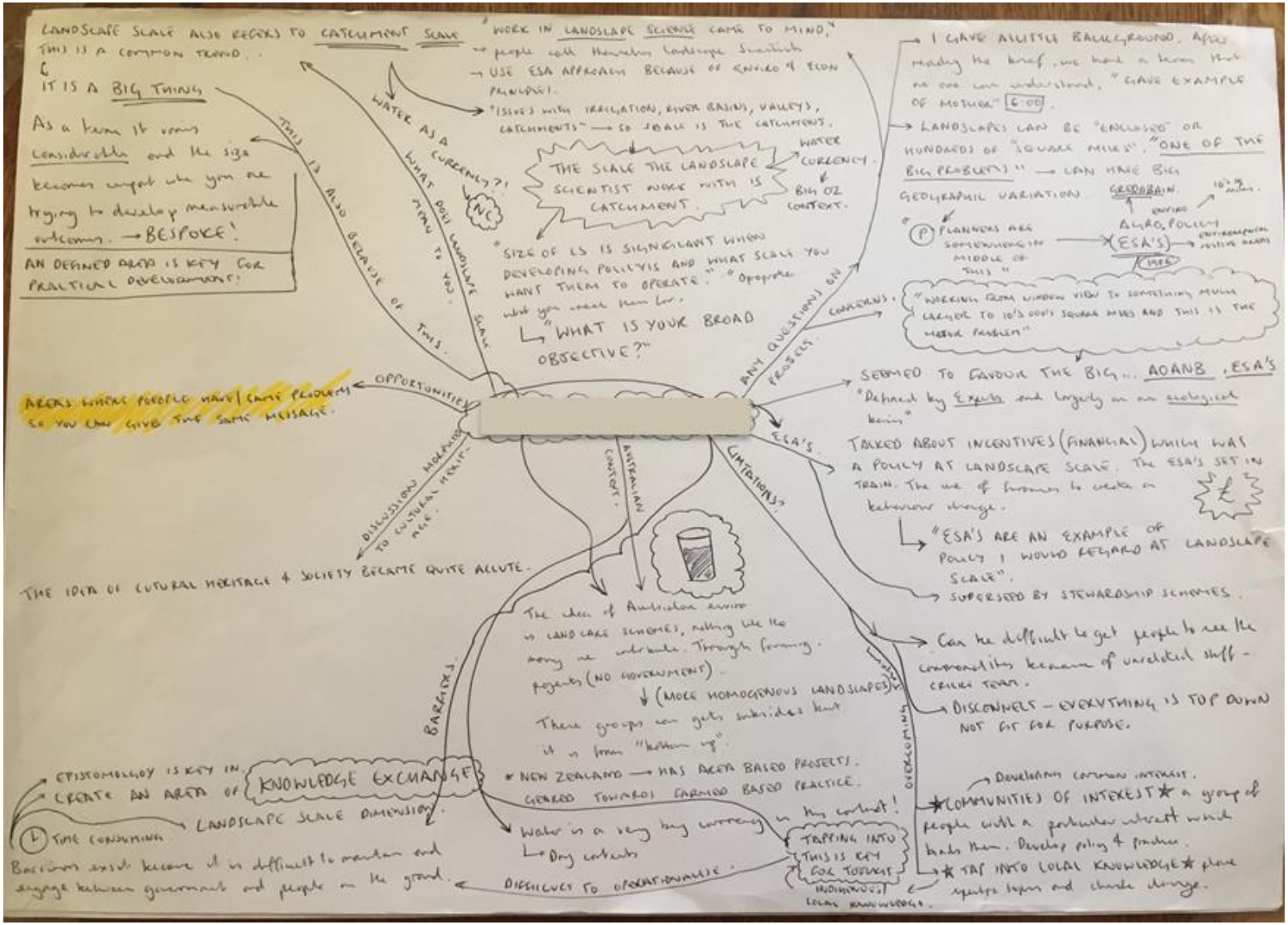


Panellist 2

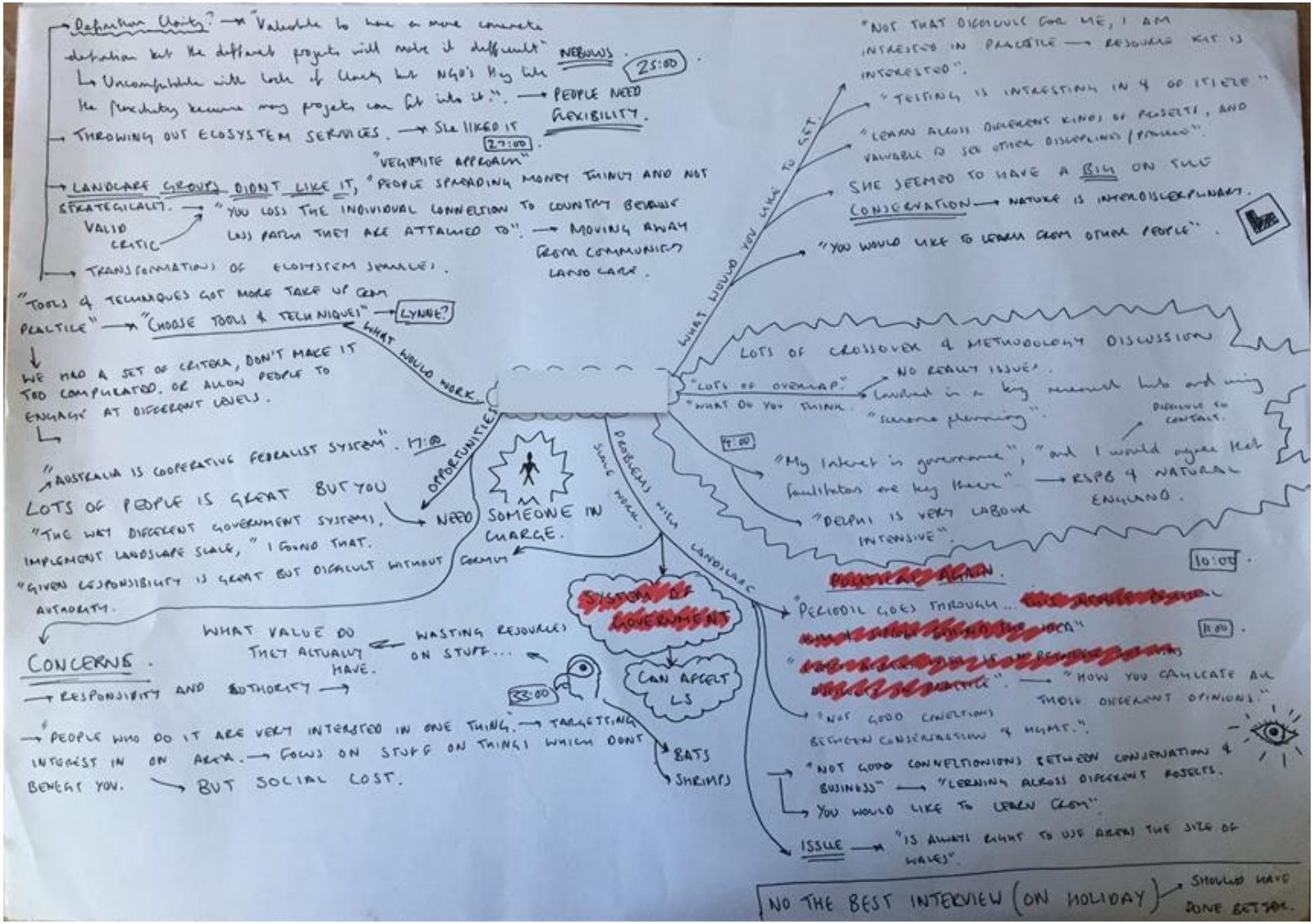


Less about Spatial Scale and more about perspective → Also links to the Thematic!!!
What do you think about landscape areas, what do you think.
analysis
People are the key.
TARGETED TOOLKIT? → The Landscape scale defined as small / large "Scale not important"
→ Cross multiple administrative boundaries
RESEARCH EXAMPLE
- People recognise with landscape.
- People Share Commonalities? → Sense of identity? → Shared economic history.
→ & integrates multiple sectors.
PRESERVATION, ECONOMIC ELEMENT, WATER WILDLIFE & TREES
→ Integrated (BIG WORD).
→ Cross cultural.
QUESTION → AT WHAT SCALE DO YOU IDENTIFY WITH A SENSE OF PLACE
COMMODITY?
Can you bring in business
LIVELYHOOD ECONOMIC AT LITTLE LESS CLEAR
BUSINESS OPERATE ON ECONIMIC LENS
ECO AGRICULTURE.
LSA
*NORTH AMERICAN → BUSINESS DO NOT LINK.
BUSINES HAVE A RAT → HOW TO INTEGRATE BUSINESS.
Landscape Ecology
Clear defined, heterogeneous and corridors
Spatial Scale is so simple.
OPPORTUNITIES OF LANDSCAPE SCALE
VALUE → YES LOTS OF OPPORTUNITY.
→ EQUITY PIECE, LANDSCAPE ALLOWS A BROAD PICTURE OF HOW IT GETS TOGETHER. → WHATS BEST FOR EVERYONE → HIGH LEVEL VISION? BROADER
PERSPECTIVE, → (EQUITY, SOCIAL BENEFIT) → HIGHER LEVEL CAN TELL YOU WHAT TO DO BARRIER
BOUNDARIES DEVELOP A CONTAINER
→ ARTICULATE & INTEGRATE INTO A COMMON NARRATIVE & AGENDA
"THIS WAS FUNNY"
(AWAY ON PATERNITY LEAVE.) TIMINGS STILL WORKED.
ACCOUNTABILITY! → MISSING BECAUSE OF MULTIPLE ACTORS
BUT IT IS MORE IMP. TO IDENTIFY ACTUAL GOALS FOR PEOPLE (Making achievable goals)
SAME PAGE
Shared vision is easy but how do you actually believe it achievable tools
BOTTOM UP →
POLITICAL TRACTION.
SPEAKING FROM AMERICAN CONTEXT.
POLITICS
Landscapes are both social and environmentally produced. pieces are always there and we assign value
Subtle. → DIFFICULT BUDGETING.
wide political constructed → The term 'Landscape' has become political → & OBAMA → SO 'LANDSCAPE' IS POLITICAL TOXIC TO TRUMP ADMINSTRATION
multi faded policies
To use and this can limit the implications
Multiple levels of this research, not just in the complexity.
LANDSCAPES ARE POLITICAL CONSTRUCTED.
Matter of perspective.
NO IMEDIATE COMMENTS.
"Great Project & has alot of value" SCALE GOVERNANCE PAPER! I LIKE YOUR WORK.
RESEARCH GAP.
WHAT BROUGHT YOU HERE? DESCRIPTION OF PROJECT → LANDSCAPE SCALE DEFINITION
CH
DIFFERENT DEFITIONS → SO GO & FIND DIFFERENT THE LANDSCAPE DEFITIONS.
LUKE HOFFMAN INSTITUE & CATHRINE WYBORN
polycentric governance definition
IMPORTANT TOPIC.
IMPERICAL OBSERVATIONS BUT NO DATA
WHAT WOULD YOU LIKE TO GET?
→ PRACTITIONER HAT, RESEARCH WITH MANY AND HARD TO PUT A PIN ON WHAT IS LANDSCAPLE → EMPIRICAL CRITERA OF LANDSCAPE SCALE → BEST LEFT TO BE EVERYONE → BUT A DEGREE TO ARTICULATE
SET OF CRITERA
NOT ABBITURARE
LIMITED POLICY INFLUENCE
NEED TO HELP POLICY & PRACTICAL COMMUNITY.
EXPLICIT DEFINITION

Panellist 3

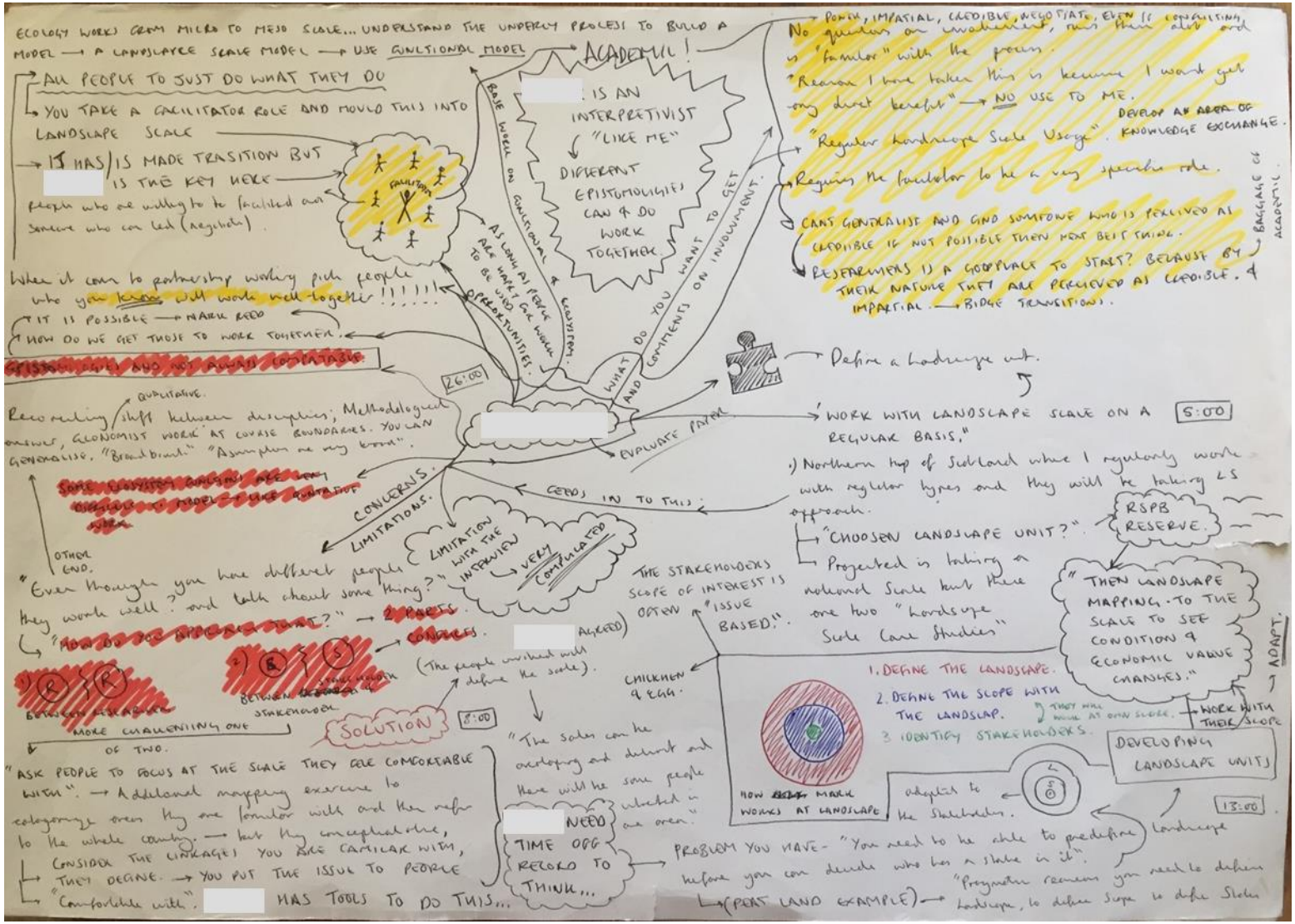

LANDSCAPE SCALE ALSO REFERS TO CATCHMENT SCALE
THIS IS A COMMON TREND.
IT IS A BIG THING
As a term it varies considerable and the size becomes important when you are trying to develop measurable outcomes. → BESPOKE!
AN DEFINED AREA IS KEY FOR PRACTICAL DEVELOPMENT!
THIS IS ALSO BECAUSE OF THIS.
WATER AS A CURRENCY?!
WHAT DOES LANDSCAPE SCALE MEAN TO YOU.
NC
"WORK IN LANDSCAPE SCIENCE CAME TO MIND."
→ people call themselves landscape scientists
→ USE ESA APPROACH BECAUSE OF ENVIRO & ECON PRINCIPLES.
"ISSUES WITH IRRIGATION, RIVER BASINS, VALLEYS, CATCHMENTS" → SO SCALE IS THE CATCHMENT.
THE SCALE THE LANDSCAPE SCIENTIST WORK WITH IS CATCHMENT.
WATER CURRENCY.
BIG OZ CONTEXT.
"SIZE OF LS IS SIGNIFICANT WHEN DEVELOPING POLICYIS AND WHAT SCALE YOU WANT THEM TO OPERATE." "Opropriate what you want them for."
"WHAT IS YOUR BROAD OBJECTIVE?"
ANY QUESTIONS ON PROJECTS.
CONCERNS.
I GAVE ALLITTLE BACKGROUND. After reading the brief, we have a team that no one can understand. "GAVE EXAMPLE OF MOTHER" 6:00.
LANDSCAPES CAN BE "ENCLOSED" OR HUNDREDS OF "SQUARE MILES". "ONE OF THE BIG PROBLEMS" → CAN HAVE BIG GEOGRAPHIC VARIATION.
GREDDBAIN.
ENVIRO
AGRO, POLICY
"PLANNERS ARE SOMEWHERE IN MIDDLE OF THIS"
(ESA'S)
ENVIRONMENTAL SENSITIVE AREAS
"WORKING FROM WINDOW VIEW TO SOMETHING MUCH LARGER TO 10'S 000'S SQUARE MILES AND THIS IS THE MAJOR PROBLEM"
SEEMED TO FAVOUR THE BIG... AOANB, ESA'S
"Defined by Experts and largely on an ecological basis"
OPPORTUNITIES
AREAS WHERE PEOPLE HAVE/CAME PROBLEMS SO YOU CAN GIVE THE SAME MESSAGE.
ESA'S.
TALKED ABOUT INCENTIVES (FINANCIAL) WHICH WAS A POLICY AT LANDSCAPE SCALE. The ESA'S SET IN TRAIN. The use of furnaces to create a behaviour change.
"ESA'S ARE AN EXAMPLE OF POLICY I WOULD REGARD AT LANDSCAPE SCALE".
SUPERSEDED BY STEWARDSHIP SCHEMES.
DISCUSSION MORPHING TO CULTURAL HERITAGE.
THE IDEA OF CULTURAL HERITAGE & SOCIETY BECAME QUITE ACCUTE.
AUSTRALIAN CONTEXT.
LIMITATIONS?
The idea of Australian enviro is LANDCARE SCHEMES, nothing like the many we contribute. Through forming projects (NO GOVERNMENT).
(MORE HOMOGENOUS LANDSCAPES)
These groups can get subsidies but it is from "bottom up".
BARRIERS.
Can be difficult to get people to see the commonalities because of unrelated stuff - CRICKET TEAM.
DISCONNECT - EVERYTHING IS TOP DOWN NOT FIT FOR PURPOSE.
OVERCOMING
EPISTOMOLOGY IS KEY IN.
CREATE AN AREA OF KNOWLEDGE EXCHANGE
LANDSCAPE SCALE DIMENSION.
TIME CONSUMING
Barriers exist because it is difficult to maintain and engage between government and people on the ground.
* NEW ZEALAND → HAS AREA BASED PROJECTS.
GEARED TOWARDS FARMED BASED PRACTICE.
Water is a very big currency in this context!
Dry contexts
DIFFICULT TO OPERATIONALISE.
TAPPING INTO THIS IS KEY FOR TOOLKIT
INDIGENOUS/LOCAL KNOWLEDGE.
Developing common interest.
★COMMUNITIES OF INTEREST★ a group of people with a particular interest which binds them. Develop policy & practice.
★TAP INTO LOCAL KNOWLEDGE★ place specific topics and climate change.

Panellist 4

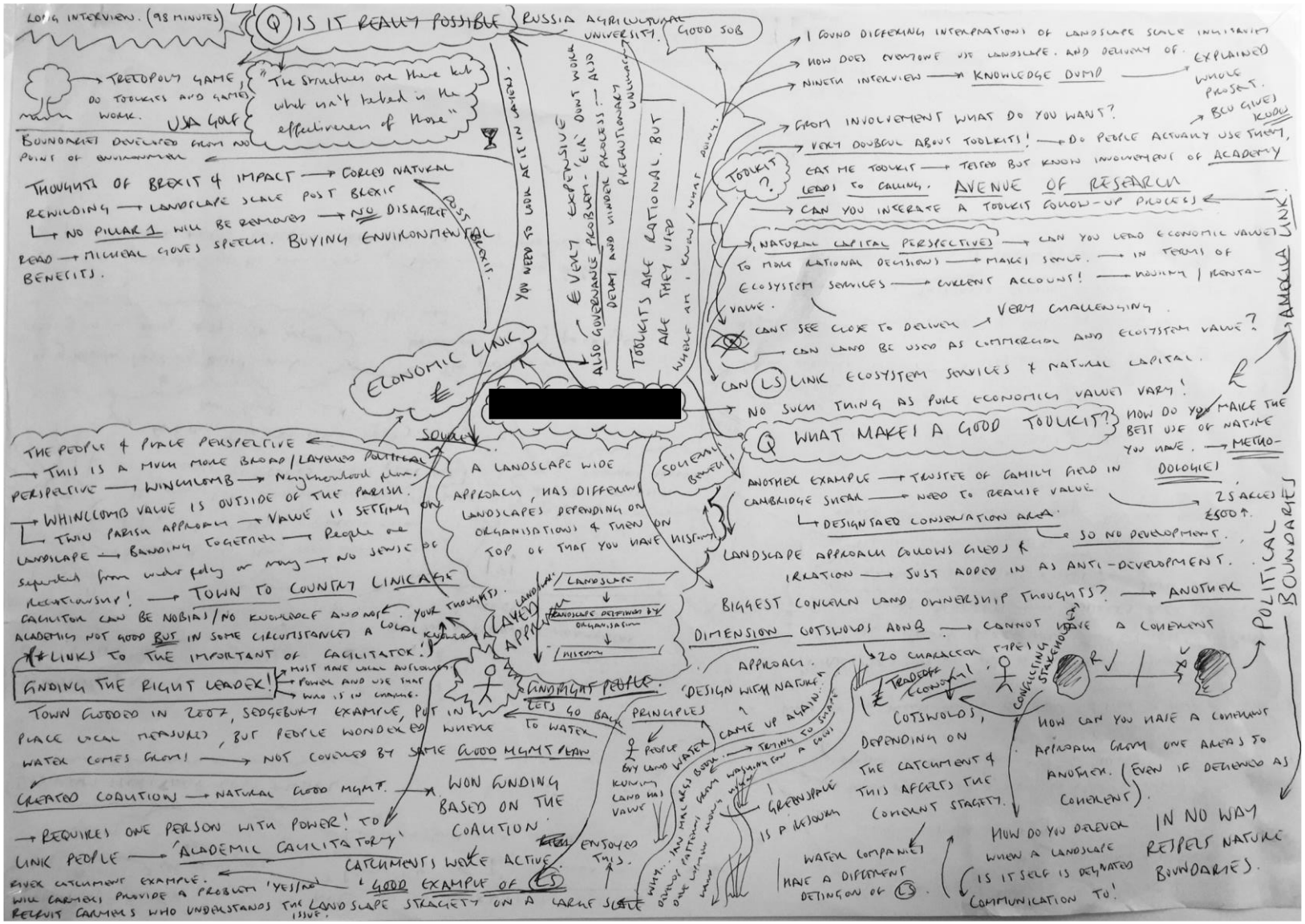


Definition Clarity? → "Valuable to have a more concrete definition but the different projects will make it difficult" NEBULUS. 25:00
↳ Uncomfortable with lack of clarity but NGO's they like the flexibility because many projects can fit into it.". → PEOPLE NEED FLEXIBILITY.
→ THROWING OUT ECOSYSTEM SERVICES. → She LIKED IT 27:00.
"VEGIMITE APPROACH"
→ LANDCARE GROUPS DIDNT LIKE IT, "PEOPLE SPREADING MONEY THINLY AND NOT STRATEGICALLY. → "YOU LOSS THE INDIVIDUAL CONNECTION TO COUNTRY BECAUSE LOSS PATCH THEY ARE ATTACHED TO". → MOVING AWAY FROM COMMUNITY LANDCARE.
VALID CRITIC
→ TRANSFORMATIONS OF ECOSYSTEM SERVICES.
"TOOLS & TECHNIQUES GOT MORE TAKE UP FROM PRACTICE" → "CHOOSE TOOLS & TECHNIQUES" → LYNNE?
WHAT WOULD WORK.
WE HAD A SET OF CRITERA, DON'T MAKE IT TOO COMPLICATED. OR ALLOW PEOPLE TO ENGAGE AT DIFFERENT LEVELS.
"AUSTRALIA IS COOPERATIVE FEDERALIST SYSTEM". 17:00
LOTS OF PEOPLE IS GREAT BUT YOU
"THE WAY DIFFERENT GOVERNMENT SYSTEMS, IMPLEMENT LANDSCAPE SCALE," I FOUND THAT.
"GIVEN RESPONSIBILITY IS GREAT BUT DIFFICULT WITHOUT FORMLY AUTHORITY.
OPPORTUNITIES
NEED SOMEONE IN CHARGE.
CONCERNS.
→ RESPONSIBILITY AND AUTHORITY →
WHAT VALUE DO THEY ACTUALLY HAVE. ← WASTING RESOURCES ON STUFF...
33:00
→ "PEOPLE WHO DO IT ARE VERY INTERESTED IN ONE THING. → TARGETTING INTEREST IN ON AREA. → FOCUS ON STUFF ON THINGS WHICH DONT BENEFIT YOU. → BUT SOCIAL COST.
SYSTEM OF GOVERNMENT
CAN AFFECT LS
BATS
SHRIMPS
PROBLEMS WITH LANDSCAPE SCALE WORK.
WHAT WOULD YOU LIKE TO GET.
"NOT THAT DIFFICULT FOR ME, I AM INTRESTED IN PRACTICE → RESOURCE KIT IS INTERESTED".
"TESTING IS INTRESTING IN & OF ITSELF"
"LEARN ACROSS DIFFERENT KINDS OF PROJECTS, AND VALUABLE TO SEE OTHER DISCIPLINES / PRACTICE".
SHE SEEMED TO HAVE A BIG ON THE CONSERVATION → NATURE IS INTERDISCIPLINARY.
"YOU WOULD LIKE TO LEARN FROM OTHER PEOPLE".
LOTS OF CROSSOVER & METHODOLOGY DISCUSSION
"LOTS OF OVERLAP." → NO REALLY ISSUES.
"WHAT DO YOU THINK. → Involved in a big research hub and using "scenario planning".
DIFFICULT TO CONTACT.
4:00
"My Interest is governance", "and I would agree that facilitators are key there" → RSPB & NATURAL ENGLAND.
"DELPHI IS VERY LABOUR INTENSIVE".
10:00.
"PERIODIC GOES THROUGH...
11:00.
"HOW YOU CALCULATE ALL THOSE DIFFERENT OPINIONS."
"NOT GOOD CONNECTIONS BETWEEN CONSERVATION & MGMT.".
"NOT GOOD CONNECTIONIONS BETWEEN CONSERVATION & BUSINESS" → "LERNING ACROSS DIFFERENT PROJECTS.
YOU WOULD LIKE TO LEARN FROM".
ISSUE → "IS ALWAYS RIGHT TO USE AREAS THE SIZE OF WALES".
NO THE BEST INTERVIEW (ON HOLIDAY) → SHOULD HAVE DONE BETTER.

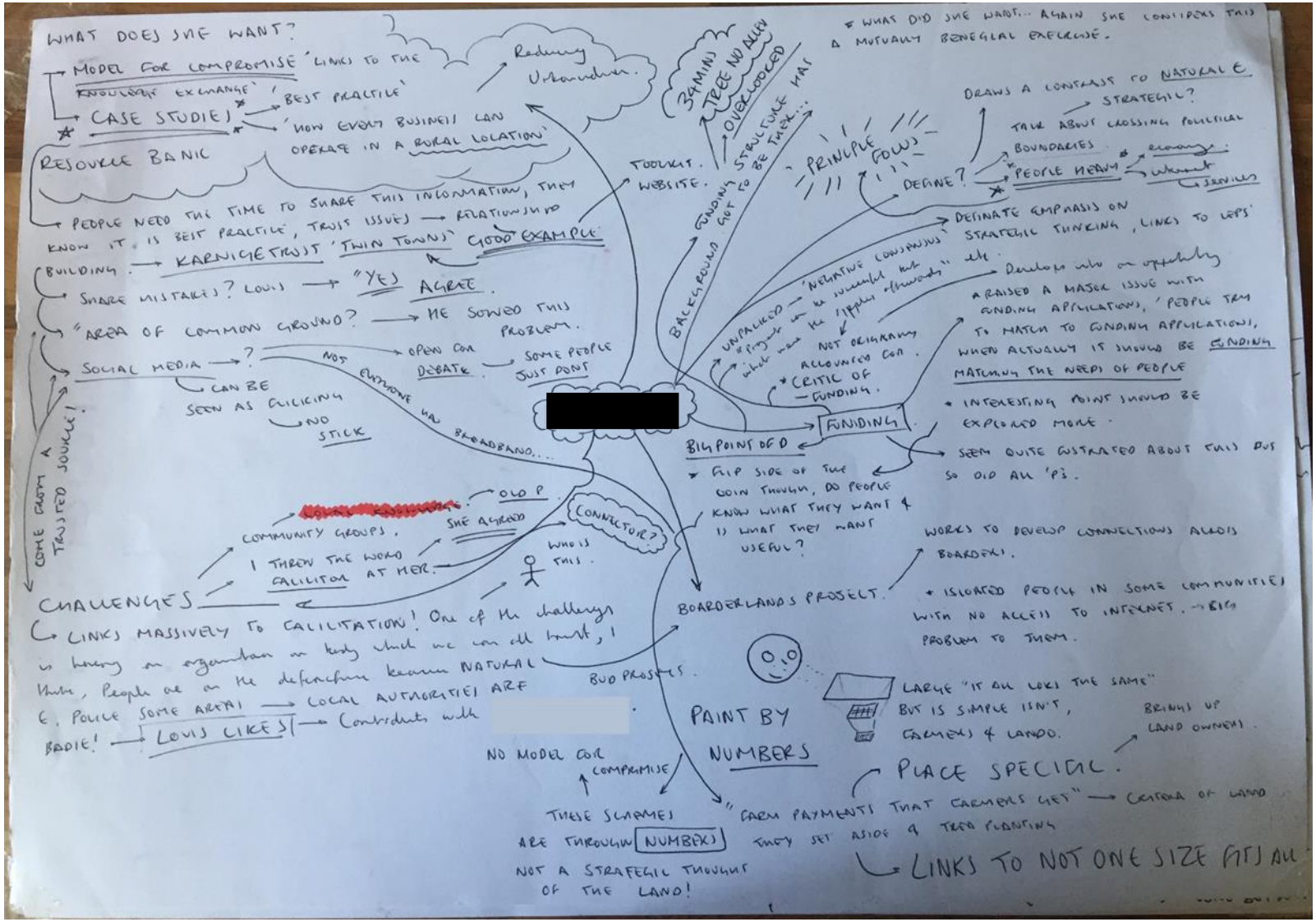
Panellist 5


ACADEMIC!
IS AN INTERPRETIVIST
"LIKE ME"
DIFFERENT EPISTEMOLOGIES CAN & DO WORK TOGETHER.
FACILITATOR
All people to just do what they do
You take a facilitator role and mould this into landscape scale
Is has/is made transition but is the key here
People who are willing to be facilitated and someone who can let (neglect).
When it comes to partnership working pick people who you know will work well together!!!!!
If it is possible → Mark Reed
How do we get those to work together.
Recommending shift between disciplines; Methodologies; Economist work at coarse boundaries. You can generalise. "Broad brush." "Assumptions we may know".
Qualitative.
Other end.
"Even though you have different people they work well? and both chase some thing?"
"How do you measure that?" → 2 people
Conflicts.
Between research & stakeholder
More challenging one of two.
"Ask people to focus at the scale they are comfortable with". → Additional mapping exercise to categorise areas by one familiar with and then refer to the whole country. → but by conceptual one, Consider the linkages you are familiar with, They define. → You put the issue to people "Comfortable with". has tools to do this...
Solution
8:00
(The people involved will define the scale).
"The scales can be overlapping and distinct and there will be some people interested in one area."
Need
Time off
Record to think...
Raise profile on functional & ecosystem
As long as people are happy to be used our work opportunities.
What and do you want to get and comments on involvement.
Evaluate paper
Concerns/ Limitations.
Limitation with the interview
Very complicated
Agreed)
Chicken & egg.
The stakeholders scope of interest is often "issue based".
Define a landscape unit.
Work with landscape scale on a regular basis."
5:00
Northern top of Scotland where I regularly work with regular types and they will be taking LS approach.
"Choosen landscape unit?"
Projected is taking a national scale but there are two "landscape scale Case Studies"
RSPB Reserve.
"Then landscape mapping. To the scale to see condition & economic value changes."
Adapt.
1. Define the landscape.
2. Define the scope with the landscape.
3. Identify stakeholders.
Work with their scope
Developing landscape units
How Mark works at landscape
adapted to the stakeholders.
Landscape
13:00
Problem you have - "You need to be able to predefine before you can decide who has a stake in it".
(Peat land example) → "Properties reasons you need to define landscape, to define scope to define Stake
Ponix, impartial, credible, negotiate, Elen if consulting
No question on involvement, this then also and is "familar" with the process.
"Reason I have taken this is because I want get any direct benefit" → No use to me.
"Regular landscape Scale Usage".
Develop an area of knowledge exchange.
Requires the facilitator to be a very specific role.
Can't generalise and find someone who is perceived as credible if not possible then not best thing.
Reserves is a good place to start? because by their nature they are perceived as credible. & impartial. → Bridge transition).
Baggage of academic.
26:00

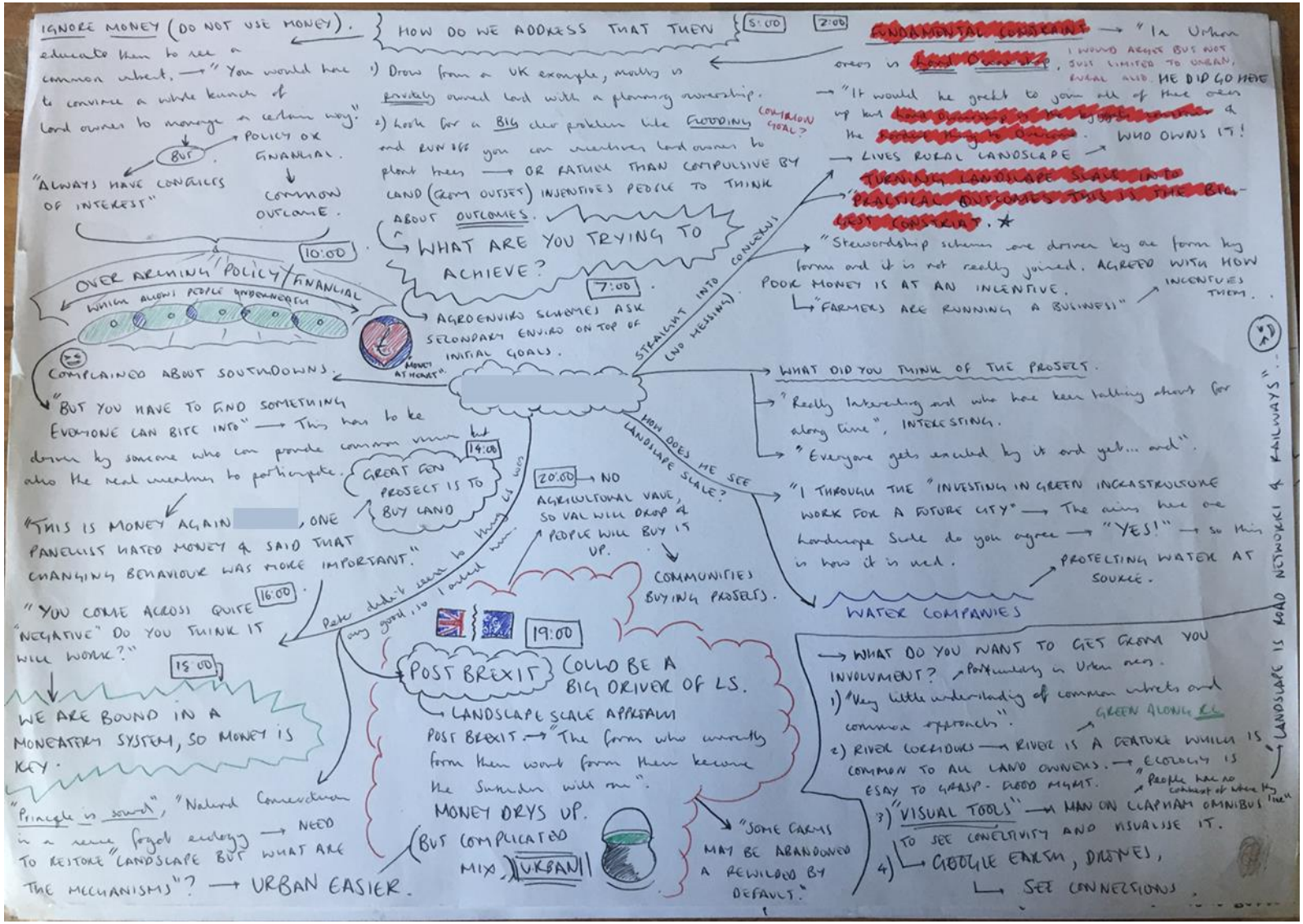
Panellist 6


LONG INTERVIEW. (98 MINUTES)
Q IS IT REALLY POSSIBLE
RUSSIA AGRICULTURAL UNIVERSITY.
GOOD JOB
TREEPOLY GAME, DO TOOLKITS AND GAMES WORK.
"The structures are there but what isn't talked is the effectiveness of those"
USA GOLF
BOUNDARIES DEVELOPED FROM NO POINT OF ENVIRONMENT
THOUGHTS OF BREXIT & IMPACT → FORCED NATURAL REWILDING → LANDSCAPE SCALE POST BREXIT
NO PILLAR 1 WILL BE REMOVED → NO DISAGREE
READ → MICHAEL GOVES SPEECH. BUYING ENVIRONMENTAL BENEFITS.
POST BREXIT
YOU NEED TO LOOK AT IT IN DETAIL.
€ VERY EXPENSIVE
ALSO GOVERNANCE PROBLEM - 'EU' DON'T WORK
DEBATE AND NUMBER PRETENTIONARY
TOOLKITS ARE RATIONAL. BUT ARE THEY USED WHERE AM I KNOW / WHAT ARE
ECONOMIC LINK
SOCIAL
SOCIAL BENEFIT
I FOUND DIFFERING INTERPRETATIONS OF LANDSCAPE SCALE INITIATIVES
HOW DOES EVERYONE USE LANDSCAPE. AND DELIVERY OF.
NINETH INTERVIEW → KNOWLEDGE DUMP → EXPLAINED WHOLE PROJECT.
FROM INVOLVEMENT WHAT DO YOU WANT?
VERY DOUBTFUL ABOUT TOOLKITS! → DO PEOPLE ACTUALLY USE THEM, BCU GIVEN KNOW
TOOLKIT ?
EAT ME TOOLKIT → TESTED BUT KNOW INVOLVEMENT OF ACADEMY
LEADS TO CALLING. AVENUE OF RESEARCH
CAN YOU INTEGRATE A TOOLKIT FOLLOW-UP PROCESS
NATURAL CAPITAL PERSPECTIVE) → CAN YOU LEAD ECONOMIC VALUE)
TO MAKE RATIONAL DECISIONS → MAKES SENSE. → IN TERMS OF
ECOSYSTEM SERVICES → CURRENT ACCOUNT → MONETA-
VALUE.
CAN'T SEE CLOSE TO DELIVER → VERY CHALLENGING
CAN LAND BE USED AS COMMERCIAL AND ECOSYSTEM VALUE?
CAN LS LINK ECOSYSTEM SERVICES & NATURAL CAPITAL.
NO SUCH THING AS PURE ECONOMICS VALUES VARY!
AMOEBA LINK
Q WHAT MAKES A GOOD TOOLKIT?
HOW DO YOU MAKE THE BEST USE OF NATURE YOU HAVE. → METHO-DOLOGIES
ANOTHER EXAMPLE → TRUSTEE OF FAMILY FIELD IN CAMBRIDGE SHEAR → NEED TO REALISE VALUE
DESIGNATED CONSERVATION AREA
25 ACRES ESSO
SO NO DEVELOPMENT.
LANDSCAPE APPROACH FOLLOWS GUIDES & IRRATION → JUST ADDED IN AS ANTI-DEVELOPMENT.
THE PEOPLE & PLACE PERSPECTIVE
→ THIS IS A MUCH MORE BROAD / LAYERED POLITICAL PERSPECTIVE → WINCHCOMB → Neighbourhood plans
→ WHINCOMB VALUE IS OUTSIDE OF THE PARISH.
TWIN PARISH APPROACH → VALUE IS SETTING ON LANDSCAPE → BONDING TOGETHER → People are separated from wider policy or many → NO SENSE OF RELATIONSHIP! → TOWN TO COUNTRY LINKAGE
FACILITOR CAN BE NOBIAS / NO KNOWLEDGE AND NOT ACADEMICS NOT GOOD BUT IN SOME CIRCUMSTANCES A LOCAL KNOWLEDGE
LINKS TO THE IMPORTANT OF FACILITATOR.
YOUR THOUGHTS.
A LANDSCAPE WIDE APPROACH, HAS DIFFERENT LANDSCAPES DEPENDING ON ORGANISATIONS & THEN ON TOP OF THAT YOU HAVE HISTORY
LAYERED APPROACH
LANDSCAPE
LANDSCAPE DEFINED BY ORGANISATION
HISTORY
FINDING THE RIGHT LEADER!
MUST HAVE LOCAL AUTHORITY POWER AND USE THAT WHO IS IN CHARGE.
TOWN FLOODED IN 2007, SEDGEBURY EXAMPLE, PUT IN PLACE LOCAL MEASURES, BUT PEOPLE WONDERED WHERE WATER COMES FROM! → NOT COVERED BY SAME FLOOD MGMT PLAN
CREATED COALITION → NATURAL FLOOD MGMT.
WON FUNDING BASED ON THE COALITION.
→ REQUIRES ONE PERSON WITH POWER! TO LINK PEOPLE → 'ACADEMIC FACILITATOR'
CATCHMENTS WERE ACTIVE.
ENJOYED THIS.
'GOOD EXAMPLE OF LS'
RIVER CATCHMENT EXAMPLE.
WILL FARMERS PROVIDE A PROBLEM 'YES/NO'
RELEVIT FARMERS WHO UNDERSTANDS THE LANDSCAPE STRATEGY ON A LARGE SCALE ISSUE.
LANDSCAPE PEOPLE.
LETS GO BACK TO WATER
PEOPLE BUY LAND WATER RUNNING LAND HAS VALUE
APPROACH.
'DESIGN WITH NATURE' CAME UP AGAIN.
PRINCIPLES
TRYING TO SHAPE
GREENSPACE IS P MISSION
WATER COMPANIES HAVE A DIFFERENT DEFINITION OF LS
TRADEOFF ECONOMY
20 CHARACTER TYPES
COTSWOLDS,
DEPENDING ON THE CATCHMENT & THIS AFFECTS THE COHERENT STRATEGY.
CONFLICTING STAKEHOLDERS
HOW CAN YOU HAVE A COHERENT APPROACH FROM ONE AREA TO ANOTHER. (EVEN IF DEFINED AS COHERENT).
POLITICAL BOUNDARIES
HOW DO YOU DELIVER WHEN A LANDSCAPE IS IT SELF IS DEFINED
COMMUNICATION TO!
IN NO WAY REFLECT NATURE BOUNDARIES.

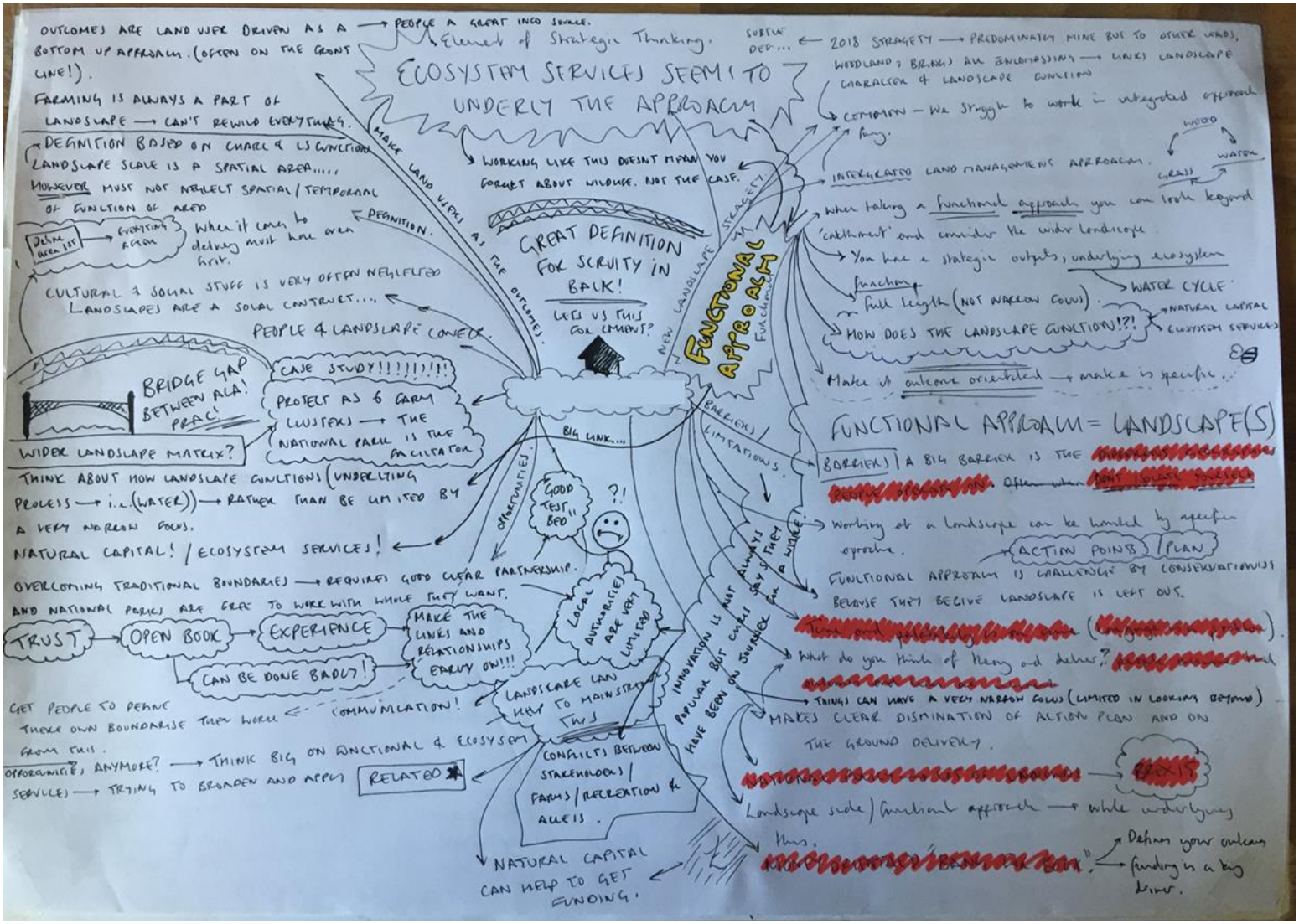
Panellist 7


WHAT DOES SHE WANT?
MODEL FOR COMPROMISE
KNOWLEDGE EXCHANGE
CASE STUDIES
'LINKS TO THE BEST PRACTICE'
'HOW EVERY BUSINESS CAN OPERATE IN A RURAL LOCATION'
RESOURCE BANK
Reducing Urbanisation.
PEOPLE NEED THE TIME TO SHARE THIS INFORMATION, THEY KNOW IT IS BEST PRACTICE, TRUST ISSUES → RELATIONSHIP BUILDING → KARNIGE TRUST 'TWIN TOWNS' GOOD EXAMPLE
SHARE MISTAKES? LOUIS → "YES AGREE"
"AREA OF COMMON GROUND? → HE SOLVED THIS PROBLEM.
SOCIAL MEDIA → ? NOT EVERYONE HAS BROADBAND...
OPEN FOR DEBATE → SOME PEOPLE JUST POINT
CAN BE SEEN AS CLICKING → NO STICK
COME FROM A TRUSTED SOURCE!
COMMUNITY GROUPS.
I THROW THE WORD FACILITOR AT HER.
SHE AGREED
OLD P
CONNECTOR?
WHO IS THIS.
CHALLENGES
LINKS MASSIVELY TO FACILITATION! One of the challenges is having an organisation or body that we can all trust, I think, People are on the defensive because NATURAL E. POLICE SOME AREAS → LOCAL AUTHORITIES ARE BADIE! → LOUIS LIKES → Contributes with
34MIN
TREE NO ALLEN
OVERLOOKED
STRUCTURE HAS TO BE THERE...
FUNDING GOT TO BE THERE...
BACKGROUND
TOOLKIT.
WEBSITE.
PRINCIPLE FOLLOWS
DEFINE?
WHAT DID SHE WANT... AGAIN SHE CONTINUES THIS A MUTUALLY BENEFICIAL EXERCISE.
DRAWS A CONTRAST TO NATURAL E
STRATEGIC?
TALK ABOUT CROSSING POLITICAL BOUNDARIES
PEOPLE HEAVY
economy
network
SERVICES
DEFINATE EMPHASIS ON STRATEGIC THINKING, LINKS TO LEPS' etc.
UNPACKED → 'NEGATIVE CONSENSUS' it is summed up as the 'ripple effect words'
NOT ORIGINALLY ACCOUNTED FOR.
CRITIC OF FUNDING.
Develop who an opportunity
RAISED A MAJOR ISSUE WITH FUNDING APPLICATIONS, 'PEOPLE TRY TO MATCH TO FUNDING APPLICATIONS, WHEN ACTUALLY IT SHOULD BE FUNDING MATCHING THE NEEDS OF PEOPLE
INTERESTING POINT SHOULD BE EXPLORED MORE.
FUNDING
BIG POINT OF D
FLIP SIDE OF THE COIN THOUGH, DO PEOPLE KNOW WHAT THEY WANT & IS WHAT THEY WANT USEFUL?
SEEM QUITE FRUSTRATED ABOUT THIS BUT SO DID ALL 'P's.
BORDERLANDS PROJECT.
WORKS TO DEVELOP CONNECTIONS ACROSS BOARDERS.
ISOLATED PEOPLE IN SOME COMMUNITIES WITH NO ACCESS TO INTERNET. → BIG PROBLEM TO THEM.
BID PROCESS.
0.10
PAINT BY NUMBERS
LARGE "IT ALL LOOKS THE SAME" BUT IS SIMPLE ISN'T, FARMERS & LANDO.
BRINGS UP LAND OWNERS.
PLACE SPECIFIC.
NO MODEL FOR COMPROMISE
THESE SCHEMES ARE THROUGH NUMBERS
NOT A STRATEGIC THOUGHT OF THE LAND!
"FARM PAYMENTS THAT FARMERS GET" → CONTROL OF LAND THEY SET ASIDE 4 TREE PLANTING
LINKS TO NOT ONE SIZE FITS ALL

Panellist 8

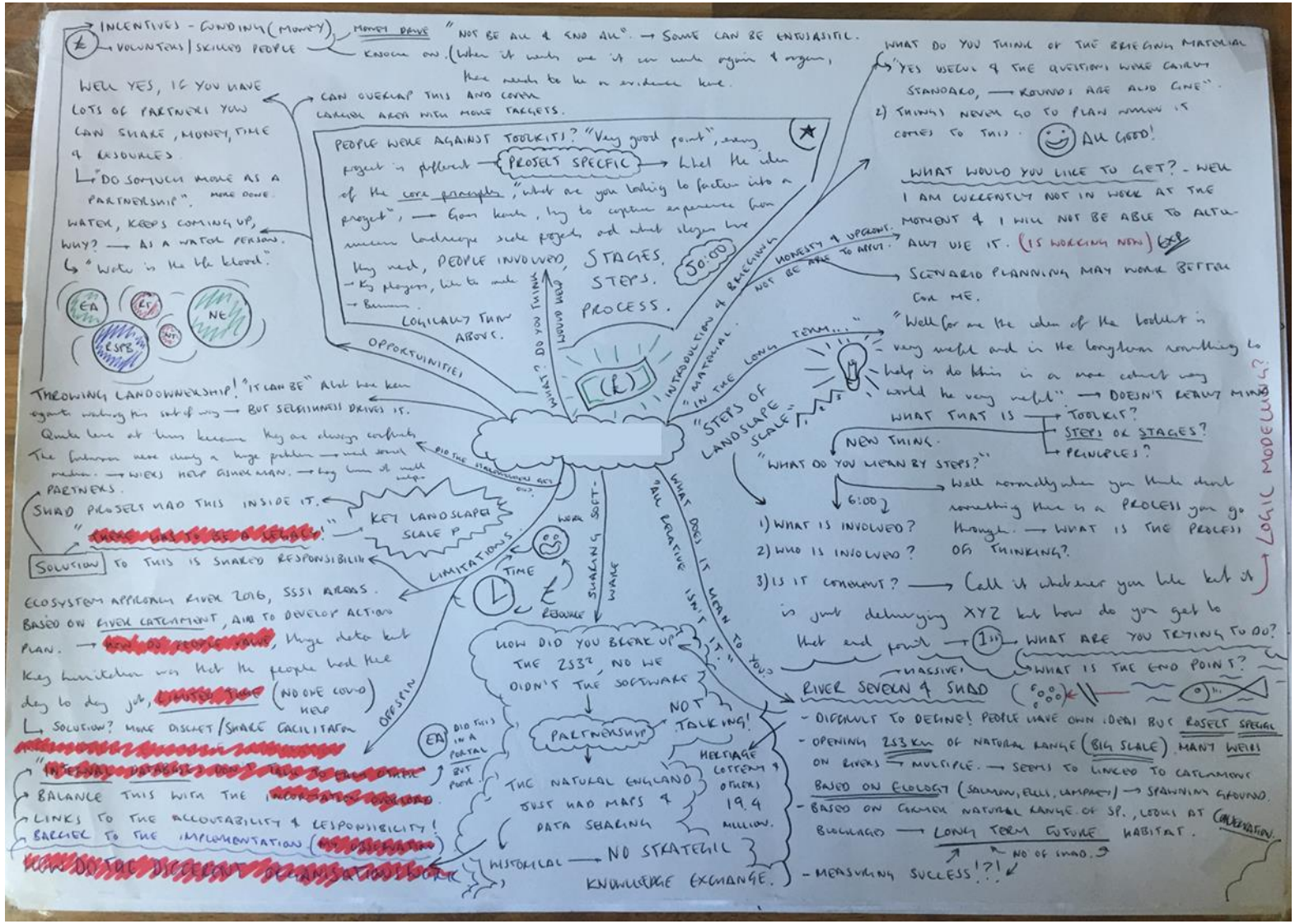

IGNORE MONEY (DO NOT USE MONEY).
HOW DO WE ADDRESS THAT THEN
5:00
2:00
FUNDAMENTAL CONSTRAINT → "In Urban
areas is
I WOULD AGREE BUT NOT
JUST LIMITED TO URBAN,
RURAL ALSO. HE DID GO HERE
→ "It would be great to join all of these areas
up but
the
WHO OWNS IT!
→ LIVES RURAL LANDSCAPE
TRADITIONAL LANDSCAPE SCALE IS TO
PRACTICAL
GRID CONSCIOUS. ★
"Stewardship schemes are driven by the form by
form and it is not really joined. AGREED WITH HOW
POOR MONEY IS AT AN INCENTIVE.
INCENTIVES
THEM.
→"FARMERS ARE RUNNING A BUSINESS"
1) Draw from a UK example, mostly is
privately owned land with a planning ownership.
2) Look for a BIG clear problem like FLOODING
and RUN OFF you can incentivise land owners to
plant trees → OR RATHER THAN COMPULSIVE BY
LAND (FROM OUTSET) INCENTIVES PEOPLE TO THINK
ABOUT OUTCOMES.
COMMON GOAL?
→ WHAT ARE YOU TRYING TO
ACHIEVE?
7:00
AGRO ENVIRO SCHEMES ASK
SECONDARY ENVIRO ON TOP OF
INITIAL GOALS.
STRAIGHT INTO CONCRETE
(NO HEDGING)
"Always have conflicts
of interest"
But
POLICY OR
FINANCIAL.
COMMON
OUTCOME.
10:00
OVER ARCHING POLICY/FINANCIAL
WHICH ALLOWS PEOPLE UNDERNEATH
COMPLAINED ABOUT SOUTHDOWNS.
"BUT YOU HAVE TO FIND SOMETHING
EVERYONE CAN BITE INTO" → This has to be
driven by someone who can provide common vision but
also the real incentives to participate.
"THIS IS MONEY AGAIN , ONE
PANELLIST HATED MONEY & SAID THAT
CHANGING BEHAVIOUR WAS MORE IMPORTANT."
14:00
GREAT FEN
PROJECT IS TO
BUY LAND
16:00
"YOU COME ACROSS QUITE
"NEGATIVE" DO YOU THINK IT
WILL WORK?"
15:00
WE ARE BOUND IN A
MONETARY SYSTEM, SO MONEY IS
KEY.
"Principle is sound", "Natural Connection
in a sense forgot ecology → NEED
TO RESTORE" LANDSCAPE BUT WHAT ARE
THE MECHANISMS"? → URBAN EASIER.
Polar debate seems to be
very good, to extract
20:00 → NO
AGRICULTURAL VALUE,
SO VAL WILL DROP &
PEOPLE WILL BUY IT
UP.
COMMUNITIES
BUYING PROPERTY.
19:00
POST BREXIT COULD BE A
BIG DRIVER OF LS.
LANDSCAPE SCALE APPROACH
POST BREXIT → "The farm who currently
farm them would farm them because
the Subsidies will run".
MONEY DRYS UP.
BUT COMPLICATED
MIX. URBAN
"SOME FARMS
MAY BE ABANDONED
& REWILDED BY
DEFAULT."
HOW DOES ME SEE
LANDSCAPE SCALE?
→ WHAT DID YOU THINK OF THE PROJECT.
"Really interesting and who have been talking about for
along time", INTERESTING.
"Everyone gets excited by it and yet... and".
"I THROUGH THE "INVESTING IN GREEN INFRASTRUCTURE
WORK FOR A FUTURE CITY" → The aims here on
landscape Scale do you agree → "YES!" → so this
is how it is used.
WATER COMPANIES
PROTECTING WATER AT
SOURCE.
→ WHAT DO YOU WANT TO GET FROM YOU
INVOLVEMENT? → Partnership in Urban area.
1) "Very little understanding of common interests and
common approaches".
GREEN ALONG RC
2) RIVER CORRIDORS → RIVER IS A FEATURE WHICH IS
COMMON TO ALL LAND OWNERS. → ECOLOGY IS
ESAY TO GRASP - FLOOD MGMT.
"PEOPLE HAD NO
COMMENT OF HOW MY
TIME"
3) "VISUAL TOOLS" → MAN ON CLAPHAM OMNIBUS
TO SEE CONNECTIVITY AND VISUALISE IT.
4) → GOOGLE EARTH, DRONES,
→ SEE CONNECTIONS
LANDSCAPE IS ROAD NETWORKS & RAILWAYS".

Panellist 9

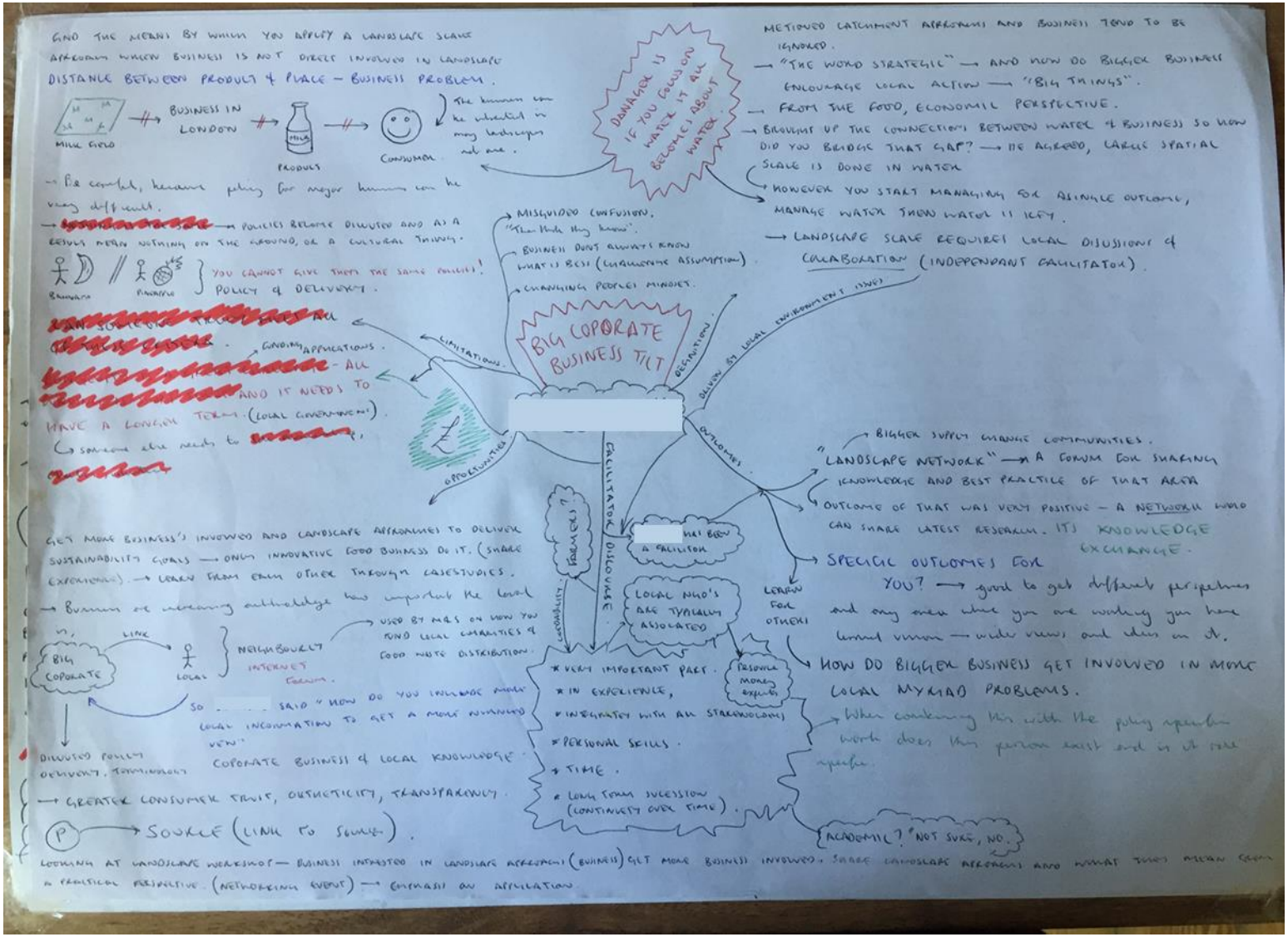


ECOSYSTEM SERVICES SEEM TO UNDERLY THE APPROACH
Element of Strategic Thinking.
OUTCOMES ARE LAND USER DRIVEN AS A BOTTOM UP APPROACH. (OFTEN ON THE FRONT LINE!).
PEOPLE A GREAT INFO SOURCE.
FARMING IS ALWAYS A PART OF LANDSCAPE → CAN'T REWILD EVERYTHING.
DEFINITION BASED ON CHARC & LS FUNCTION
LANDSCAPE SCALE IS A SPATIAL AREA.....
HOWEVER MUST NOT NEGLECT SPATIAL / TEMPORAL OF FUNCTION OF AREA
When it comes to delivery must have area first.
DEFINITION.
CULTURAL & SOCIAL STUFF IS VERY OFTEN NEGLECTED
LANDSCAPES ARE A SOCIAL CONTRUCT....
PEOPLE & LANDSCAPE CONECT.
MAKE LAND USERS AS THE OUTCOMES.
WORKING LIKE THIS DOESNT MEAN YOU FORGET ABOUT WILDLIFE. NOT THE CASE.
GREAT DEFINITION FOR SCRUITY IN BACK!
LETS US THIS FOR CMENT?
NEW LANDSCAPE STRATEGY
FUNCTIONAL APPROACH
Functional
BRIDGE GAP BETWEEN ALA! PRAC!
CASE STUDY!!!!!!!!!
PROTECT AS 6 FARM CLUSTERS → THE NATIONAL PARK IS THE FACILITATOR
WIDER LANDSCAPE MATRIX?
THINK ABOUT HOW LANDSCAPE FUNCTIONS (UNDERLYING PROCESS → i.e. (WATER)) → RATHER THAN BE LIMITED BY A VERY NARROW FOCUS.
NATURAL CAPITAL! / ECOSYSTEM SERVICES!
BIG LINK...
OPPORTUNITIES.
GOOD TEST BED
?!
OVERCOMING TRADITIONAL BOUNDARIES → REQUIRES GOOD CLEAR PARTNERSHIP.
AND NATIONAL PARKS ARE GREE TO WORK WITH WHOLE THEY WANT.
TRUST
OPEN BOOK
EXPERIENCE
MAKE THE LINKS AND RELATIONSHIPS EARLY ON!!!
CAN BE DONE BADLY!
LOCAL AUTHORITIES ARE VERY LIMITED
LANDSCAPE CAN HELP TO MAINSTREAM THIS
GET PEOPLE TO DEFINE THERE OWN BOUNDARISE THEY WORK FROM THIS.
COMMUNICATION!
OPPORTUNITIES ANYMORE? → THINK BIG ON FUNCTIONAL & ECOSYSTEM SERVICES → TRYING TO BROADEN AND APPLY
RELATED
CONFLICTS BETWEEN STAKEHOLDERS / FARMS / RECREATION & ACCESS.
NATURAL CAPITAL CAN HELP TO GET FUNDING.
BARRIERS / LIMITATIONS.
INNOVATION IS NOT ALWAYS POPULAR BUT CHRIS SAYS THEY HAVE BEEN ON JOURNEY FOR A WHILE.
SUBTLE DEF...
2018 STRAGETY → PREDOMINATELY MINE BUT TO OTHER LEADS, WOODLAND, BRINGS ALL ENCOMPASSING → LINKS LANDSCAPE CHARACTER & LANDSCAPE FUNCTION
COMMON – We struggle to work in integrated approach fully.
WOOD
WATER
GRASS
INTERGRATED LAND MANAGEMENT APPROACH.
When taking a functional approach you can look beyond 'catchment' and consider the wider landscape
You have a strategic outputs, underlying ecosystem function
WATER CYCLE
full length (NOT NARROW FOCUS).
HOW DOES THE LANDSCAPE FUNCTION!?!
NATURAL CAPITAL
ECOSYSTEM SERVICES
Make it outcome orientated → make is specific.
FUNCTIONAL APPROACH = LANDSCAPE(S)
BARRIERS | A BIG BARRIER IS THE
Working at a landscape can be limited by specific approaches.
ACTION POINTS / PLAN
FUNCTIONAL APPROACH IS CHALLENGE BY CONSERVATIONISTS BECAUSE THEY BECIVE LANDSCAPE IS LEFT OUT.
What do you think of theory and deliver?
THINGS CAN HAVE A VERY NARROW FOCUS (LIMITED IN LOOKING BEYOND)
MAKES CLEAR DISMINATION OF ACTION PLAN AND ON THE GROUND DELIVERY.
Landscape scale / functional approach → while underlying this.
Defines your outcomes
funding is a key driver.

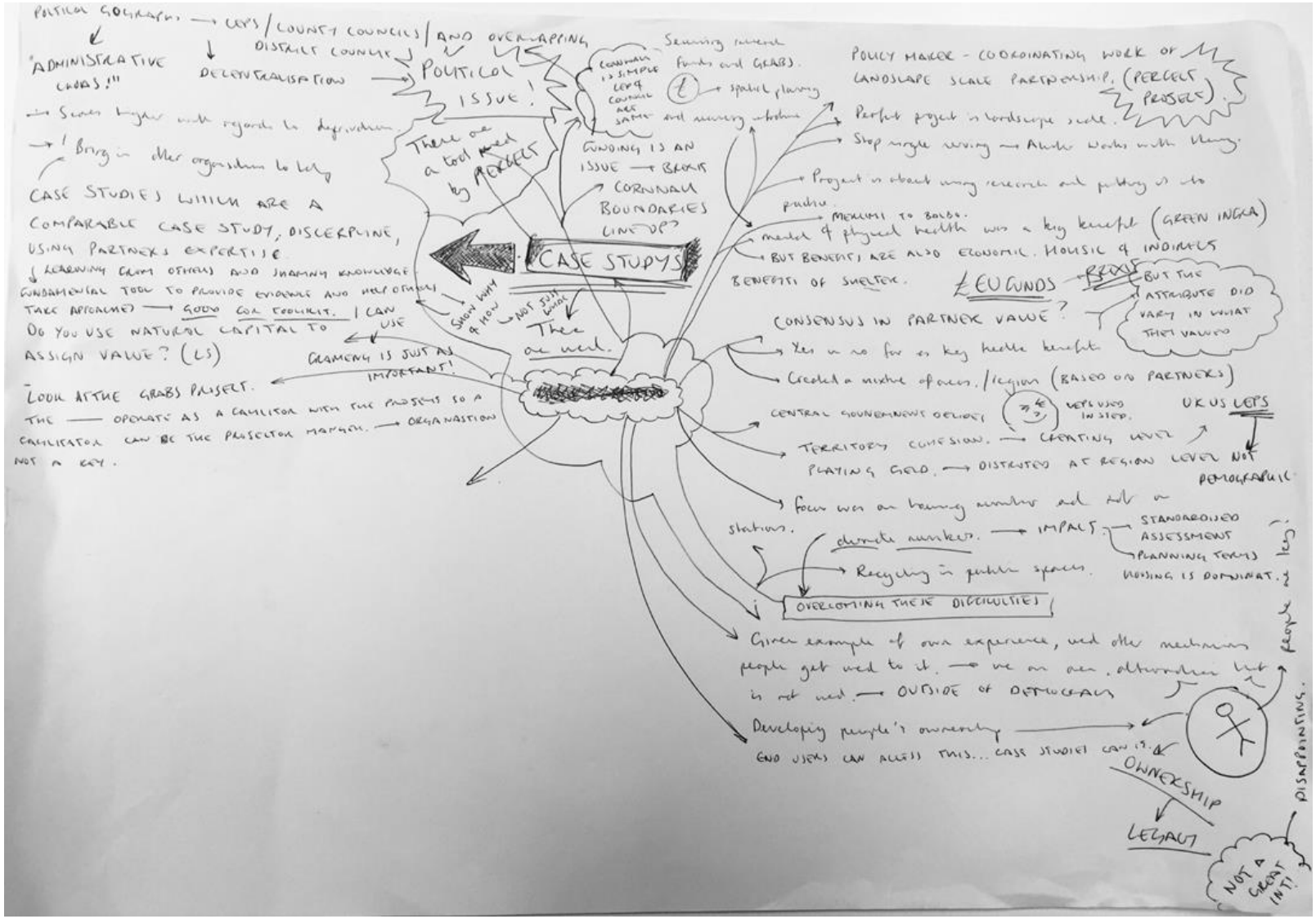
Panellist 10



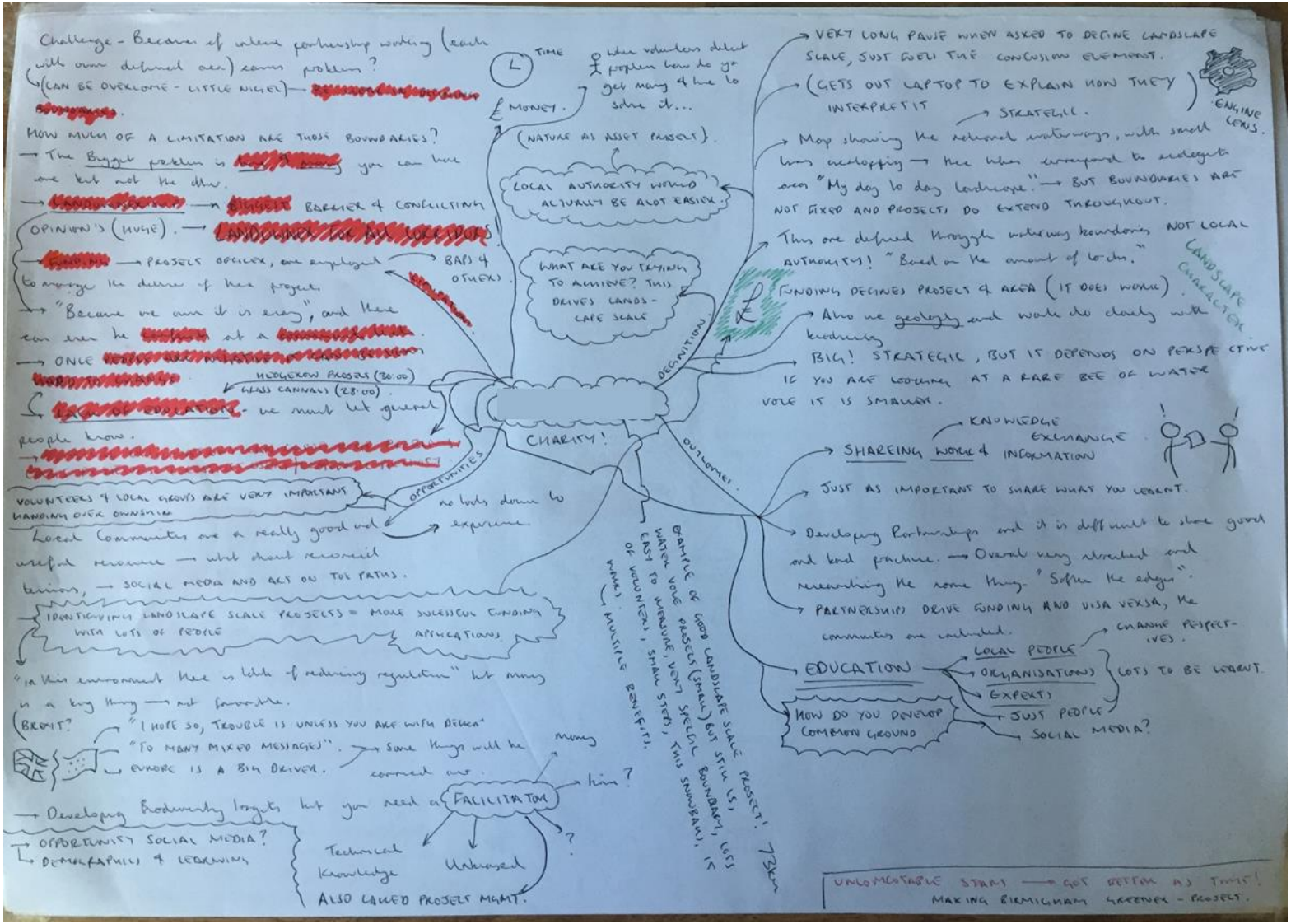
Panellist 11



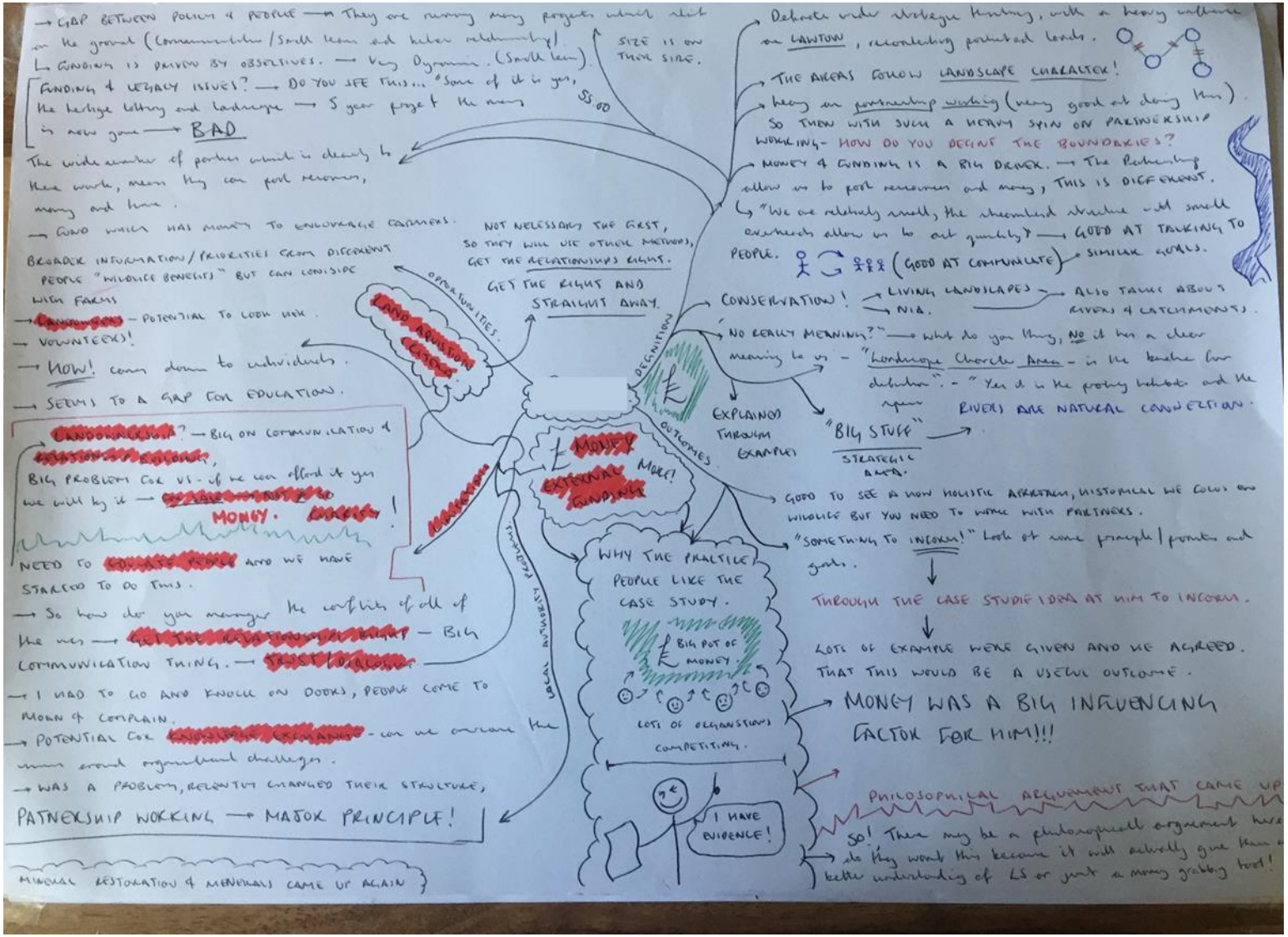
Panellist 12



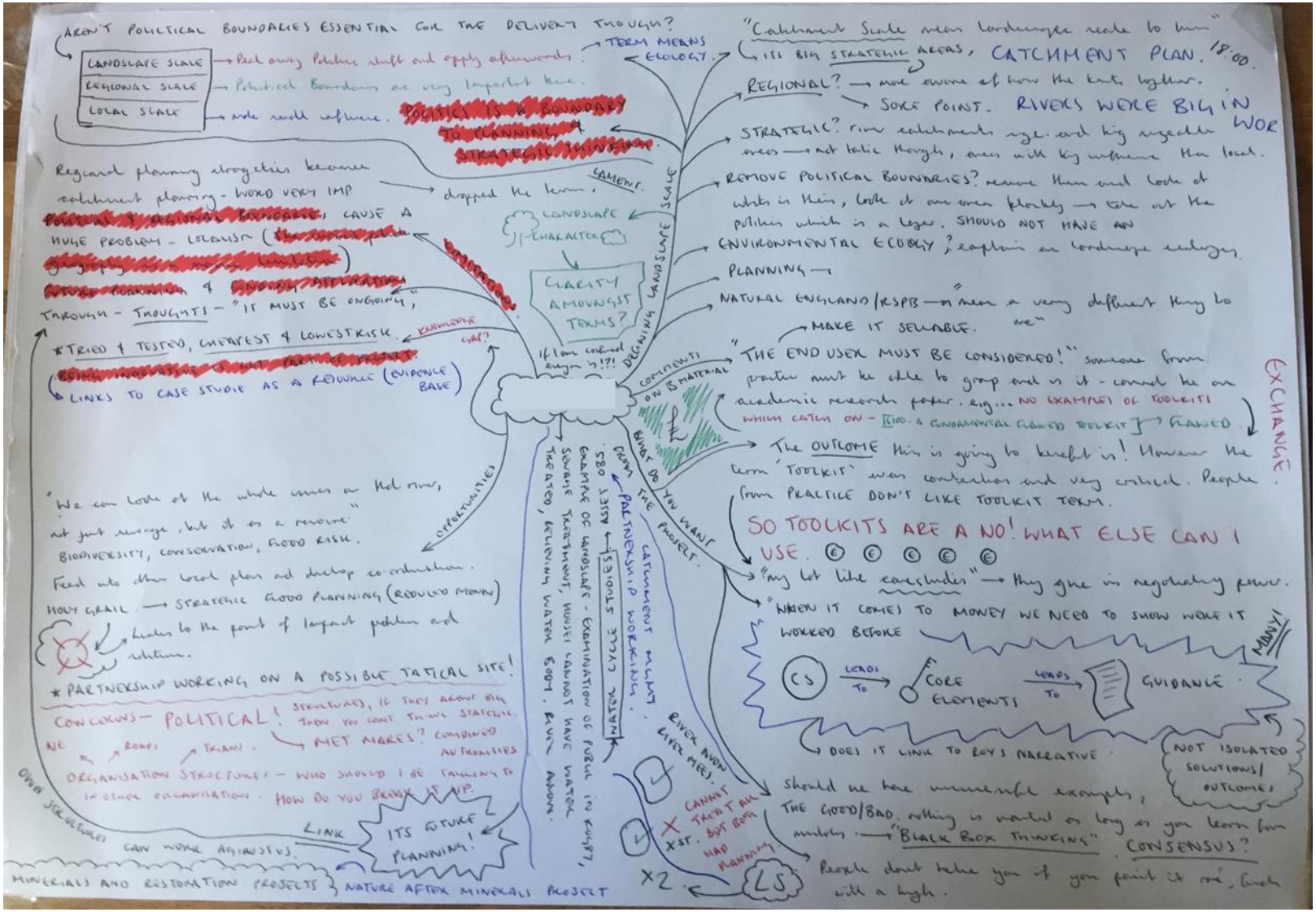
Panellist 13



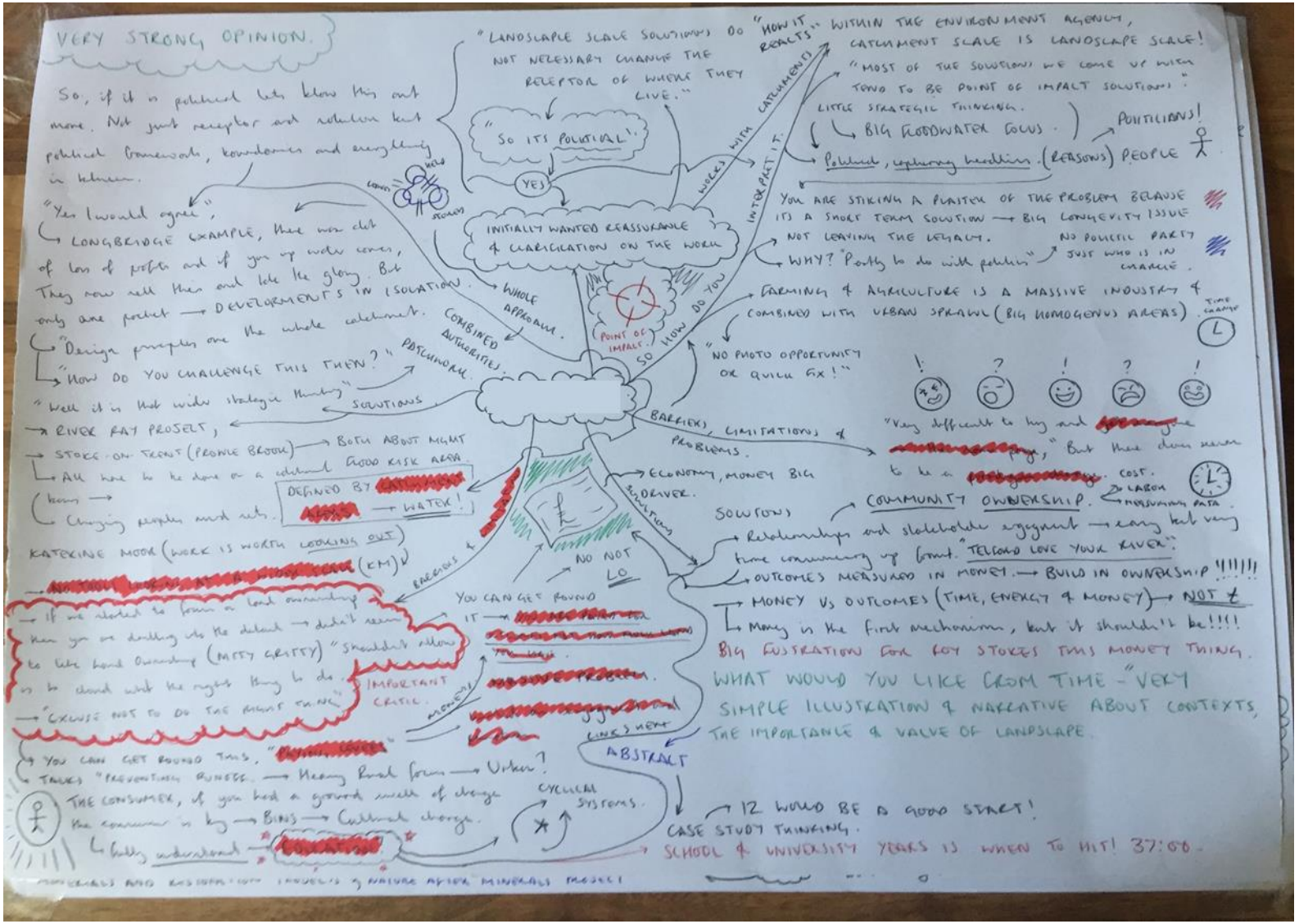
Panellist 14



Panellist 15



Panellist 16



Appendix 4 – Output of Round 1 of the Delphi Technique 'Synthesis Report 1'

Round 1 Synthesis Report

Executive Summary

The Round 1 interviews illuminated what 'landscape scale' means by drawing on the panellists' experiences with landscape scale projects; in that sense more emphasis was paid to working at the landscape scale than the theory and strategic importance of defining and embedding landscape scale in policy. A consensus was evident amongst panellists that the major barriers to the implementation of landscape scale in practice was a lack of funding, problems securing ownership of the land and/or the lack of dedicated and skilled landscape scale facilitators. Panellists also highlighted that effective stakeholder engagement and negotiation with partners, could be very successful in overcoming blockages. As a result, the interviews highlighted the importance of effective facilitation (in addition to project coordination) which requires a role specific person with the right set of skills and access to timely, high quality and accurate information.

Optimising and enhancing the effectiveness of partnership working and excellent communication emerged as paramount to success. This analysis is consistent with the message that came through all of the interviews with panellists asking for "*better education"*, "s*omething to inform*", "*a space for knowledge exchange*", "*common interest groups*", "*open explicitly discussion about value*", "*the need to empower responsibility without formal authority*" and "*enhancing stakeholder engagement*". The various points raised in Round 1 have been thematically grouped and are summarised regarding: (1) what participants would find as a useful output / resource; (2) what 'landscape scale' means; (3) the need for financial resources; (4) the crucial role of land ownership; (5) issues of dysfunction, disintegration and silos; (6) people and emotional connections to landscape; and (7) the need for more landscape scale explicit discussions / learning.

Introduction

This synthesis report highlights the areas of consensus, ambiguity and conflicting viewpoints from the first round of the Delphi. **Seven key themes** where elicited from over 1000 minutes of interview data with 16 panellists. The panel includes experts across academia, policy and practice from a range of organisations and disciplines (see Figure 1).

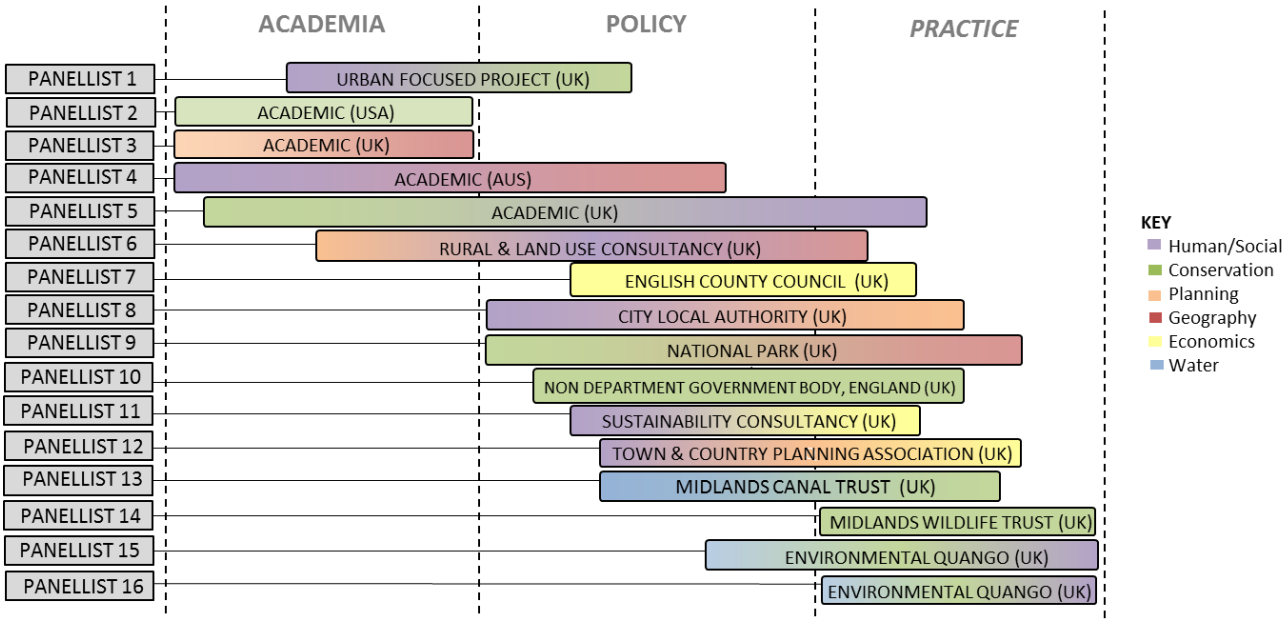


Figure 1. Characteristics of the Delphi Panel members contributing to the Project.

What Do People Want from this Project?

Most panel members thought a resource kit or toolkit for working with landscape scale projects / policy could be useful. Three panellists were critical about 'yet another toolbox', citing a failure of this type of output to translate into practical change in the field. Panellists 6 therefore cautioned that any co-designed tool or toolkit should translate readily, and be widely and easily integrated into current practice.

> *"…I suspect that there are a lot of toolkits that are great, but I don't know whether there is any research into whether the toolkits that are created and*

want to be useful actually get translated into what you might call routine tools." [Panellist 6]

Panellist 5,who is involved in both academic research and in landscape scale projects, thought it unlikely that they would gain anything from such an output but is interested to see how other users interpret and apply the term 'landscape scale' within their own field. From all the responses, it appears that an underlying definition and understanding of what working at the landscape scale means, together with proposing specific ways to address key limitations and barriers, would be a useful output.

The interviews highlighted the importance of a practice relevant output. For example, Panellist 1 suggested the inclusion of something that would 'Inform', and this suggestion was used in the following interviews to help elicit specific practical solutions from the panel members. Explanatory responses from four panellists described a situation where there were limited examples of success, shared insights or good practice support. Two information gaps became evident. First, the need for the development of a freely accessible database/collection/library of case studies that outlined successful and also not as successful landscape scale projects to showcase good project design and management practices as well as facilitate a culture of learning from past challenges. This potential output was associated with panellists directly involved in the implementation of landscape scale projects. Second, a requirement for a 'common interest group' was identified - a term used by three panellists and interpreted by the researcher in the broader context to mean 'a shared and safe space for learning' or 'community of practice'.

The majority of panellists proposed or agreed with the need for learning resources that foster the development of interventions within a flexible context; i.e. access to good and problematic practice information and/or a 'shared space for learning'. However, one panellist proposed a more prescriptive approach, suggesting the need for a 'step by step guide' outlining the fundamental 'stages' of a landscape scale project.

> *"Normally when you go through the thinking behind how you do something there is always a process behind it…so by steps I mean the process…what process do you have to go through to identify, what you do first, who you involve and what is the scope"* [Panellist 10]

A more prescriptive output could be useful but potentially problematic as most panellists agreed that 'there is no such thing as one size fits all' solution to working at the landscape scale. As a result, a step-by-step guide would have to be flexible enough to allow people to relate to it, regardless of their discipline / knowledge / experience and type of project whilst at the same time be robust enough to ensure that everyone was still working within a consistent definition of 'landscape scale'.

Prompt 1 – There were four potential outcomes identified from Round 1;

A collection of case studies

The fundamental stages/steps of landscape scale working

An explicit working definition

A set of landscape scale principles

Please rank them from 1 to 4 in order of usefulness for your landscape scale work ('1' being the most useful and '4' being least useful) and explain the reasons for your ranking choices.

Prompt 2 – Are there any other options / amendments to the above suggestions?

1. 'Defining' Landscape Scale

The literature review undertaken as part of this research project identified a lack of clarity around what is meant by the term 'landscape scale'; this could be a potential hindrance to its successful application. This seems to be a real challenge as during the Round 1 interviews only one panellist, who is actively involved in high-level policy development, offered an explicit definition.

> *"A project or programme of work that delivers outcomes or activities across a large area and is based on a sound understanding of the character and function of that landscape. This also takes into account the natural and cultural elements of the landscape both old and new"* [Panellist 9]

Prompt 3 – To what extent do you think that the definition provided above has the right ingredients for an explicit landscape scale definition?

All panellists felt comfortable with the term landscape scale and explained it by drawing upon insights and examples from their own experience and day to day work. Panellist 3 described a growing momentum around landscape scale projects arising from a “more fit for purpose” approach that addresses the challenges faced by the natural and built environment.

By allowing panellists the freedom to express organically what operating at a landscape scale meant to them, a number of common characteristics and themes started to emerge.

1) ***People*** – The relationship between people and the landscape was considered a vital component in all of the interviews. The role of people in landscape scale took many forms including; cultural heritage, stakeholder engagement, volunteers and land users. The way people use and experience the landscape seems deeply embedded within the concept of landscape scale and was perceived by all panel members as an essential and integral component.
2) ***Communication*** – Communication and transparency was another recurring theme and featured strongly during interviews, particularly when panellists made reference to specific case studies. A strong belief that effective two-way communication must be maintained both during and after landscape scale projects also featured with transparency being particularly important for building trust between different stakeholders and the facilitator/project manager, leading to more effective and holistic outcomes.
3) ***Water*** – As a topic, water seemed inseparable from the term ‘landscape scale’ and came up in every interview. Thus regardless of discipline or working experience, panel members made reference to rivers, canals, water catchment areas, drinking water and/or oceans. One panellists said that water is ‘inherently linked to landscape character’ because typically we use definite changes in the character of the landscape to draw anthropogenic boundaries.

Prompt 4 – What then are the links between ‘landscape character’, ‘landscape scale’ and ‘landscape’ and is each term sufficiently distinct?

2. ***Facilitators, project managers and project leaders***

A range of terms were used to discuss the need and role of 'formal authority' for landscape scale projects. Typically, a landscape scale approach requires a 'facilitator' to help communicate ideas across a large number of stakeholders but also to drive projects forward for the benefit of everyone involved. Panellist 3 encapsulated the importance of effective facilitation stating that "*collaborative working comes to a crunch when you have responsibility without formal authority"*. The personal and professional qualities of the 'facilitator' was raised by many panel members using terms such a 'credible', 'knowledgeable', 'unbiased', 'charismatic' and 'relatable'. One panellist suggested that academics had the potential to fulfil this role whilst another cited individuals from local third sector groups. In all cases, the importance of finding a suitable facilitator was considered paramount for achieving successful outcomes but despite the common consensus around essential traits, there was no consensus as to who or what this person should be.

3. Large geographical areas *or* wider strategic thinking

It was immediately apparent during the interviews that landscape scale working was used in reference to large strategic areas, such as "*Catchment Scale*" [Panellist 15], "*Regional Scales*" [Panellist 9] or smaller scale projects to deliver outcomes as part of a wider strategic programme or thinking.

Prompt 5 – Do you think that the above five characteristics and themes accurately represent landscape scale 'principles'? How would you improve these or better capture 'landscape scale principles'?

There were mixed feelings about the usefulness of a clear concise definition of 'landscape scale'. Some, largely those in strategic positions or with an academic background, valued the flexibility that the lack of a precise definition gave them.

> *"NGOs, academics and people who take on lots of different kinds of projects like it nebulous because it can mean everything and also nothing."* [Panellist 5]

Others, largely active in project implementation and coordination, felt that the lack of clarity around the definition of landscape scale undermined the development of practical solutions on the ground. For example, one panellist observed that the term 'landscape scale' was something of a 'buzzword', having political traction when applying for funding applications but not necessarily translating into tangible practical outcomes that can be measured on the ground. Overall therefore, it appears that the

greatest benefit would be felt at the practice or delivery level where clarity is important to measure and evaluate outcomes of landscape scale projects and to secure future funding. Care would have to be taken not to fall into the following trap, where;

> *"… large businesses would develop generalised policies which when they filtered down, were just not context and specific enough, so people didn't use them."* [Panellist 11]

Respondents felt that the role of the facilitator in bridging the gaps that may exist between policy (strategy) and practical delivery (tactics/steps for implementation) may be crucial here. Using 'soft' skills such as communication, collaboration and negotiation as well as possessing a thorough understanding of the subject matter are needed to be able to translate landscape scale project objectives into meaningful delivery processes on a project by project basis.

4. Money and Funding Applications

The topic of funding for landscape scale projects was seen as important by all panellists and viewed as a significant factor in the success or failure of landscape scale projects. It was also widely considered to be the main leverage available for securing change. Statements included:

> *"… money is always at the heart of these issues. How much of the UK population lives outside a system which is not reliant on banks, income, and money…0.001% perhaps, so we are all tied into that system"* [Panellist 8].
>
> *"We have just secured funding to extend the project by another X kilometres"* [Panellist 13]
>
> *"If you gave us a large pot of money…what we would probably use it to do is buy up large areas of the uplands and re-wild them…"* [Panellist 9]

Given the perceived reliance on funding, panellists identified broadly two types of strategy to be adopted when implementing landscape scale projects;

1) **Land Purchase Strategy** – Where the strategy of the landscape scale project is determined by the availability of land for purchase and where the control of land is the primary driver of success. For example,

"A large organisation owns several fens and they have a one hundred year vision to create a huge fen landscape on the outskirts of Cambridge of approximately a

thousand hectares. They currently own a few hundred, their strategy is to buy the land when it becomes available." [Panellist 8]

2) **Collaborative Working Strategy** – Where the strategy is focused around people and organisations working together to deliver shared goals and where the primary driver of success is the forging of productive relationships with existing landowners and land managers to achieve the desired goals.

"*because we are relatively small and nimble on the ground…with small overheads when compared with other big organisations, with only fifty staff we have been very good at working with partners*" [Panellist 14]

"…*and austerity is driving us to seek out partners.*" [Panellists 15]

Panellists believed the choice of strategy to be heavily dependent on each organisation's financial power, with 'smaller' organisations, typically more reliant on landscape scale projects based on shared goals delivered through effective collaboration and trust. On the basis of the panel responses, the default position appears to be land purchase strategies with collaborative working strategies used as a fall back despite the fact that organisations reliant on collaborative working strategies seem to have become very good at it.

Another important strand that emerged is the longevity of landscape scale projects. Some consensus was evident that longevity is a defining feature of landscape scale working. Those panellists explored this issue within a financial context, identifying specific problems with what could be termed *legacy issues*. In three interviews, panellists expressed concerns that "*future planning", "future-proofing" or "What happens after the funding ends?"* criteria, were not explicit in some funding applications. This is an important oversight, as the long term success of landscape scale projects may be undermined by a failure to take account of costs beyond the initial project duration. A further aspect, which every panel member involved in the practical delivery of landscape scale projects identified, was the importance of including local stakeholders from the outset and the importance of volunteers and community groups supporting the monitoring of the longer term delivery of goals.

Prompt 6 – To what extent do you agree that a lack of 'future-proofing' in funding applications has affected long term delivery of landscape scale projects?

Prompt 7 - What approaches / solutions would you recommend to enable strong legacies?

4. Land Ownership

The theme of land ownership was raised by eight panel members. One panellist went so as far to say that they considered land ownership as "*the greatest limitation to the delivery of landscape scale* projects". This sentiment was quoted in consequent interviews and found strong support regardless of discipline, experience or background, with four panel members agreeing that it was the greatest single limitation to the achievement of success. The reasoning behind this assertion was that '*whoever controls the land, controls what happens to it*' [Panellist 8].

All panellists knew of or had personal experience of cases to illustrate how landscape scale projects or strategies were hindered or stopped by differences in land owner opinion, practices or requirements. One example described a goal to enhance hedgerows along agricultural fields in the Midlands:

> *"We had encouraged one farmer to allow trees to grow through his hedgerows every 50 meters, which was a success, but when we returned months later we found that they had all been cut down by the farmer in the adjacent field…"* [Panellist 13]

Such experiences help to explain why there is an emphasis on buying land as opposed to developing schemes collaboratively because it appears to be the 'simplest solution'. However, in the quoted case, the reason for failure could have just as easily been attributed to a lack of engagement – had the neighbouring farmer been made aware of the aim of the project and their support secured they may not have cut the trees. A combination of both strategies seems also inevitable due to costs / available funding to secure boundary and land management rights.

Three panellists identified the problem of land ownership as being more acute in rural settings where land owners may change, from one field to the next, typically with reference to biodiversity conservation. However, this was considered more of an issue in countries with smaller fragmented ecosystems. In urban environments issues revolve more around land use and enhancing 'the zones of transition' between constructed or perceived 'boundaries'.

Adding a further layer of complexity to the issue of land ownership, one panellist identified the importance of securing the engagement of land 'users' or 'actors' within the scope of landscape scale projects. In the absence of suitable sub contract arrangements, tenants, contractors, sub-contractors and land managers, who may work the land but don't necessarily own it, will also need to be included within the arrangements for stakeholder engagement.

To summarise, while land ownership seems important in the successful delivery of landscape scale projects, the involvement of all affected / relevant stakeholders and the development of shared goals, relationships and trust appear to be the key drivers of success.

Prompt 8 – Do you think that the barrier imposed by land ownership can be overcome through more effective collaboration and stakeholder engagement? If so, how might that collaboration and stakeholder engagement work?

Prompt 9 – What other factors might help overcome the land ownership barrier?

5. Dysfunction, Disintegration and Silos

The majority of panellists focused on problems of h*ow* they implement landscape scale; i.e. the blockages and barriers. A small number of panellists active in strategic policy making, described problems with *what* landscape scale working is trying to achieve. Here silo working and political boundaries were raised as the two main causes of conflicting aims and objectives, contributing directly to a failure of landscape scale projects. For example, concerns were voiced over individuals working solely within their own discipline, or working with partners from similar organisations to achieve narrowly framed goals.

'*A common interest group*' or a space for '*knowledge exchange*' was expressed as being needed, to give individuals an opportunity to share experience across organisations and disciplines in order to promote the development of more '*holistic solutions*'. Around half the panellists developed this point further, citing the current political framework as a driver of differential policy development and as an active barrier to the alignment of policy objectives around the subject of landscape scale.

> *"…land ownership is not a barrier for me… it is politics that is the major barrier…because political boundaries in no way respect the landscape…and have a history of not being in line with the landscape at all"* [Panellist 6]

Teasing out the issues with the individual panellists, the political context elicited different elements associated with boundaries, geographies and designated spaces.

Boundaries that are established for administrative purposes, i.e. civil parishes, districts, parliamentary constituencies, exist at all levels of governance from large government department bodies to local planning authorities. In the context of landscape scale, these political boundaries can have both positive and negative impacts. According to one panellist, these human imposed boundaries often do not coincide or respect landscape and in fact differences in policy, practices and 'goals' could hinder the effectiveness of wider strategic thinking and require innovative individuals to overcome such barriers. Some panellists from practice, lamented the abolition of 'regional planning', almost removing a whole layer of governance.

> *"I think it is evident in the drop of the 'R' word [meaning Regional] which came out of our job titles overnight. It came out of the way that we wrote but it didn't come out of the way we thought we just had to dress it up differently"* [Panellist 15]

Geographies reflect governance and government. Change in the political geography can give rise to a change in policy direction, causing landscape scale projects to lose traction or be cancelled, sometimes simply because they are associated with the previous administration. For example, one panellist explained that the term 'landscape' is being ignored by the Trump administration because the term was heavily used in the previous administration's rhetoric. Thus some concepts and ideas will gather short or long term traction and others won't.

Designated spaces reflect a measure of value, e.g. in the UK there are Sites of Special Scientific Interest (SSSI) and Areas of Outstanding Natural Beauty (AONBs). One panellist described how perplexing the array of different designations could be and gave an example of the sort of difficulties that could arise as a result.

> *"Ten adjacent areas have an AONB board, with representatives from each local authority area, some of them are unitary and some of them are county or district [authorities]. Each of these units has to put together a core*

strategy, so what chance is there that all of their core strategies are actually delivering benefits to conserve the landscape?" [Panellist 6]

This maybe puts in questions to what extent landscape scale working - which is here loosely defined as a 'fit for purpose solution' to address contemporary environmental challenges – can effectively be implemented when it has to be superimposed onto a political framework that changes over time and may not always be supportive of landscape scale working. The contribution of international panellists was particularly valued in relation to this key theme as the role of landscape scale and how it fits into different political systems, could be explored. For example, panellists based in Australia and USA highlighted how landscape scale fits into a system of cooperative federalism with 'large homogenous landscapes'.

Prompt 10 – How well is the concept of landscape scale embedded with your discipline / area of work?

6. People and the Emotional Connection to Landscape

There was general agreement that people form an integral component of landscape scale working. Attention under this theme focused on the relationships and interactions of people with the land and how this can become a powerful force for change. One panellist raised the importance of cultural heritage in landscape scale decision making, stressing the emotional, sometimes irrational connections a person or communities may feel towards specific features in the landscape. Another panellist articulated this same point but in terms of the emotional connection people sometimes have with particular species, often resulting in extremely visceral reactions and public outcry when these species are put at risk. Many panellists viewed emotional investment as a positive force, stressing the importance of local communities and volunteers in securing landscape scale objectives. Fostering this emotional force and harnessing it to influence policy making, local decision making and delivery was widely recognised.

"It is impossible for experts to be in all places at once and volunteers are a valuable assets during data collection and monitoring" [Panellist 13]

Most panellists highlighted the importance of the emotional connection that people have with their immediate environment but three panellists also identified the fact that fundamentally, there is a disconnect between people and the underlying natural cycles and ecosystem services that treasured areas provide in a wider geographical context. As a result, when steps are taken to improve biodiversity, enhance ecosystem services, or mitigate environmental issues, these can sometimes be viewed negatively and face deep seated resistance.

> *"Very often, the people who initially get involved or in contact [do so] to complain; so from the outset, their attitude is negative, which can be very hard to remedy."* [Panellist 13]

There may be an underlying failure of effectively educating communities and fostering a better understanding of the wider landscape scale objectives in a timely way; this suggests an opportunity to 'strike while the iron is hot', influencing public opinion and harnessing local communities as a positive force for change. A failure to do so may create disconnections which then become exacerbated as people feel isolated from the decision making process and powerless to prevent or influence change in the landscape. It was clear from the Round 1 interviews that the emotional investment that people place in the local landscape is an extremely powerful force. Together with, the points raised in other sections around the importance of securing effective stakeholder engagement, there seemed support amongst panellists for the need and benefit of stakeholder education, the development of common interest and '*a platform for knowledge exchange*'.

Prompt 11 – Given the importance placed on the role of facilitation, how might you use this role to help in the delivery of landscape scale projects?

7. An Opportunity to Develop More Explicit Discussions

There was a clear consensus regarding the importance of effective stakeholder engagement when employing landscape scale approaches. The ability of landscape scale approaches to bring together experts from different organisations and different disciplines was considered a great strength, creating an environment for strategic thinking and underpinning the formulation of more holistic solutions. Panellist 3 stated that landscape scale approaches have the potential to encourage "*more explicit*

discussions" about values (underlying fundamental views and ethical principles) and value (measures of what is valued) because of the inclusion of a wide range of experts and the fact that they bring different perspectives to the supporting knowledge base and eventual decision-making process. When probed as to what was meant by the term 'value' the panellist described the balance of inputs (e.g. time, resources and money) against outputs (e.g. improved ecosystem services and other positive outcomes). Using their own examples, several panellists saw a measure of 'values' as important when justifying decisions and projects in funding applications.

> *"You can combat some of those negative bits in landscape scale by using it to facilitate an explicit discussion about [the] values some people might have. You decide after having that discussion about the scientific reality and the reality of resources [available]"* [Panellist 4]

When discussing the term 'value', three panellists explicitly linked landscape scale approaches to the mainstreaming of natural capital and ecosystem services. In this context, panellists

appeared to be expressing a nuanced view of what they believed to be one of the key strengths of landscape scale approaches, namely by bringing together different stakeholders, a wide range of 'values' can be assigned to the 'same' resource mitigating the risk of conflicting outcomes or the setting of project goals that may be serving a single purpose.

> *"With any planning application there is an economic value and a social value but there are also some costs in the loss of natural capital. So if you could put values on them, you would reach more rational decisions which is really, I guess, where the principle came from"* [Panellist 6]

Prompt 12 – To what extent do you agree that the above seven themes - i.e. (1) useful output / resource; (2) 'landscape scale' definition; (3) financial resources; (4) land ownership; (5) addressing dysfunction, disintegration and silos; (6) people and emotional connections to landscape; and (7) landscape scale explicit discussions / learning - are representative of key ingredients in landscape scale work? Is there something missing?

Prompt 13 – There was a heavy focus on practice throughout Round 1. Is there any theoretical support for this kind of thinking within the wider academic literature or discourse

Appendix 5 – Output of Round 2 of the Delphi technique 'Synthesis Report 2'

Round 2 Synthesis Report - 'Prioritise'

Progress to date

Over the past few months, we have explored the different perceptions, opportunities and barriers acting on the delivery of 'landscape scale' in policy and practice. The research is now rapidly progressing into Round 3 *'Develop'* which scopes out the initial draft of a Landscape Scale Approach Toolkit, drawing upon the input from Rounds 1 and 2 (see Figure 1). This synthesis report summarises the key findings from Round 2 and introduces a preliminary toolkit for review and comment. As always, I would like to thank you for your ongoing contributions to this research. Your input and critical comments are valued greatly.

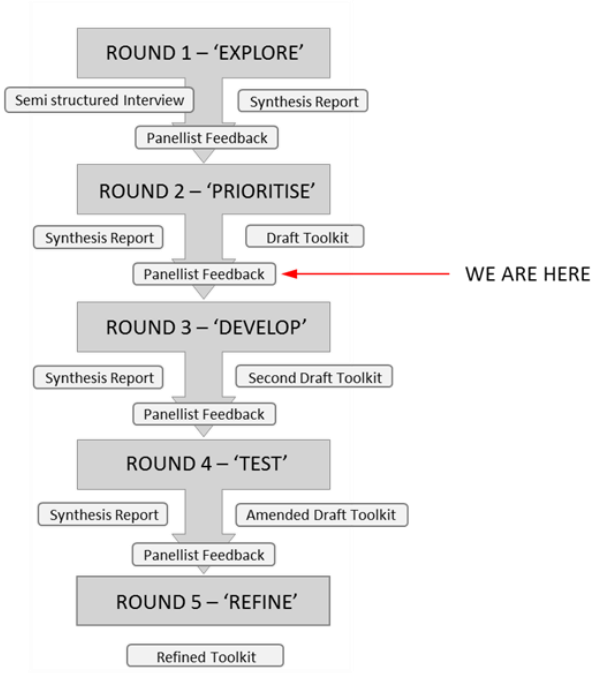


Figure 1 – The applied policy Delphi consists of five iterative rounds; at this point in time the panel of experts have completed Round 2 and the research is now entering the development phase of the landscape scale approach toolkit.

The following sections synthesise over thirty pages of Round 2 material which have been organised under four key themes. The feedback provided on the four potential project outcomes has been used to outline what the initial stages of a toolkit could look like. This information is provided for further comment and elaboration. Finally, the aim of this synthesis report is to move the project forward to Round 3 - developing the landscape scale resource kit – and thus poses some further prompts/question for reflection and comment.

Theme 1 – Developing Clarity and Defining Landscape Scale

The combination of panellist 9's definition of landscape scale and the need to explore the distinct differences between the terms 'landscape', 'landscape character', 'landscape function' and 'landscape scale approaches', stimulated comments and further suggestions. There was a consensus that the initial proposed landscape scale definition was a good start but needed development. Several panel members indicated that while an explicit definition was not necessarily a priority, it was nonetheless considered an important issue and worthy of further consideration. With these factors in mind, the challenge is to develop a working definition explicit enough to clarify the distinct characteristics of landscape scale work whilst retaining sufficient flexibility to allow for generalised application across a variety of different disciplines and contexts. Two panel members emphasised the need for caution, pointing out that concepts such as landscape scale will vary in meaning depending on the problem to be tackled and the specific context in which the concept is being applied. In attempting to develop a robust definition therefore, it will be important to keep in mind the potential range of professional disciplines that might make reference to it as well as the nature of the environment in which the definition may potentially be deployed both practical and strategic.

> *"Of course, a definition is important, but I can see the definition varying according to the problem being tackled, and especially its scale. In other words, I think 'landscape scale' can vary in size from a small local catchment to a major landform, both of which could be planned holistically" (Panellist 1).*

In terms of the specific wording of any definition, three panellists emphasised the need to distinguish between 'landscape scale' and 'landscape scale approaches' suggesting that in their view, landscape scale defined a specific area or (set of) spatial

scale(s) with similar issues and characteristics, whereas a 'landscape scale approach' referred to a policy, project or programme of work developed within the context of 'landscape scale'. With these issues in mind, the following provides a slightly revised definition based on a suggested iteration by panellist 8 including some minor edits to include other proposed nuances from Round 2 feedback, and to clearly distinguish between 'landscape scale' and 'landscape scale approach'. This revised definition is put forward for the consideration as part of the initial development of the toolkit.

DEFINITION OF LANDSCAPE SCALE

'An area or spatial scale defined by the way that area is used and managed, perceived in the context of a subjective set of variables applied across multiple scales'.

Prompt

1. Regarding your own research / work, is this definition fit for purpose and would you use it?

DEFINITION OF LANDSCAPE SCALE APPROACH

'An approach that identifies and delivers environmental solutions in the form of policy, project(s) or programme(s) in response to the challenges identified at the landscape scale.'

Proposed next steps

- Refine the revised definitions offered above of 'landscape scale' and 'landscape scale approach' and use them to support the other components of the toolkits.

Prompt

2. **To what extent are the above definitions of landscape scale and landscape scale approach fit for use across relevant disciplines and applications? Please highlight any potential problems and offer specific alternative wording to address any shortfalls?**

Theme 2 – A Crisis of Governance

Rounds 1 and 2 elicited operational challenges of working at the landscape scale including a myriad of physical, political, social and/or economic barriers, differences in management and structure of organisations, tensions surrounding land ownership, a

failure or breakdown of partnerships, ineffective engagement, poor facilitation and a lack of explicit future proofing. Typically, these challenges have been addressed on a case by case basis, depending on the organisation's/organisations' resources, expertise and volunteer base. To respond effectively to this, any solutions need to be designed to address the unique mix of interacting variables within the scope of a specific project. Several panellists clearly expressed that contemporary governance is not fit for purpose to the extent that it is "*ignorant of the process for delivery"* (Panellist 3).

The operational challenges, perceived causes and proposed solutions identified by the panel were not necessarily unique to the landscape scale but the 'symptoms' or challenges appeared magnified when working at the landscape scale. Figure 2 brings together these symptoms in order to identify the specific governance challenges that are compounded as a result of landscape scale working.

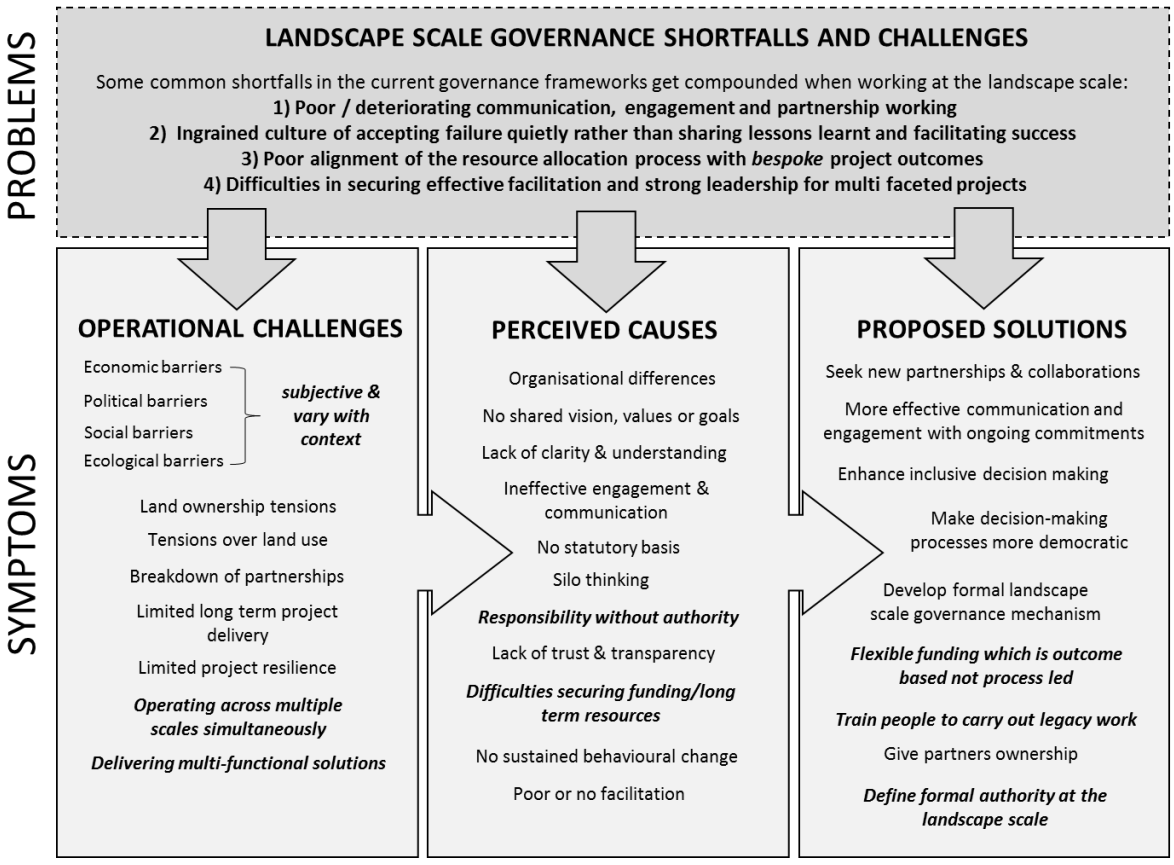


Figure 2 – Analysis of governance shortfalls and challenges associated with landscape scale projects/policies.

Analysis of the operational challenges, perceived causes and proposed solutions identified by the panel highlighted three current governance shortfalls which are compounded when working at the landscape scale;

1) **Poor communication, engagement and partnership working with an ingrained culture of accepting failure** – *People listening without hearing, looking without seeing and failing to share experiences essential to underpin future improvement.* While engagement and general decision making was characterised by panel members as democratic and inclusive processes, challenges seemed to stem from a failure to identify and maintain effective partnership working with all stakeholders over the longer term. This is further exacerbated by a type of institutional myopia whereupon reasons for failure are overlooked or not fully disclosed denying individuals and other organisations the opportunity to learn from past mistakes / challenges. However, a more open and honest learning from good and bad practice could foster a governance ethos and infrastructure that enables progressive change.

2) **Poor alignment of the resource allocation process within the context of the need for bespoke project outcomes** – *There is a limited amount of time and money available for landscape scale projects with current arrangements for allocation of these resources; this seems 'process' rather than 'outcome' led.* Landscape scale projects require a resource allocation process that reflects the flexible and dynamic nature of landscape scale working. Inflexibility in budgeting and some allocation changes undermines the alignment between levels of investment needed and desired outcomes, which for landscape scale projects are often bespoke, varied and highly complex.

3) **Difficulties in securing effective facilitation and strong leadership in multi-faceted projects** – *There are lots of ways to get to the finish line but the course must be well organised, sign posted with someone setting the pace.* In the context of current landscape scale projects, 'authority' is often shared or lacking clarity with a large amount of stakeholders, varied interests, skills and expertise and each project being unique. This reflects the landscape scale concept which is inherently flexible, dynamic and operating at multiple scales. This often results in the need for complex interrelationships with different stakeholders dealing with different 'bits' of the landscape without any clear leadership over the entire landscape scale project / policy. This theme featured strongly in rounds 1 and 2 where problems associated with project leadership and facilitation were identified in many different ways, suggesting the need for a more robust governance framework and allocation of these roles to achieve a 'best fit' rather than specific roles per se.

Prompt

3. To what extent do you agree that these three shortfalls in governance effectively highlight the compounded issues specific to landscape scale working? Please help refine and/or add to these key landscape scale governance challenges (i.e. what are the specific governance challenges, needs or opportunities that are distinct to landscape scale projects / policies?).

The belief is that these shortfalls currently hinder the effective delivery of landscape scale projects and policies and is a topic that we need to explore in the development of the toolkit in the next round.

Reflecting on the panellists' input so far, it appears that the broader theme of **credibility** lies at the heart of these compounded governance issues. For example; panellists mentioned the need for following case studies to provide *believable* examples of what can be done. A set of landscape scale principles along with professional experiences and attitudes will ensure *sound and consistent* application of landscape scale approaches in unique scenarios. An outline of the fundamental stages and steps which give each project *integrity* around a flexible concept. Finding *trustworthy* and *unbiased* facilitators with a proven track record of delivery and who can provide *authoritative* / *effective* leadership across existing operational boundaries. An *equal* playing field where projects and stakeholders are valued regardless of the scale or size of project. Finally, all of which exists in a theoretical 'space' outside of the confines of their existing disciplines that enhances the *traction* and impact of good landscape scale approaches.

In simple terms, people and organisations have different skill sets. These skills will be applicable to some landscape scale projects but not others. Achieving the most successful outcome involves achieving the 'best fit'. When considering the issue of developing a governance framework in this context, the aim should not be to provide a detailed guide on how to select people and organisations for a specific project because this would be inconsistent with the dynamic nature of landscape scale working. Instead, the wider governance framework should provide insight into the broader governance shortfalls that are exacerbated by working at the landscape scale, ensuring organisations take steps to address these areas specifically, leaving no major gaps in their own detailed governance frameworks.

This Encourages individuals working at the landscape scale to bring people and resources together in the most appropriate way, ensuring that the right people, with the right skills are brought together around the right project, at the right time. For the governance framework to drive improvements in delivery, robust mechanisms for the recording of project goals and outcomes would need to be in place for all stakeholders – taking full cognisance of each project's unique character and allowing each stakeholder to develop a proven track record for the specific project characteristics to which they are best suited.

This can be achieved in two different ways, the first is 'progressive' where the toolkit acknowledges these shortfalls in governance and provides guidance and solutions on overcoming them, but it ultimately still works within the existing governance framework. The second solution is more radical and requires a 'transformative' change where a new governance mechanism is developed to replace the old and overcomes the shortfalls through a different way of thinking and doing.

Prompts

4. ***In terms of the Landscape Scale Approach Toolkit, should we be trying to create a 'progressive' outcome which works with the identified governance shortfalls, or a 'transformative' which attempts to change it, or a combination of both?***

5. ***In your opinion what type of governance mechanisms would be more effective; regulatory or incentives which can be opted in and out of, or a mix of both?***

Proposed next steps

- Evaluate and refine existing governance shortfalls/challenges.
- Use the outcomes of insights into governance challenges and solutions to reinforce the development of the landscape scale toolkit.
- Explore the broader theme of 'credibility' in the context of environmental governance.

Theme 3 – Tension Surrounding the Different Perceptions of 'Landownership'

In the first round a strong consensus developed around the barriers to landscape scale working resulting from landownership. Probing deeper into this, two panellists with backgrounds in academia and policy development commented in round 2 that the basis of this theme was '*overly simplistic*' and '*an outdated notion'* explaining that landowners cannot simply 'do what they like' as they themselves are obliged to operate within the context of incentives, regulations and policies. The challenge was then further refined around landowners behaving independently with no agreement across the landscape scale and this then represents a barrier to change. Still, panellists from practice commented that landownership and in some cases, specific landowners, could constitute significant operational barriers and at times might even constitute "*the greatest limitation to landscape scale working"* (Panellist 7). The question then arises to what extent this challenge can be addressed through dialogue and effective stakeholder engagement.

Prompts

6. ***Do you agree with the explanation put forward by panellist 7 or do you feel as though the operational difficulties that arise with landownership are a result of something else?***
7. ***What are the scope and limitations of current stakeholder engagement in landscape scale projects?***

Proposed next steps

- In the light of this new information explore the tension of landownership further and its implications on the toolkit development.

Theme 4 – Prioritising the Research Outcome and Scoping the Toolkit

Four outcomes were highlighted during the first two rounds of the research project as being useful to aid in the delivery of the landscape scale approach. The individual ranks have been collated into a table and graphs (see Figure 2). The table and graphs have been colour coded to help navigate through the data and to help identify trends.

	Academia					Policy						Practice			
Collection of Case Studies	4	2	3	4	-	1	2	3	4	3	-	1	4	1	1
Fundamental Steps and Stages	3	1	1	2	-	-	3	4	3	2	-	4	3	4	3
Explicit Definition	2	4	4	3	-	-	4	1	2	4	-	2	1	3	4
Landscape Scale Principles	1	3	2	1	-	-	1	2	1	1	-	3	2	2	2

Figure 3a – Table showing the distribution of different ranks awarded to the four potential outcomes of the research by 16 panellists.

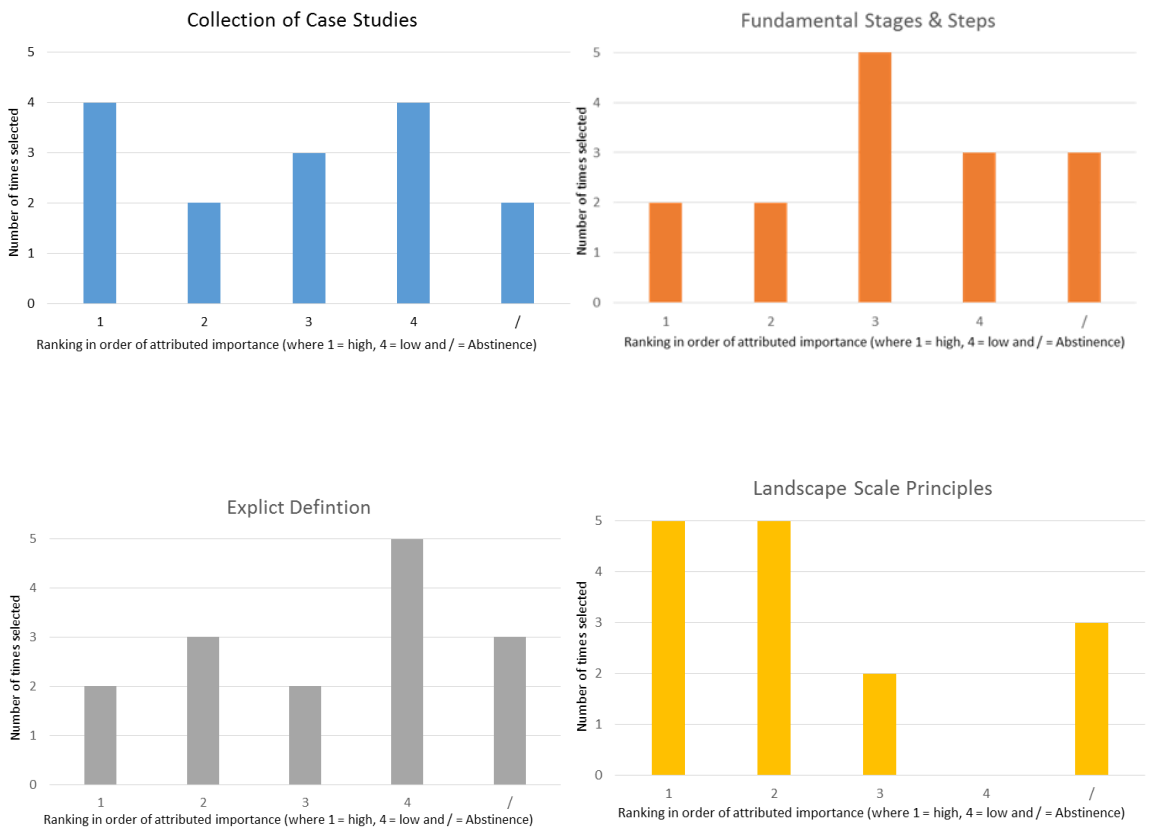


Figure 3b – Graphs showing the different ranks attributed to each of the different proposed research outcomes. Landscape scale principles was the most prioritised outcomes.

All panel members tended to prioritise outcomes based on their experience and working environment. The panellists from academia, for example, prioritised outcomes that provided the fundamental stages of a landscape scale approach alongside a set of landscape scale principles. They attributed less value to the development of an explicit definition of landscape scale, perceiving an ability to apply a definition flexibly across different settings as advantageous. In comparison, panellists with experience in policy development highly valued landscape scale principles and their delivery arguing that a set of principles could be applied across different policy frameworks, ensuring flexibility whilst maintaining the integrity of the landscape scale approach. All but one of the experts from practice prioritised a collection of case studies as useful. This could help formulate effective methods for application referring to tangible evidence of what works and what doesn't work, showcasing *'examples of best practice'* and highlighting what can be achieved.

Overall, a set of landscape scale principles was seen as the most useful outcome of the research project, being ranked either the most important or the second most important outcome by all experts but one. It is clear from the feedback that despite differences in panellists' experiences and perceptions of landscape scale, a set of principles would provide clarity about what landscape scale really means as well as providing a flexible framework to facilitate its effective application across different disciplines and within and across policy, practice and research. All of the panellists provided feedback on what they considered to be the 'principles' of landscape scale in the form of explicit words or phrases drawn from their detailed feedback. These results have been analysed and are presented in Figure 3.

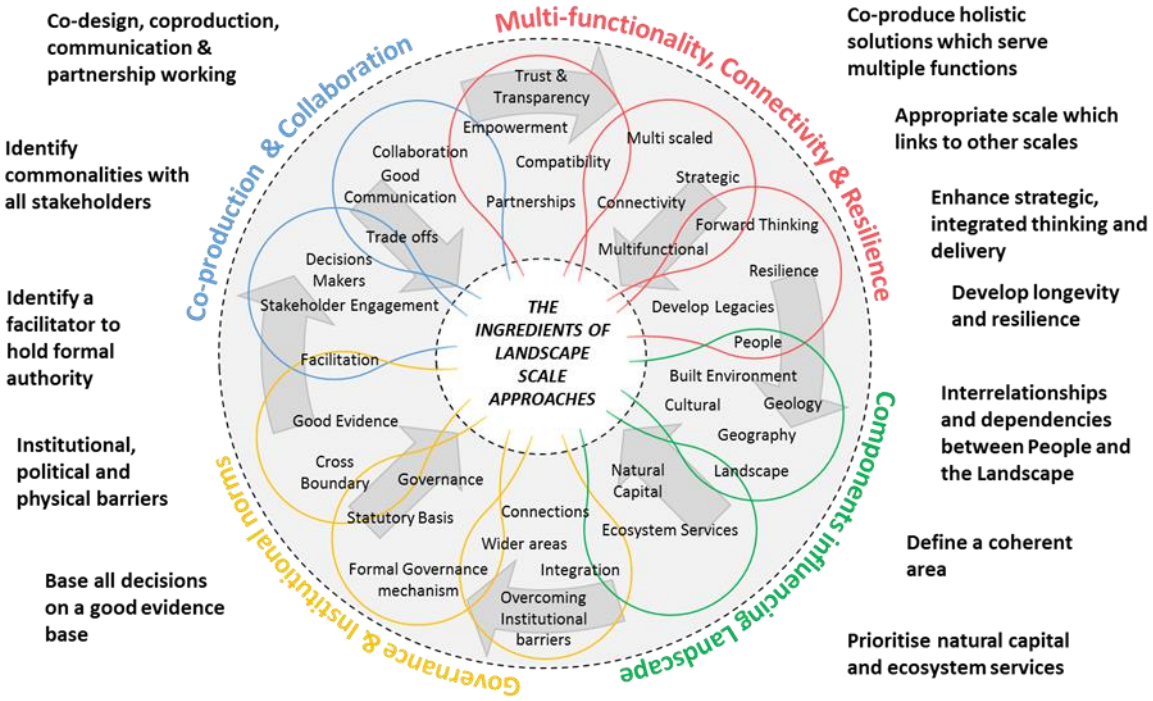


Figure 4 – Overview of the different ingredients that make up landscape scale approaches according to the panel experts. These have been arranged as petals to show that they are connected around landscape scale. Furthermore, with the aid of the panellists' preliminary analysis and feedback these have been adapted to identify a set of initial landscape scale principles which are arranged around the edge.

The different words outlined above form the key ingredients of a landscape scale approach and have been arranged in a circular 'petal' formation. This has been done because certain ingredients put forward by the panel could be grouped. Furthermore, these ingredients seemed to form part of four major themes which have been arranged around the circumference of Figure 4, these are; '*Multi-functionality, connectivity and resilience'*, '*Components including the landscape*', '*Governance Frameworks*' and '*Coproduction and Collaboration*'.

Prompt

8. ***Are you comfortable with and agree with the formulation of all of these key ingredients of landscape scale. Do you think that something is missing?***
9.

Proposed next steps

At least half of the panel indicated that a toolbox encapsulating all four outcomes (Figure 2) would be beneficial, adopting a logical order and clear structure. While completing such a comprehensive toolkit may not be feasible as part of this PhD project, its framework and stages can be designed accordingly.

- Develop and refine a set of landscape scale principles (possibly including an explicit definition of 'landscape scale' and other landscape related terms)
- Explain fundamental stages of landscape scale working (the operational 'building blocks' to enhance understanding of the approach)
- Collate case studies which showcase the practical application of landscape scale and provide examples of what can be achieved

Prompt

10. ***Is this a useful layout for the initial toolkit and meaningful components?***

Drafting the Toolkit

Based on feedback received in Round 2, the landscape scale approach toolkit will consist of two distinct parts, each with its own function to help inform the effective and consistent delivery of the landscape scale approach across research, policy and practice. The first part aims to develop clarity around the concept of landscape scale in the form of principles and a ‘working definition’. The second part outlines the fundamental step and stages of landscape scale working and offers a collection of case studies to share elements of best practice.

What happens next?

The next round moves onto the development of a landscape scale approach toolkit. In order to continue our progress please respond to the prompts outlined above and give your feedback on the initial draft toolkit which has also been attached. Your feedback will then be used to modify and adapt the toolkit for testing in the field.

Appendix 6 – Output of Round 2 of the Delphi Technique, the initial draft of the 'Landscape Scale Toolkit'

INITIAL DRAFT OF LANDSCAPE SCALE APPROACH TOOLKIT COMPONENTS

Introduction

Feedback and information from the research project so far has been used to develop an initial draft of the landscape scale approach toolkit. The toolkit (and this report) starts by exploring its role and the perceived added value of landscape scale policies and projects, followed by a set of landscape scale principles and case study evidence. The task now is to critically comment on the proposed initial layout and draft content of the toolkit. ***As always, I would like to thank you for your ongoing input and support, it is extremely valuable and vital for the continued success of the project.***

Exploring the Toolkit's Perceived Added Value

It is important as this stage of the toolkit's development to clarify the added value that distinguishes the landscape scale concept from other approaches and makes it a worthwhile resource. One proposition about what makes 'landscape scale' a useful 'new' concept is that it may offer an accessible 'space' outside of the confines of conventional disciplines so that experts with different experiences can develop holistic programmes using the landscape scale as the common thread or lens.

The first two Delphi rounds identified a number of challenges that can arise in this conceptual 'space' because the concept encourages experts to develop solutions or approaches that operate across multiple scales which can make it difficult to join different project elements. Furthermore, barriers can exist around specific 'areas' of landscape scale working because of existing operational, administrative or policy boundaries making it difficult to actually work at the appropriate scales.

Prompts

1) ***Do you agree with the interpretation above, that the landscape scale concept's main added value is to provide a mutually accessible 'lens'?***

2) ***What other features are important and help showcase the added value of a landscape scale approach? For any additional feature(s) proposed, what therefore is required in terms of the toolkit's design and development?***

Toolkit Layout

There was some consensus that any toolkit had the greatest potential if it included all four of the research outcomes outlined in round 1: landscape scale principles, an explicitly working definition, the fundamental stages of a landscape scale working and a collection of landscape scale case studies to share insights into what helps or hinders working at the landscape scale. The Delphi responses indicated that a flexible framework to help define what is meant by 'landscape scale' is a priority and that providing guidance and examples to aid meaningful and effective implementation/application would also be useful. This was interpreted to mean that the toolkit should be broken down into two parts, each with a specific goal.

PART 1 – **Enhance understanding and develop clarity:** characterise and specify landscape scale through a set of principles and an explicit definition.

PART 2 - **Ensure consistent application through operational examples:** provide guidance on delivery and examples of how landscape scale working can be achieved. (Some of the work is likely to be beyond the PhD research period).

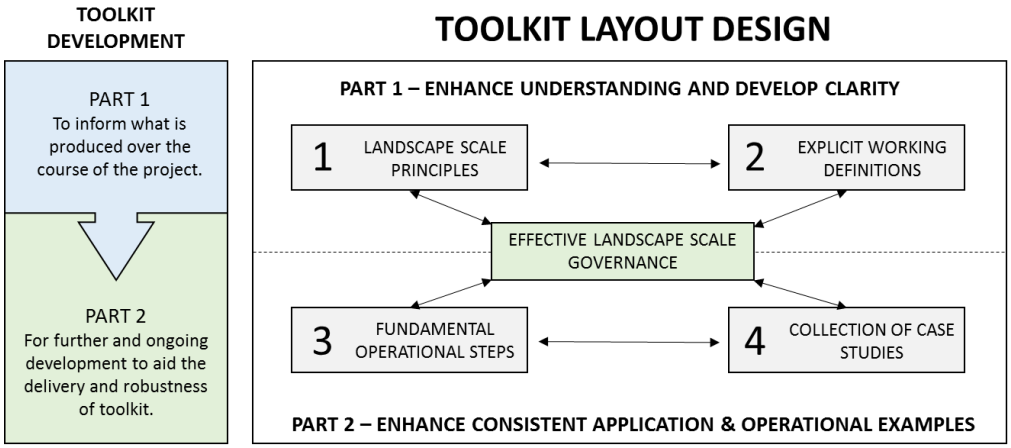


Figure 1 – The layout of the landscape scale approach toolkit. The toolkit has two distinct parts, the first part of the toolkit aims to enhance understanding and clarity of what landscape scale means. The second part of the toolkit aims to ensure consistent application and outlines operational guidance.

PART 1

Enhance Understanding and Clarity

The aim of part 1 of the toolkit is to enhance the understanding of landscape scale for existing experts and to provide a starting point for anyone wanting to use landscape scale approaches within their work. The Delphi round 2 feedback was analysed and used to develop eleven landscape scale principles. Similarly, definitions drew heavily on key points and phrasing offered by panellists.

1.1. A SET OF LANDSCAPE SCALE PRINCIPLES

The 11 principles feature in no specific order of importance. Their aim is to outline a flexible framework of effective landscape scale working for anyone with any amount of experience and any landscape scale project / policy / programme in mind.

PRINCIPLE 1: UNDERSTAND THE INTERRELATIONSHIPS AND DEPENDENCIES BETWEEN PEOPLE AND LANDSCAPE – The inherent interactions between people and the landscape must be identified and understood when working at the landscape scale. This includes the myriad of cultural, social, emotional and economic connections which can be both subjective and comparative.

PRINCIPLE 2: ENHANCE STRATEGIC, INTEGRATED THINKING AND DELIVERY ACROSS MULTIPLE SCALES – Landscape scale projects operate across multiple scales simultaneously. Therefore, it is important to align and integrate project and policy goals and outcomes with wider strategic thinking and delivery. Furthermore, because of the dynamic nature of landscape scale working it is vital to consider the implications and effects of any decision across these multiple scales.

PRINCIPLE 3: DEFINE AN APPROPRIATE AND COHERENT AREA – Defining and justifying an appropriate and coherent area based on the way that the area is used and managed, perceived in the context of a subjective set of variables applied across multiple scales. The defined area is unique to every landscape scale approach

because the subjective variables acting on that landscape and the approaches proposed outcomes or goals.

PRINCIPLE 4: IDENTIFY COMMONALITIES WITH ALL STAKEHOLDERS – It is essential to identify common aims, goals and outcomes with the stakeholders and organisations within the defined area. Doing so via a transparent and proactive approach can aid in defusing tensions, reconciling differences and overcoming barriers relating to land ownership and different interests/priorities. This is likely to include exploring organisations'/participants' values and reasons for their decisions.

PRINCIPLE 5: ENCOURAGE COLLABORATION, COPRODUCTION AND COMMUNICATION – Landscape scale approaches require collaboration and explicit lines of communication. Because of the dynamic nature of approaches develop under landscape scale it is important to foster an atmosphere trust and involve communication across disciplinary boundaries, where resources and responsibilities can be shared and solutions coproduced. This includes the need to share lessons learnt.

PRINCIPLE 6: PRIORITISE 'NATURAL CAPITAL' AND 'ECOSYSTEM SERVICES' – Landscape character and landscape functions are fundamental to how we perceive, 'value' and reap personal and societal benefits. Therefore, decision making processes as part of landscape scale approaches must prioritise natural functions and the integrity of ecosystems, in order to benefit over the long term from their assets and services (even if only a few assets or services are focused on as part of a project).

PRINCIPLE 7: CO-PRODUCE HOLISTIC SOLUTIONS WHICH SERVE MULTIPLE FUNCTIONS – Solutions developed within a landscape scale approach must serve multiple benefits. This can be a result of effective collaboration with all appropriate stakeholders. Any trade-offs need to be acknowledged and negative impacts mitigated.

PRINCIPLE 8: ACKNOWLEDGE THE INSTITUTIONAL, POLITICAL AND PHYSICAL BARRIERS – Project leaders should identify the myriad of institutional barriers (i.e. difference in organisations' priorities, policies and processes), political barriers (e.g. related to administrative boundaries and elected representatives) and physical barriers which may affect the delivery of projects.

PRINCIPLE 9: IDENTIFY ROLES, RESPONSIBILITIES AND LEADERSHIP – Because landscape scale approaches tend to be 'complex' and multi-faceted with various stakeholders and individuals contributing to delivery in/across the various areas/sub-projects of landscape scale working, it is essential to explicitly identify roles and responsibilities. This may require formal leadership/champion(s) to direct and coordinate work.

PRINCIPLE 10: DEVELOP LONGEVITY AND RESILIENCE – It is essential to outline a long term strategy for a given landscape scale policy, project or programme. This is likely to include defining explicit actions to ensure measurable transformational change and/or considering how initiated changes and actions will be carried forward beyond policy/project/programme end.

PRINCIPLE 11: BASE ALL DECISIONS ON A GOOD AND CIRCUMSPECT EVIDENCE BASE – All decisions must be based on up to date evidence (including data, stakeholder views, contextual knowledge), drawing upon different expertise at all levels.

Prompts

1) ***Do these 11 principles effectively capture all of the components of landscape scale approaches/working?***
2) ***Are they offering anything 'new' or 'distinct' to distinguish them from other environmental management / spatial planning frameworks?***
3) ***How could they be improved?***

2 WORKING DEFINITIONS OF LANDSCAPE SCALE

Panellists' feedback was synthesised and analysed to produce the following five working definitions to improve clarity of concepts and distinguish between different (but related) terms / concepts.

DEFINITION: LANDSCAPE SCALE

'An area or spatial scale defined by the way that area is used and managed, perceived in the context of a subjective set of variables applied across multiple scales'.

DEFINITION: LANDSCAPE SCALE APPROACH

'An approach that identifies and delivers environmental solutions in the form of policy, project(s) or programme(s) in response to the challenges identified at the landscape scale.'

DEFINITION: LANDSCAPE FUNCTION

'A landscapes function influences overall ecological patterns and processes which give rise to ecosystem services.'

DEFINITION: LANDSCAPE CHARACTER

'Landscape character refers to the quality of the landscape and all the elements that humans value and make up that area including the mixture of aesthetics, culture, history, people, industry and place.'

DEFINITION: LANDSCAPE

'Landscape is the interaction between visible elements to produce a recognisable entity.'

PART 2

This part of the toolkit aims to ensure consistent application and to provide operational guidance in the form of outlining fundamental stages of a landscape scale project and a collection of case studies. This outcome was prioritised by the panellists from practice as they felt that it would be of most use in their day to day working. However, the feedback on these final two sections of the toolkit was limited and while drawing on the initial two rounds of the Delphi study it also draws on some literature.

1 THE FUNDAMENTAL LANDSCAPE SCALE STAGES AND STEPS

The fundamental stages and steps was highlighted during Round 1 as a potential outcome to the research and was discussed as part of Round 2. Panellist 3 highlighted that each 'landscape scale project is different' and as a result this section of the toolkit should accommodate that.

Therefore, the aim of the fundamental stages and steps of landscape scale is to provide a generalised framework for anyone aiming to develop landscape scale approaches. Figure 2 outlines a set of basic steps drawn from Round 2 feedback and my own interpretation of landscape scale case studies and approaches so far.

The Process

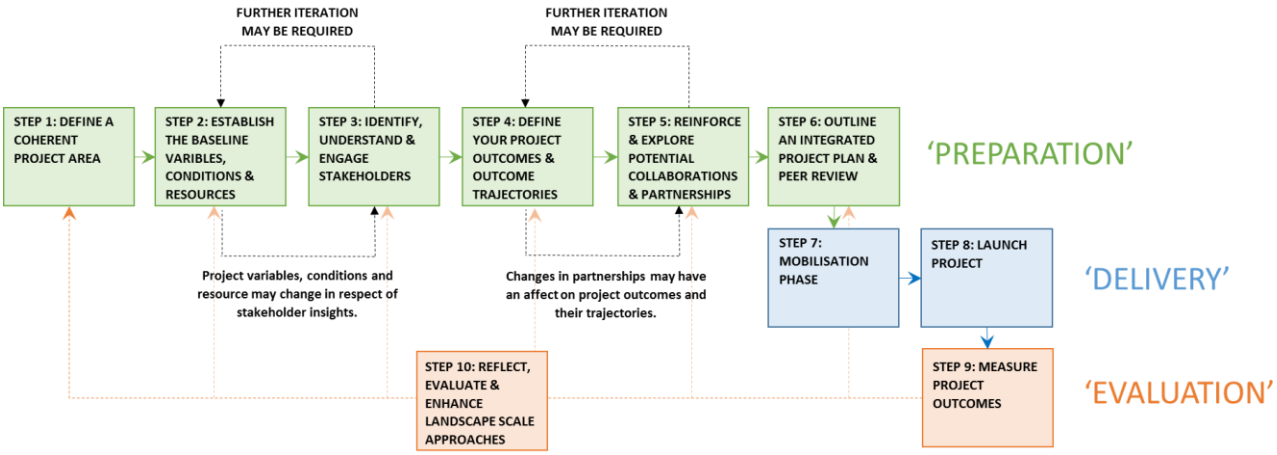


Figure 2 – This process outlines the fundamental stages of landscape scale working. When working at the landscape scale there is a large amount of preparation working needed before a project can start.

STEP 1: DEFINE A COHERENT PROJECT AREA

Landscape scale may mean different things to different people. The variables involved are subjective and any approaches have to operate across multiply scales delivering holistic solutions. However, it is essential to establish the most appropriate scale and coherent project area from the outset. Coherent means a project area which is defined by the projects outcomes that aware of its boundaries and the connections beyond it. At times this is defined by pre–existing operational boundaries or an organisation's defined working area, which is not always the most appropriate for the project. As a result, defining a coherent project area at the landscape scale may require a slightly different approach and explicit attention to meaningful project boundaries.

Guidance Questions

- *What is the scope of your project and what is the area you are trying to affect?*
- *How does your project fit within the wider context and work in the area?*
- *What is the most appropriate scale of working for you project and its defined outcomes?*

Prompt

3) ***How would you go about defining a coherent area for a landscape scale project?***
4) ***Do you agree with the use of the word 'coherent' and what does this term mean to you?'***

STEP 2: ESTABLISH THE BASELINE VARIABLES, CONDITIONS and RESOURCES.

Establish the baseline ecological, social and economic variables within the coherent area. This is essential to do at the start of any project in order to establish informed measured outcomes and highlight project successes and failures (and take appropriate steps as a consequence). Data is often already available to help do this and therefore it is not always necessary to spend resources collecting new data. Importantly, look outside of your main discipline(s) and consider data collected at different scales to help assess conditions and impacts across different scales. Finally, include from the start a framework for evaluation and learning, which is particularly helpful to quickly become aware if things go wrong; also bear in mind how you may be able to allocate resources to account for unexpected challenges.

Guidance Questions

- *What are the baseline variables within the chosen area? Do they fluctuate and can they all be measured?*
- *What are the fundamental ecosystem services?*
- *What are the landscape's distinguishing features?*
- *What is variables, resources and conditions relationship with conditions at other scales?*

STEP 3: IDENTIFY, UNDERSTAND and ENGAGE STAKEHOLDERS.

It is essential to identify all of the stakeholders for the defined area. It is also important to understand their distinct interests and explore the reasons and values underlying them. This can help to reinforce effective partnerships and enhance the resilience of a project. Finally, when working at the landscape scale it is vital to establish explicit roles, responsibilities as well as clear lines of communication. This is important because at the landscape scale it is typical for no one or no organisations to have control over all of the different 'parts'.

Guidance Questions

- *Who are the stakeholders within the defined area and what is their relationship with each other?*
- *What is the different stakeholder perceived value in that area?*
- *Are there any commonalities between the different stakeholder interests / values?*

Prompt

5) Do you think that current methods of stakeholder engagement are sufficient to do this for landscape scale approaches?

STEP 4: DEFINE YOUR PROJECT OUTCOMES and OUTCOME TRAJECTORIES.

Establish what you are trying to achieve. For the purpose of effective delivery at the landscape scale, it is important to distinguish between short and long term project outcomes. Making this explicit from the outset will make measuring the project outcomes easier and ensure project resilience. Furthermore, because of the complex multifaceted nature of landscape scale approaches these outcomes must be developed in collaboration with the other stakeholders. Finally, the outcomes and their trajectories must align with the outcomes of projects at other scales where possible, taking into consideration ongoing projects by other stakeholders.

Guidance Questions

- *What are your defined project outcomes and how will you measure them?*
- *Which of these outcomes are short term and which long term?*
- *Do they align with wider landscape scale project outcomes for the area and the outcome trajectories?*

STEP 5: REINFORCE and EXPLORE POTENTIAL COLLABORATIONS AND PARTNERSHIPS.

This step provides a valuable opportunity to strengthen relationships with stakeholders or develop new relationships based on the goals and project outcomes you wish to achieve. This allows you to reinforce your project outcomes and the opportunity to create synergies through alignment with other projects'/people's goals and values. When designing landscape scale approaches a special emphasis must be placed on the value of collaboration and effective partnerships. There must be trust and transparency between all those involved. Without this, effective holistic and strategic solutions operating across multi scales will be difficult to achieve.

Guidance Questions

- *Are there opportunities to collaborate (beyond existing stakeholders and additional larger or smaller scales)?*
- *How strong and resilient are you project's relationships? What would help strengthen them and maintain/build trust and more effective collaboration?*

STEP 6: OUTLINE AN INTEGRATED PROJECT PLAN and PEER REVIEW

A fundamental step is to outline your project plan which includes things such as time scales, roles and responsibilities and milestones. It is Important that this project plan must be integrated; it must be develop collaboratively with all stakeholder, aligned with values, goals and outcomes across different scales.

Guidance Questions

- *What are the individual stages of your project or plan? Outline how do you get from A to B or alternatively use a back casting strategy?*
- *What resources and contacts are needed/involved?*
- *Who is responsible for delivering each individual part?*

Prompt

6) ***Is the project plan implicit in the previous stages, or do you think this explicit step is necessary?***

STEP 7: MOBILISATION PHASE

Because of the dynamic nature of landscape scale working and the number of people in the delivery (often with limited resources and relying on volunteers) time is needed to mobilise these different elements between project planning and delivery. At this stage it is important to reflect on your current resources and the proposed outcomes to ensure that you can deliver. Consider incorporating some form of 360degree reviews to look at the other stakeholder's resources and deliverable outcomes as part of this stage.

Guidance Questions

- *Do you have all of the resources in place to deliver project outcomes?*
- *Do you and the other stakeholders have the resource in place to delivery your and there desired outcomes?*

STEP 8: LAUNCH PROJECT

When working at the landscape scale there is a great deal of preparation work that has to take place before you can launch your project and start with the delivery work.

- *Consider how a formal launch of the project may help get wider support and publicity; but be mindful of some people feeling left out (e.g. if not invited).*
- *Consider how much publicity is good and how to maintain constructive media links and communication beyond actively engaged stakeholders.*

STEP 9: MEASURE PROJECT OUTCOMES

Start to measure the effect of your project throughout the implementation phase to track progress. This should also facilitate identification of challenges or problems early on, and necessary/fruitful adaptations; also making use of any unexpected opportunities if appropriate. Working at the landscape scale the project outcomes/benefits must be shared with/across partnerships.

Guidance Questions

- *How have the baseline variables changed?*
- *How has the project affected other measurable outcomes? To what extent are the impacts good or bad, and who benefits / loses out?*

STEP 10: REFLECT, EVALUATE and ENHANCE LANDSCAPE SCALE APPROACHES

Reflection and evaluation should be part of the project throughout. It is useful to formally assess the impact at regular intervals and also critically assess how well the landscape scale project partnership is working. Addressing any problems early rather than letting issues fester may help keep the project on track and maintain trust and transparency. Importantly, with the help of step 9 and 10 lessons can be learnt from success and set-backs and inform improvements during the current as well as future landscape scale projects.

- *How is the project performing? Is everything going to plan?*
- *What have you learnt and how will/should this influence future practice?*

ADDITIONAL COMMENTS

All of the above stages operate are part of an evolutionary process. Once a step is finished you don't close the book on it. Each step will have implications on the next step / other steps and it is important to reflect at each point of the project.

Prompts

7) ***Do the above steps capture the main stages of any landscape scale project?***
8) ***How detailed do you think the information under each step needs to be? Should the steps remain relatively generic or should they be more specific such as outlining ways to achieve each one by directing the reader to tools and resources?***

4 COLLECTION OF CASE STUDIES OF LANDSCAPE SCALE (A WORKING EXAMPLE)

During the two Delphi rounds serval case studies were discussed by panel members to help explore their perceptions of landscape scale approaches. To preserve anonymity of panel members, at this stage of the project the case studies outlined here as 'examples' have been generalised. Any very specific details or place references have been removed and no visual aids have been included at this point in time. The purpose of a sample case study at this stage is to check how useful the use of case studies is to help unpack the dimensions and added value of landscape scale projects. For the actual toolkit, there are likely to be examples at different scales ('local', 'regional' conservation area; 'catchment' scale) and of different complexities. Actual places and projects may then be used with permission from those involved.

Below is one example of a landscape scale case study for your comment and feedback. This example outlines the potential layout of the case studies that feature on this section of the toolkit.

GENERALISED CASE STUDY 1 - 'LOCAL SCALE CONSERVATION OF SMALL AQUATIC MAMMALS, AS PART OF A NATIONAL LANDSCAPE SCALE APPROACH'

SCALE: *Local*

DISCIPLINE/LENS: *Ecology and Conservation*

PROJECT AIM and OBJECTIVES:

- *Increase the population numbers of an iconic aquatic mammal species along waterways through habitat restoration.*
- *Educate stakeholders and general public about the aquatic mammal and its habitat.*

CONTEXTUAL SETTING: *This Project recognised the loss of an iconic aquatic species as a result of habitat destruction, water pollution and an increase in the population of invasive non-native species. Data collection and habitat mapping was conducted over the course of several years involving several partners in order to assess the mammal's population and distribution trends. This data was used to report against national targets and to adapt a geographic information system (GIS) to support measures and enhance strategic working at local as well as larger scales. It was recognised that 'simple' conservation efforts could be made in conjunction with current land users and land managers which would not affect the current water based recreational activities such as cycling, dog walkers, boating enthusiasts and anglers. Attention now focuses on identifying specific opportunities to for multifaceted solutions which would increase numbers of the aquatic mammal and enhance the current environment for all land users.*

What kind of LANDSCAPE SCALE APPROACH was USED?

- *The project scale was defined by the organisation current managerial structure (i.e. the ecologists' designated working areas) along county council boundaries. This was supplemented by information from the area's Biodiversity Action Plan and GIS.*
- *The work incorporated the needs and interests of multiple stakeholders, including farmers / landowners, local communities, charities and government groups at all stages of the project, from data collection to delivery and outcome monitoring.*
- *Funding was obtained from multiple sources including a large local supermarket chain and the European Union.*

WHAT was achieved?

- *The national database and mapping techniques for the aquatic species were enhanced; also providing policy/decision makers with more robust data to formulate better informed strategies and plans.*
- *Community awareness and public engagement increased with better knowledge and understanding of the needs of the aquatic mammal species.*
- *The habitat area increased and therefore the potential distribution of the species.*

BARRIERS

- *It was highlighted that some stakeholders involved in the project had ingrained opinions and preferred their own methods which caused some tensions amongst the wider project partnership.*

LESSONS LEARNT

- *It is important to act early and established trust with stakeholders and partners. This has a dramatic impact on both the success of the project and the ongoing monitoring and maintenance.*

Prompt

5 Is the layout of this generalised case study example case useful? How could it be improved?

Appendix 7 – Output of Round 3 of the Delphi Technique 'Landscape Scale Resource Kit'

A LANDSCAPE SCALE RESOURCE KIT

'A conceptual and operational framework co-produced by sixteen interdisciplinary experts and three academic researchers to aid the delivery of landscape scale approaches.

INTRODUCTION

Three years ago, a research opportunity was identified to better understand the increasing uptake of landscape scale working and what we meant by the term. It quickly became apparent that the term meant different things to different people and a lack of clear definition or guidance had created a mushrooming of implicit applications. As a result, this 'Landscape Scale framework' aims to bring some much-needed clarity to the term by establishing some explicit conceptually underpinnings and provide clear operation guidance. However, in this regard it is designed to be completely flexible. It can be used at the start of a landscape scale project to help the process of project design in a holistic way, or it can be applied retrospectively, to review the effectiveness of a landscape scale project at any point in time after its completion - ensuring maximising benefits and consistency across landscape scale policies, projects, and programmes.

The framework has been split into two distinct parts. The first part outlines some of the conceptual underpinnings of the approach, offers some **basic definitions**, and highlights the **key ingredients, basic metrics** and associated **principles** that constitute a successful landscape scale approach. The second part seeks to provide operational guidance in the form of a typical **landscape scale design process**, **collection of case studies** and signposting to relevant contacts and useful tools which will help to foster an improved culture of partnership working, allowing participants to view landscape scale challenges through a common lens.

The perceived audience for the framework is anyone looking to implement, design or retrospectively review a landscape scale approach. The document is therefore aimed at specialists in the field. However, an important part of the work has been to clarify the principle definitions used in the area of landscape scale and in this context, the framework is also useful to the layperson looking to gain a better understanding of the basic concepts and the role that they might play in the development and delivery of landscape scale projects across a wider strategic area.

Finally, before moving into the detail, I would like to personally thank the sixteen panellists for their continued input, support and dedication to the project during its development while still maintaining very busy schedules.

BASIS FOR INFORMATION

The information and guidance contained in this framework are the result of months of co-production and development by sixteen interdisciplinary experts from as far afield as the UK, USA and Australia. These experts represent a range of different organisations and work across academia, policy and practice, embodying an array of expertise and interests that spans nationally and internationally. Figure 1 below shows the distribution of panellists, the nature of their current employment and their specific area of expertise.

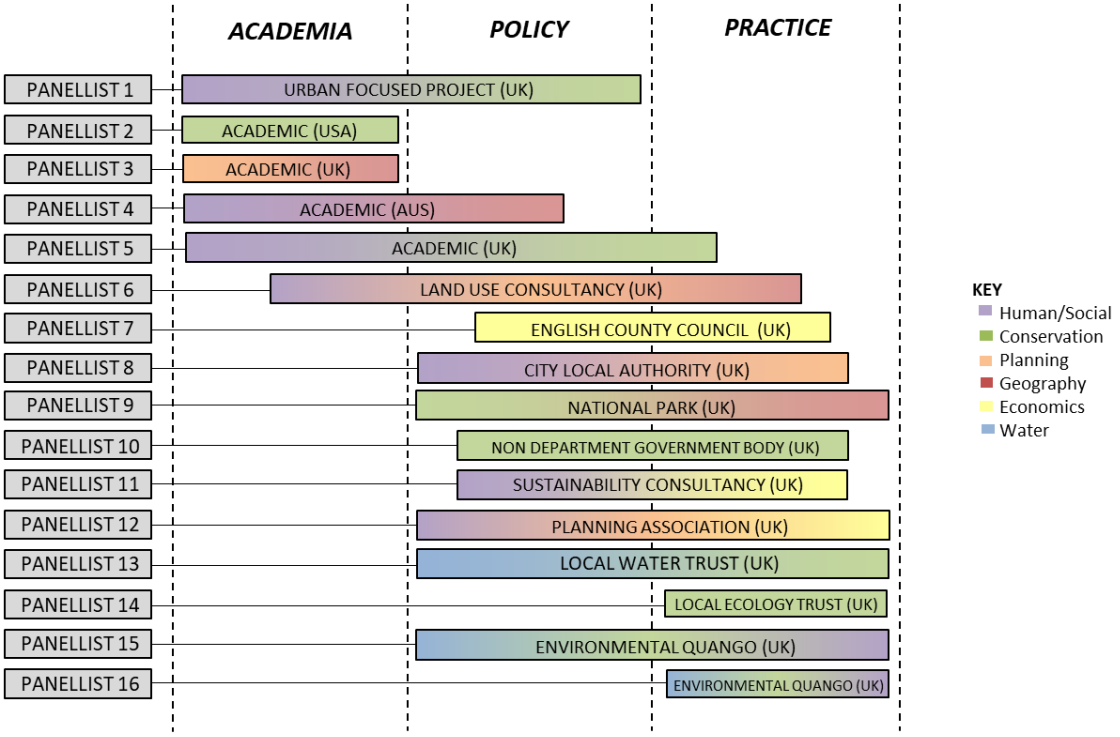


Figure 1 – The distribution of experts across academia, policy and practice who made up the sixteen individual panellists. This figure includes their current employment sector, broad array pf experience and, disciplinary lens.

As can be seen from Figure 1, the framework has been shaped by several individuals who are currently involved in ongoing research or practical work related to landscape scale. A wide range of viewpoints were sought to ensure the validity of the research and to produce outputs that would appeal to, and cater for, academic, policy and practitioner perspectives.

The framework has been developed using an adapted form of an applied policy Delphi technique. This technique is tried and tested and, in this case, consists of five iterative rounds of consultation and feedback. Prioritising perceived opportunities, limitations and barriers has been a core focus of each round, with co-production of the different aspects of the conceptual and operational framework, being tested and further refined, at the end of each round. In overall terms, the rounds produced over a thousand minutes of semi-structured interview data and over a hundred pages of feedback with detailed comments for analysis and further development. The researcher played a key role throughout the development of the framework both as

an active participant contributing to the discussions within the study, and as a scientific researcher, observing and interpreting the different inputs as they were put forward.

FRAMEWORKS PERCEIVED ADDED VALUE

ADDED VALUE TO INDIVIDUAL PRACTITIONERS

Ask yourself the Question - *Why should I embrace the concept of landscape scale working and utilize this framework to help me better understand and apply it as an approach?*

Answer – Because ***you*** may know exactly what ***you*** mean by 'landscape scale' but others working around you in different 'silos', may have different ideas or interpretations. This can cause confusion, the waste of scarce and often valuable resource and undermine what you may jointly be trying to achieve. This framework optimizes the contribution of all parties to a landscape scale approach by ensuring that from the outset that, ***'everyone is onto the same page'.***

ADDED VALUE TO THE WIDER COMMUNITY

1.Establish consistency of approach - The research underpinning the framework found considerable variation in the way that the term 'landscape scale' is defined and used by experts in different, as well as the same, specialist fields. Coupled with a lack of well tested, established conceptual underpinning's as well as the potential for landscape scale approaches to require multi-faceted solutions that work across projects of varying scope and scale, there is considerable inconsistency in the way that landscape scale approaches are currently applied. This prevents the development of robust, more coherent approaches that can effectively tackle some of the global challenges that the existing contemporary sectorial approaches to land management can no longer sufficiently address. Given these defining characteristics, this framework aims to provide the foundation for the consistent application of a landscape scale approach in a wide range of settings. Co-produced with a variety of experts from different disciplines, it standardises the potential interpretation of common terms, whilst at the same time maintains flexibility to allow all parties to contribute to the design process, ensuring that important features of specific places

and histories are recognised and retained. By clarifying what a landscape scale approach means, whilst at the same time facilitating wider engagement, the framework strikes the difficult balance between the need for improved governance and the requirement for project design solutions that are inclusive and can be moulded to fit distinct applications.

2.The value of a holistic landscape scale 'touchstone' - The defining feature of a landscape scale approach should be its ability to recognise the opportunities, barriers and limitations of specific places. Then develop multifaceted solutions that operate across multiple scales yet work for everyone throughout the lifetime of a landscape scale policy or project and beyond. This is a difficult balance to achieve and, in the past, this may have resulted in project design solutions that are skewed towards elements of the landscape – 'cherry picking', or design solutions that prioritise specific project outcomes, potentially at the expense of others. In responding to the need for a more rigorous approach, whilst at the same time striving to achieve a more generic solution, this framework offers the potential for the development a more holistic view that will hopefully become a 'touchstone' for the various disciplines - a place that experts return to, to ensure that the key ingredients of the concept are always present, regardless of the disciplinary lens or the context the landscape scale approach is being applied to.

3.Clarifying '*holistic*' and '*strategic*' in the context of landscape scale - Developing greater clarity and consistency lies at the heart of this landscape scale framework. The words 'holistic' and 'strategic' are frequently found in local and national policy and guidance but If a landscape scale project is to be considered 'holistic' and 'strategic' by everyone, what particular traits or characteristics are these terms meant to convey, even when applied across a range of landscape scales, with different project goals and involving a wide range participants. At present, the situation is that key stakeholders, not least specialists in the field, often assume what traits or characteristics should apply to this key terminology, thereby viewing issues through their own unique lens and designing solutions accordingly. It is therefore invaluable from a landscape scale perspective, that clarity is developed around the use of these terms and their extrapolation into projects at all landscape scales. By ensuring that all the characteristics contained in the 'The Petal Diagram' have been considered through the design, development and implementation of a landscape

scale project, all stakeholders can proceed in the confidence that they and everyone else involved understands what is mean by the key terminology, ensuring the resulting project is robust.

4.Help to mainstream other environmental concepts across different sectors - The aim of the landscape scale framework is to provide an accessible lens through which any stakeholder can orientate their role and evaluate their inputs in the context of a landscape scale project, policy or programme that involves many disciples and operates across multiple scales simultaneously. The ability to do this should aid in the adoption of landscape scale geographically but in addition, should also allow other, similarly important concepts, to benefit from the approach. Currently, the 'ecosystems approach' and the concept of 'natural capital' as well as elements of 'the Lawton report' have been commonly referenced to help reinforce models of landscape scale thinking. These concepts are conservation orientated, which is not surprising given that landscape scale thinking is well embedded within environmental disciplines. In developing a conceptual and operational framework that works for landscape scale however, this will also help to mainstream other useful concepts across other disciplines, ensuring social and economic needs are represented appropriately at the design stage and are embedded more widely in environmental work.

5.Create momentum - To gain momentum, the landscape scale approach needs to be more widely and better understood, as well as being more accessible and measurable by those that apply it. At present, the lack of a clear definition exacerbated by a lack of academic underpinnings, means there is the potential for landscape scale working to go unrecognised and for the potential knowledge and learning that should be accrued, to go to waste. In providing a clear definition of landscape scale and ensuring clarity around specific project aims and objectives, the conceptual and operational framework will facilitate the identification, capture and sharing of best practice on a project by project basis, optimizing outcomes and increasing accessibility for all, giving momentum to the landscape scale approach.

FRAMEWORK LAYOUT

This landscape scale framework is separated into two distinct parts; Part 1 - Conceptual Underpinnings and Part 2 - Operational Guidance. This split has been incorporated to mirror the feedback received from the different members of the panel who helped to co-produce the framework. Evident from a very early stage, it soon became clear that the panellists had diverging requirements and it was therefore only sensible that framework should reflect this.

Firstly, **PART 1** entitled 'Conceptual Underpinnings' (see page 13) aims to enhance understanding and develop clarity around the broad concept of landscape scale. It establishes the theoretical basis and core foundations of 'landscape scale' in the form of broadly agreed relevant definitions, a set of key ingredients considered to be essential to the landscape scale lens and finally, the adoption of these into a set of core principles. The conceptual components of the framework were elicited from the members of the panel from academia and those with experience within strategic policy development. These individuals where keen to formalise the major underlying 'bits' of the concept whilst still retaining a degree of fluidity. Which in their experience, would allow 'moulding' of the concept to suit bespoke project/policy design requirements.

Secondly, **PART 2** 'Operational Guidance' puts forward some basic design principles and worked examples to aid in the practical delivery and identification of landscape scale approaches. This part of the framework proposes a generalised design process, outlining the iterative stages of a landscape scale approach and the relationship of each stage to the conceptual underpinnings. In setting out the landscape scale approach in this way, the aim is to provide the practitioner with something they are inherently familiar with, standardising the application of the 'landscape scale lens' whilst mitigating some of the potential apprehension inevitable with 'new' ways of working. Figure 2 below displays a figurative breakdown of the framework into its two main sections and subsequent component parts. The figure also shows the aim of each section and explains the contribution each component will make to the ongoing development of the landscape scale approach.

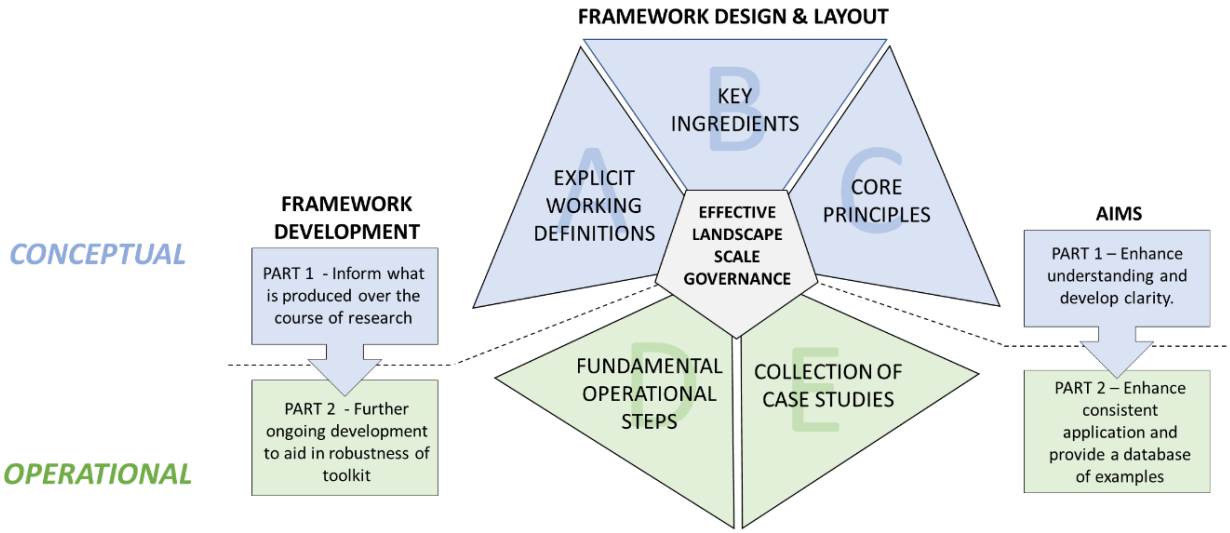


Figure 2 – The structure of the framework separated into two distinct parts. The conceptual elements are highlighted BLUE and labelled A, B and C and the operational is highlighted GREEN and labelled D and E. The figure also highlights the role that governance plays in the mainstreaming and use of the landscape scale approach across the different parts.

The framework has been built around a 'core narrative'. The narrative helps to explain each section and component of the framework and sets out the logic of first needing to understand the theoretical and conceptual underpinnings of landscape scale, before considering guidance on how to apply it consistently. The framework can be applied in its entirety, but each section can also be read and used in isolation, without necessarily working through all aspects of the framework in a sequential order. By way of example, if the readers only interested in the delivery of landscape scale and only requires more in depth detail on how to design a suitable landscape scale approach, then part 2.A. of the framework 'fundamental operational steps of a landscape scale approach' (i.e. page 25), can be lifted from the framework and used independently without the need to refer to the support offered in the other sections this design feature was created deliberately in response to a salient discussion that arose during the development phase of the work, and which highlighting the current shortfalls and challenges in environmental governance. It was believed that the landscape scale framework could potentially be applied in two ways The first way being 'transformative' and the second way being 'progressive', An 'transformative' approach would aim to use the framework to radically change the current governance

and establish a completely new approach; whereas a progressive approach would acknowledge the limitations of the existing governance arrangement and focus on only making changes that are within their control.

PART 1 – DEVELOPING SOME CONCEPTUAL UNDERPINNINGS

INTRODUCTION

The aim of part 1 of the framework is to formalise the concept of landscape scale and to establish some explicit conceptual underpinnings that will reinforce the holistic design and delivery This will ensure that regardless of any preconceived notions, experience or disciplinary lens, users of the framework will begin the development process by orientating themselves in a standardised way. In order to achieve this, the group of sixteen experts from across academia, policy and practice were asked to identify two potential resources that would help to definitively describe what was meant by the term ‘landscape scale’. Based on a distillation of these resources, this section offers a set of broadly agreed relevant definitions. While not necessarily breaking new ground, this was deemed an essential first step in order to avoid confusion and/or potential misunderstanding of terminology across different disciplines- all of which have an essential part to play. For these standardised definitions to be truly effective, they need to be uniformly applied. The second component of this part of the framework is therefore a figure that consolidates, those things considered to be ‘key ingredients’ of a landscape scale approaches.

1.A. USEFUL DEFINITIONS WITHIN THE CONTEXT OF LANDSCAPE SCALE

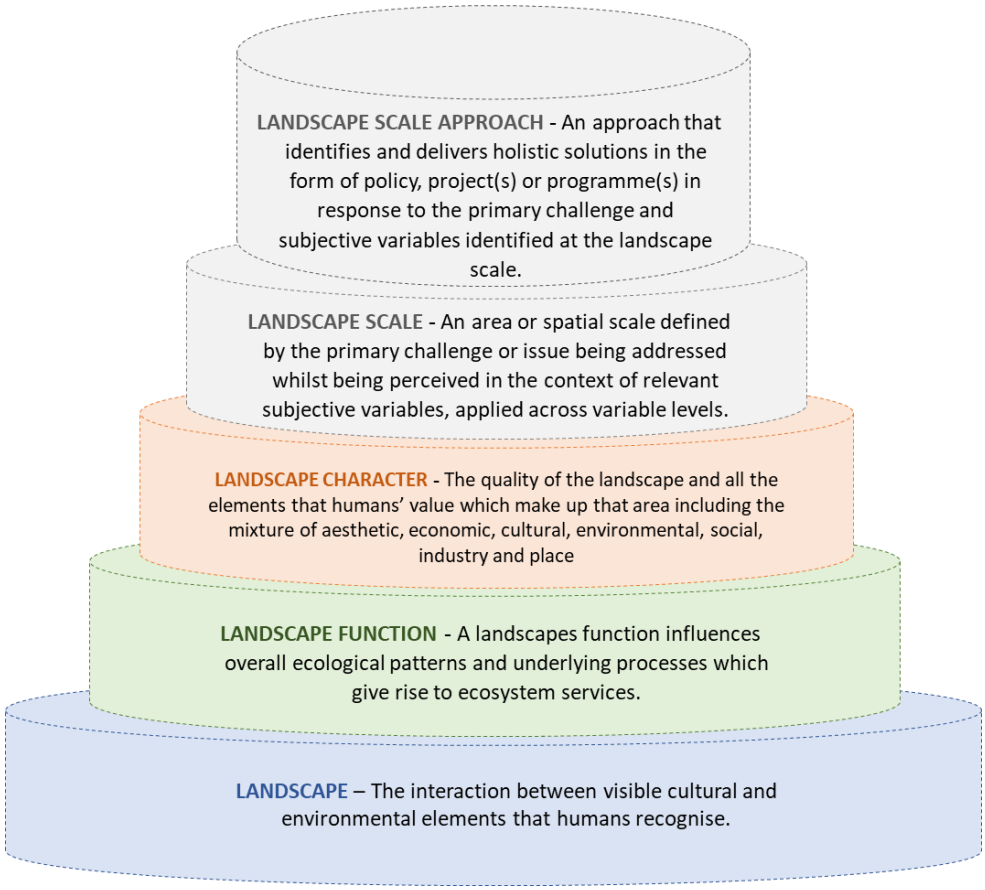


Figure 3 – The relational definitions of landscape, landscape character, landscape function, landscape scale and landscape scale approach which have all been unpacked within the context of the research and framework development.

Five terms appeared recurrently within the iterative rounds of the applied Delphi as well as in the preliminary stages of the development of the framework. These terms were: *landscape*, *landscape character*, *landscape function*, *landscape scale* and *landscape scale approach*. Many panellists requested that an explicit definition of 'landscape scale' be included as part of the framework .However, given that all the above terminology was clear within, but potentially being applied differentially across, the different disciplines, the decision was taken to produce explicit definitions for all the above terms within the context of the 'landscape scale lens' – thereby ensuring clarity in terms of their application within a 'landscape scale approach'.

The definitions developed jointly by the panel are given below in figure 3, It is important to note however, that a degree of flexibility has been built into the definitions, allowing them to be ‘moulded’ to fit different practical applications. In the early stages of the framework’s development, it was implied that the definitions were ‘nested’, within one another. This was taken to mean that the t the ‘blurring’ of the terminology was intentional, allowing different disciplines to ‘do their own thing’ in the context of landscape scale working, whilst at the same time giving the impression of operating within a more robust governance frame. Whilst this is an important observation that suggests there is a need to retain some degree of ‘wriggle-room’ within the definitions in order to ensure engagement, the agreement of standard definitions for all the core terminology around landscape scale working is essential Figure 3 presents the definitions and their connections.

PURPOSE AND APPLICATION

An individual charged with designing, planning and/or implementing a landscape scale approach may find themselves in one of two positions. The first is that the concept of landscape scale is well embedded within their discipline or remit of working and therefore a clear understanding of the concept exists. This may sound like an ideal situation but may in fact hide a fundamental problem. As experts, we may say one thing but mean another, confidently progressing within our own ‘silo(s)’, whilst failing to engage effectively with another. Under these circumstances, the definitions offered in this section aim to provide a ‘metaphorical touchstone’- a clear conceptual underpinning and baseline definition; something that all experts, regardless of their discipline or experience, can find some value in. In this spirit, the definitions outlined above can be used to explore the differing perceptions of landscape scale amongst a group of partners. The second position is where an expert may be new to the field and working at and with the landscape scale. In such circumstances the definitions will provide much-needed clarity. Practitioners may initially feel some of the definitions are nonspecific and lack sufficient guidance, using terminology such as ‘subjective’ and ‘variable’ , in the definition of landscape scale for example. In the context of a piece of work designed to limit variation and subjectivity, this may seem counterintuitive but it is important to remember that landscape scale approaches

must recognise the unique nature, needs and focus of each project so retaining a little ‘wriggle-room’ will be an essential feature of the ‘toolkit’s’ success

1.B. THE KEY INGREDIENTS OF THE LANDSCAPE SCALE CONCEPT

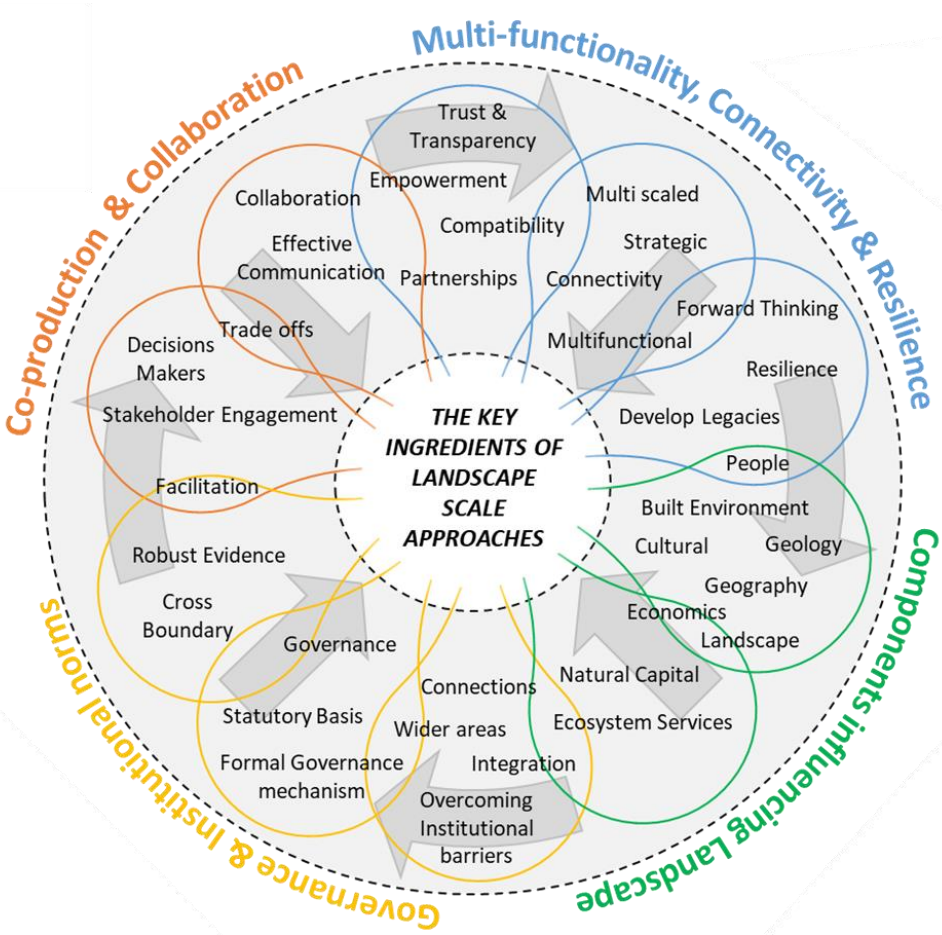


Figure 4 – This ‘Petal Diagram’ outlines what are the key ingredients of landscape scale working. These can be grouped into four overarching components with 10 clusters of associated ‘descriptors’, which form the petals.

The term landscape scale stimulated some interesting discussions during the developmental phase of the framework. It became clear from the start of the framework’s development that the term ‘landscape scale’ encapsulates many elements. The challenge, therefore, was presenting them in a coherent and

accessible way. Figure 4 captures the key 'ingredients' of landscape scale which arose during the research and arranges them as 'petals' in four themes. For simplification, these key ingredients have been grouped into four themes (which are in no particular order of importance). The first section entitled '***co-production and collaboration***' refers to the importance of collaboration between different stakeholders/land users and managers and the role of coproducing solutions which are integral to effective, long-lasting landscape solutions which operate across multiple scales of working within different governance contexts. The next component entitled '***multifunctionality, connectivity and resilience***' highlights the importance of addressing multiple issues and developing solutions which consider varying perspectives across different scales. This, most likely, will be in accordance with governance and institutional norms but may also contain parts/actions which challenge or supersede them in some places. The third section entitled '***components influencing landscape'*** unpacks what are considered to be the different elements that influence the landscape's form and function within any given context. The final section explores the role of current governance mechanisms and institutional norms and how they can influence landscape scale.

Co-production and Collaboration – At the heart of a landscape scale approach is the need for effective two-way communication. The word 'communication' in the context of landscape scale goes beyond the simple preconceived notion of discussions (verbal or otherwise) and periodic stakeholder engagement. Instead, it requires an ongoing, transparent sharing of information, resources and knowledge between all stakeholders. This is important because landscape scale approaches often involve many partners from various disciplines and different priorities and interests, delivering against multiple agendas across varying scales. The sharing of insights and knowledge is therefore extremely important for stakeholders to understanding each other's short and long-term goals and for building more resilient, fit-for-purpose solutions that bring sustainable benefits. Furthermore, open discussions can yield multifaceted solutions which can provide overall benefits greater than the sum of the parts, an important factor when working in environments where financial and other resources may be limited. For this reason, it is integral for landscape scale working to maintain robust and transparent lines of communication across multiple scales that empower individuals to think about their own issues in the

wider context, as well as continually reviewing and sharing their work with project partners and stakeholders. The need for review and overhaul of the current engagement process around landscape projects is clear. However, it is also acknowledged that this may not be as straight forward as it sounds. Collaborating across more partners and stakeholders will increase the need to work flexibly and compromise.

Multifunctionality, Connectivity and Resilience – When working within a landscape scale lens the project, policy or practical application cannot be designed or delivered in isolation. The landscape scale lens requires practitioners to consider their work from a more in-depth perspective than is currently the case across many disciplines. In the petal diagram this is captured in three petals and summarised for ease of application, using three terms; '*multifunctionality*', '*connectivity*' and '*resilience*'. Looking first at the term 'multifunctionality', the landscape scale lens refers to the importance of producing solutions that serve several functions at once rather than serving a single project outcome. To achieve this there must be collaboration between stakeholders, partners and local people from the start of a project, allowing potential multifunctional benefits to be identified and explored at an early stage. Typically, connectivity is a consideration of a project in the wider strategic context, ensuring that it coincides with ongoing work across larger geographically areas or alternatively, ensuring that clear connections have been established between smaller regional or local scales of working. However, the landscape scale lens emphasises the design of projects, policies and approaches that can be utilised at multiple scales. As a result, when considering the issue of connectivity, it is important to go beyond 'developing connections' amongst projects across different scales and to look more at designing approaches which can be attuned to fit bespoke project requirements over multiple scales, simultaneously. The term 'resilience', typical refers to a projects ability to withstand change over the longer term and in this context, it is also important to recognise that often the long-term success of a project is not monitored beyond the initial scope. This may be as a result of initial funding end, outside of disciplinary/physical/imposed boundaries, or beyond the required regulatory baseline. A landscape scale approach, project or policy demands the need to look beyond these limitations and to consider the long-term success of goals across the landscape and wherever possible, to establish means to monitor them.

Components Influencing landscape – Many aspects influence landscape. According to the experts involved in the development of this framework, the major elements of which are outlined in the petal diagram above (see figure 4). These different elements can vary dramatically depending on the project, approach or policy. Furthermore, they can be subjective depending on the partners and people involved. However, this should not be to the detriment of another. It is important to consider all the elements that make up the landscape.

Governance and Institutional Norms – The lens of Landscape scale requires us to work collaboratively with multiple partners to develop long lasting, innovative solutions. For most people, this will require them to work outside their 'comfort zone', to acquire knowledge and understanding beyond their specific field of expertise. For some, this will be a daunting prospect and it is therefore important to embrace this aspect of the work as an 'opportunity space'. An 'opportunity space' exists outside the confines of our usually clearly defined disciplinary boundaries and interests. Irrespective of the form this 'opportunity space' actually takes, it should be 'somewhere' that all stakeholders can bring their knowledge and expertise together in order to design more holistically, ensuring the development of solutions that are considered by everyone involved to be greater than the sum of the parts. Working in this way will present challenges along the way. Solutions developed in an 'open space' format will have to be applied within the context of existing governance mechanisms and institutional norms and this may be difficult. In the long term however, this too should bring added benefits, providing valuable insight that will allow us to review our existing governance arrangements to ensure that in the future, they become and remain fit-for-purpose.

PURPOSE & APPLICATION

Figure 4 above, is designed to help experts better understand the different themes of landscape scale and the key ingredients of an effective landscape scale approach, policy or project. Figure 4 also helps in identification of the different elements when looking at an outcome, issue or solution through the landscape scale lens and can be used to explore an outcome or potential approach from a landscape scale perspective. In applying the petal diagram to any given situation, the desired outcome of a landscape scale project or approach can be placed in the centre of the figure, with the petals then used to 'unpack' the key ingredients into the respective themes using the petals around the centre. Alternatively, the petals can be used to allocate explicit roles and responsibilities to different partners around a specific project outcome or issue. This makes it easier to identify areas that have no, or insufficient resources allocated to them, mitigating project shortfalls later on in the process. This does not mean however, that these elements should completed in isolation from one another.

In allocating roles and responsibilities, this raises the issue of 'leadership'. With so many different ingredients and stakeholders potentially involved in the design and implementation of a landscape scale approach, who co-ordinates the different components and helps to keeps momentum? The need for effective project management/project facilitation was identified repeatedly during the interview stage and with a lack of project funding a problem in most cases, this remains a difficult issue to address, However, in using the petal diagram as a design tool to bring stakeholders together to share expertise, develop shared goals, allocate roles, the petal diagram goes some way towards delivering a more co-ordinated approach, even where no central project management/facilitation exists.

1.C. BASIC LANDSCAPE SCALE METRICS

The following table outlines a set of simple landscape scale metrics develop from the key ingredients (see part 1.B.) and the landscape scale principles (see part 1.C.). It outlines what are some fundamental 'measurable' indicators within each of the four major key ingredients for landscape scale working.

Coproduction and Collaboration	▪ All stakeholders involved in the process have the freedom to express their views without judgement. ▪ There must an opportunity for all stakeholders to reflect and comment on the collective input. ▪ Comprise and innovation takes precedent over conflicts and before simple dismissal of inputs. ▪ Decision for rejecting, amending or accepting input must be clearly and explicitly explained. ▪ Information, software and personal must be shared across organisations during the project. ▪ Clear leadership and lines of communication are established between organisations and stakeholders. ▪ A 360-degree review of stakeholder's resources, responsibilities and delivery will be essential.
Multifunctionality, Connectivity and Resilience	▪ Solutions deliver multiple benefits, for multiple people across multiple scales, simultaneously. ▪ The long-term impact of approaches must be established (even if this is beyond the scope of project funding or requirements). ▪ Evidence to show a clear understanding of projects and work that is going on across different scales. ▪ There must always be a multi-pronged approach to a problem coming from different disciplinary lens. ▪ An understanding of ongoing project or work at different scales will reinforce the approach.
Components Influencing landscape	▪ Clear understanding of relevant ecological process underlying the area. ▪ Understanding the relationships of humans and place in the affected place/area/landscape ▪ Clear evaluation natural capital and ecosystem services that exist within a given area. ▪ Evaluation of cultural and sociology inputs. ▪ Robust collection of baseline data, environmental audit.
Governance and Institutional Norms	▪ Review of formal governance mechanisms in place and ensure suitability. ▪ Explore the context of the project, policy or approach at different scales. ▪ Develop 'boundaries' to the project that are appropriate not necessarily pre-determined. ▪ integrate the approach within wider work.

1.D. CORE PRINCIPLES OF LANDSCAPE SCALE APPROACHES

PRINCIPLE 1: DEFINE AND ALIGN THE APPROACHES VISION, WITH THE RELEVANT STAKEHOLDERS AND ESTABLISH AN AREA THAT IS APPROPRIATE TO DEAL WITH THE INTERRELATIONSHIPS AND DEPENDENCIES BETWEEN PEOPLE AND LANDSCAPE.

Aligning/define the vision, aims, goals and outcomes with all stakeholders and organisations in the defined area. Doing so via a transparent and proactive approach, can aid in conflict management and overcoming barriers relating to land ownership, differing interests and/or priorities. This allows the justification of an area based on the bespoke project requirements informed by how the area is currently used and managed. The area defined needs to be appropriate to the project or approach and coherent within the wider geographical context. It is vital to understand how this area is perceived in the context of a subjective set of variables applied across multiple scales. The defined area should be unique to every landscape scale approach, because the subjective variables acting on that landscape and the proposed outcomes or goals will almost certainly be different and need to be different, in each case. Crucially, the area should not be determined based on existing uses or currently defined boundaries as these may be a function of only a subset of the variables that need to be considered.

PRINCIPLE 2: RECOGNISE INSTITUTIONAL, POLITICAL AND PHYSICAL BARRIERS THAT LIMIT THE EFFECTIVENESS OF LANDSCAPE SCALE APPROACHES AND PRIORITISE THOSE ONES YOU CAN DO SOMETHING ABOUT.

A collaborative effort should help to identify the myriad of institutional barriers (i.e. difference in organisations' priorities, policies and processes), political barriers (e.g. related to administrative boundaries and elected representatives) and physical barriers which may affect the scope and delivery of projects. It may not be possible to overcome

all these barriers, so Identify and prioritise those barriers that you can do something about.

PRINCIPLE 3: ESTABLISH LANDSCAPE INCENTIVES UPON THE FOUNDATION OF ECOSYSTEM INTEGRITY AND FUNCTION ENSURING LONGEVITY AND RESILIENCE.

Landscape character and landscape functions are fundamental to how we perceive, 'value' and reap personal and societal benefits. The, decision making processes at the heart of a landscape scale approaches must therefore protect and enhance natural functions as well as reinforce the integrity of ecosystems at their core. Which includes the demands on that landscape past, present and future outside of the scope of the approach placing Importance of outline a long-term strategy

PRINCIPLE 4: ENCOURAGE COLLABORATION, COPRODUCTION AND COMMUNICATION WITH CLEARLY IDENTIFIED RESPONSIBILITIES AND LEADERSHIP.

Landscape scale approaches tend to be 'complex' and multi-faceted with various stakeholders and individuals contributing to the collective vision. As a result, it requires collaboration and clear lines of communication between all stakeholders. As well as, some form of leadership to hold stakeholders to account and manage wider strategy. Because of the dynamic nature of situations and approaches that landscape scale working entails, it is important to foster an atmosphere of trust that involves communication across varying boundaries, sharing/aligning of resources and responsibilities and co-designing and co-delivering solutions. This includes the need to share lessons learnt.

PRINCIPLE 5: ENHANCE STRATEGIC, INTEGRATED THINKING AND DELIVERY ACROSS MULTIPLE SCALES WHICH SERVE MULTIPLE FUNCTIONS.

Landscape scale projects operate across multiple scales delivering multiple functions simultaneously. It is therefore important to align and integrate project and policy goals and outcomes with wider strategic thinking and delivery. Furthermore, because of the dynamic nature of landscape scale working, it is vital to consider the implications and effects of any decision across these multiple scales.

PRINCIPLE 6: BASE ALL DECISIONS ON A ROBUST, PROPORTIONATE AND FIT FOR PURPOSE EVIDENCE BASE

All decisions must be based on meaningful evidence (including data, stakeholder views, contextual knowledge), drawing upon different expertise at all levels. Evidence should be both qualitative and quantitative as appropriate.

PURPOSE & APPLICATION

The above principles form part of the conceptual foundation for landscape scale working. It was believed that careful consideration and adhering to these principles will help to create the consist of approach which is currently lacking from the literature. Helping to define an agreed landscape scale lens across different disciplines and stakeholder perspectives.

These principles are arranged in a logical order and in accordance with the key ingredients outlined in section 1. B so that they can be easily followed by those participating in a landscape scale process. These principles also form a bridge between the conceptual underpinnings and the operational guidance which makes up the next part of the toolkit helping to transfer the knowledge from one part to another.

PART 2 – PROVIDING SOME OPERATIONAL UNDERPINNINGS

INTRODUCTION

The aim of Part 2 of the framework is to build on the conceptual underpinnings outlined in part 1. So far in the framework we have unpacked the key relational definitions that were deemed relevant to aid in better positioning the term ‘landscape scale’ within our contemporary lexicon as well as establishing an explicit foundation for what we mean by the term ‘landscape scale’. Secondly, we have explored the key ingredients that contribute to the landscape scale lens - setting this out conceptually in the form of a ‘petal diagram’ (see figure page 17). Furthermore, these ingredients have been developed into a set of six standardized landscape scale principles. These principles act as a bridge, starting the process of pinning down the operational steps and guidance from the conceptual underpinnings. Building upon the six principles, the following part of the framework aims to provide some explicit operational guidance accompanied by working examples. The operational guidance within part 2, aims to help the design of approaches within the landscape scale lens, drawing from the conceptual unpinning’s. This is achieved by first outlining a set of fundamental operational steps. These operational steps will be familiar to practitioners as they are consistent with ‘general project management process’s ‘. This has been done so that it will be easily recognised by most practitioners and therefore directly relatable and applicable in their current working. However, these fundamental operational steps have been arranged as a series of questions designed to not only make the user think more deeply about the design process but also to draw out and emphasise the added value of the landscape scale lens.

2.A. FUNDAMENTAL OPERATIONAL STEPS OF A LANDSCAPE SCALE APPROACH

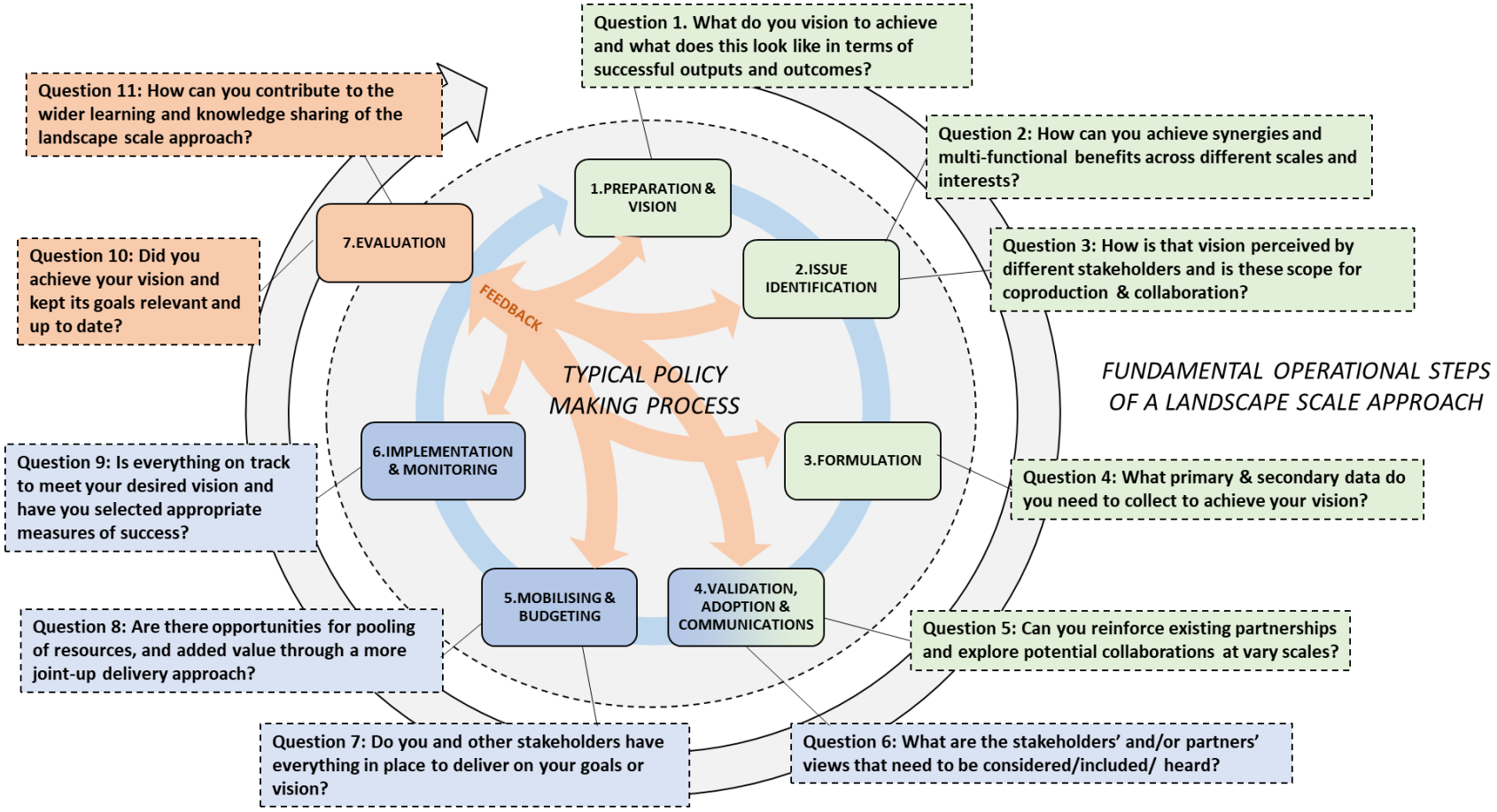
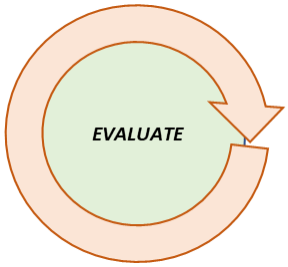


Figure 5 – The process of designing a landscape scale approach in the form of a 'generalised project management process'. Following the above questions (with the addition of the principles in part 1.c.) will help to shape a coherent landscape scale approach

Policy making process stage 1 - PREPARATION and VISION



QUESTION 1 - **What do you vision to achieve and what does this look like in terms of successful outputs and outcomes?**

From the outset of the project/plan or approach, it is essential to have a vision of what you are trying to achieve which has been developed with the relevant stakeholders. This can vary depending on the problem being solved or the opportunity you are trying to exploit. Secondly, it is important to explicitly outline what success will look like. This leads to the development of clear indicators, outcomes and long-term trajectories. Having a coherent vision from the outset will make setting and measuring indicators much easier and help keep any landscape scale approach on track. It is important to explore the alignment of the vision and expected trajectories with the vision held by other stakeholders' and the outcomes that they perceive at other scales where possible. Exploring such alignment may help to deliver your vision and be advantageous overall. It is important however, to stress that sometimes, landscape scale projects may need to fight new ground and first work towards setting new precedence. One of the most apparent complications that arises when aligning visions, goals and opinions is conflict amongst stakeholders who have different interests, experiences and desired outcomes.

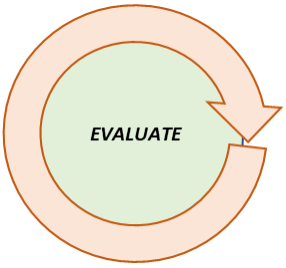
The variables involved are subjective and any approaches have to operate across multiple spatial and temporal scales in order to deliver holistic solutions. It is therefore essential to establish the most appropriate scale(s) and coherent area of study/influence from the outset based upon the 'vision'. In this context 'Coherent' means a project area is defined by the project's outcome with meaningful boundaries and connections beyond it. However, the pre-existing operational boundaries or an organisation's defined working area may not always be the most appropriate boundary for the project. As a result, defining a coherent project area at the landscape scale may require a slightly different approach and explicit attention as to how project boundaries are defined.

GUIDANCE and PROMPTS

- *Outline the vision you are trying to achieve in its simplest form?*
- *What are the individual stages of your project or plan? Outline the different and potentially most appropriate way from start to completion.*
- *Alternatively, use a back-casting strategy where you work backwards from your goal and consider the pathways/changes needed from that future goal point back to the present.*
- *What are the indicators or metrics that can be used to best capture/measure the baseline variables and progress over time?*
- *Has anyone used a landscape scale approach in this kind of project before and how did they achieve or envision success.*

Policy making process stage 2 – ISSUE IDENTIFICATION

***QUESTION 2* – How can you achieve synergies and multi-functional benefits across different scales and interests?**



After a clear project vision has been established, it is necessary to explore the context of that vision. When working at the landscape scale this requires the practitioner to look beyond the immediate scale of working and explore that vision in the wider geographical context. This is an extremely important step in landscape scale thinking. Understanding the ongoing work and interests of different stakeholders at different scales can help to identify potential synergies and help to develop solutions which have multiple functions (first step in developing trust). However, this not without its challenges. Working across multiple scales simultaneously and bringing together lots of stakeholders with potentially conflicting interest can result in tensions leading to compounded or exacerbate project issues. It may be efficient and effective to strengthen relationships with existing stakeholders based on the goals and project outcomes you wish to achieve as a priority. There may also be a case to establish new links and develop new partnerships, especially if existing / old partnerships no longer work well or prevent important new stakeholders from participating. This reinforces project outcomes and any opportunity to create synergies through alignment with other projects'/people's goals and values.

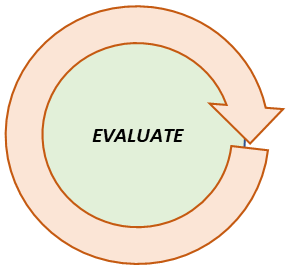
As a result, when using the landscape scale lens to design multi-functional solutions to problems across multiple scales simultaneously, it is important that all stakeholders start with a clear perspective on what everyone else is trying to achieve and where possible, align their visions and goals. This should not be construed to mean everyone has the same goal or vision (although this would be easier) but it means that a clear understanding of each other's discourse is established from the project outset. In order to achieve this, emphasis must be placed on equity, trust and transparency over the entirety of the project between all stakeholders. Also, one of the conceptual unpinning's of landscape scale is the importance placed on the relationship between 'people' and 'landscape'.

This requires the sharing of primary and secondary information, data collection techniques, resources (including money, people and time), computer software, modelling data etc. , Initially, there may be some resistance to this style of working and some practitioners might be reluctant to engage especially if this involves the sharing of hard earned or expensive resources. However, engaging in the landscape scale lens can lead to multifaceted solutions which are greater than the sum of their parts and the sharing of such information has potential to create robust long-lasting partnerships and synergies which are based on trust and clarity.

Guidance and Prompts

- *Identify the geographically 'scale' that you project operates within i.e. local, regional, national context and explore the ongoing work, policies and at other scales.*
- *Trace the vision back to basics and establish it in its simplest form. Ask yourself what you are trying to achieve i.e. 'prevent biodiversity loss of species X ' or 'give X number of people access to a park'*
- *What is the vision and the perceptions of the other stakeholders and is there a common denominator?*
- *Ensure that you are completely transparent with other stakeholders, giving them access to resources and establish trust.*
- *Is all the relevant information going to be made available and if not why not?*
- *Are there explicit and effective lines of communication within your organisation and between you and your partners?*

Policy making process stage 2 - ISSUE IDENTIFICATION



***QUESTION 3* – How is that vision perceived by different stakeholders and is their scope for coproduction and collaboration?**

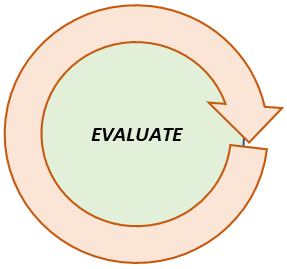
At this point users will have explicitly established the vision they want to achieve and explored the potential synergies or project overlaps. In keeping with the landscape scale approach, users will have looked beyond what is considered to be the scale of the current project and considered its influence across different scales. The greater the number of stakeholders involved in a project/approach/policy the greater the potential for these synergies. Care is needed at this stage as the more people involved a project, the more potential there is for conflicts and disagreements to arise. This in turn may create conflict with the initial vision. It is important therefore, to understand how your vision and (decisions made as a result of that vision) are going to be perceived by different stakeholders. This not only requires an understanding of their individual visions but also the discourses reinforcing it. This encourages practitioners to look beyond their discipline, interests and experience in order to consider an issue, problem or opportunity from different perspectives. This is important because working at the landscape scale may require the amendment of the initial vision.

Developing an understanding of the different stakeholder's discourse is key to the design of an effective landscape scale approach. Looking at the problem from different perspectives can lead to more effective coproduction and collaboration in the short term and help to reduce conflicts and disagreements in the long term. Enhancing your understanding of different stakeholders' visions and discourses can also help to align visions with others where possible. (second step in developing trust)

Guidance and Prompts

- *It is necessary to consult other experts or stakeholders in order to better understand their perspectives and visions?*
- *Discourse analysis/stakeholder analysis?*
- *Do the users visions immediately align with the visions of other stakeholders 'or' is there potential for them to become aligned with minor amendments?*

Policy making process stage 3 - FORMULATION



QUESTION 4: What primary and secondary data do you need to collect to achieve your vision?

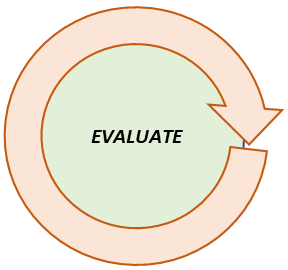
As with the formulation stage of any project, policy or approach, it is important to collect all the appropriate data necessary to measure progress to ensure delivery of the vision. Careful and accurate data collection is vital for a number of reasons. First of all, it helps to establish the baseline variables in any given area, allowing the development of well-informed indicators and accurate methods of measuring and tracking success. With this in mind, It is important to understand and explicitly outline what type of data needs to be collected and in what format. This data can come from both primary (i.e. collected by the user first hand) and secondary (i.e. collected by/from another source). Furthermore, where possible users are encouraged to include both qualitative and quantitative sources of information.

At this point, the potential synergies explored in question 2 and opportunities for coproduction and collaboration with other stakeholders that were explored in question 3 can help. Other stakeholders may already have collected some or all of the relevant data needed to help achieve the vision. Alternatively, stakeholders can pool resources to collect the relevant data, reducing risk of repetition and the need forl individual investment of time and resources.

Guidance and Prompts

- *What is the baseline ecological, sociological and economic conditions/variables within your visions area?*
- *What are the most appropriate measurable indicators to help you achieve success and why?*
- *What does the success of the vision look like?*
- *Before investing in expensive methods of primary data collection, are there any potential sources of secondary data available (ask other stakeholders)?*
- *What are your short term and long-term trajectories of the vision?*
- *How can you overcome the limitations in funding, time and resources to increase the projects resilience?*

Policy making process stage 4 – VALIDATION, ADOPTION and COMMUNICATION



QUESTION 5: Can existing partnerships be reinforced including the exploration of potential collaborations at vary scales?

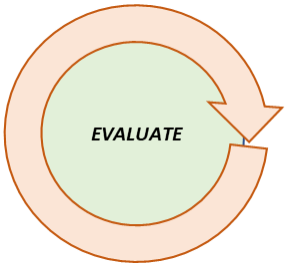
During the design of a project approach or policy, there is a lot of emphasis placed on stakeholder engagement and the identification of all the potential scales at which relevant stakeholders might have input towards the vision. While this is an essential component of an effective landscape scale approach, not all stakeholders will be new and, in some cases, connections and relationships with some stakeholders will be well established and longstanding. The important issue to be considered here, is one the need to review the stakeholder engagement process and continually reinforce those existing relationships to make sure they remain fit for purpose and adequate for the unique characteristics of each project

Ensuring communication remains open and transparent and that the sharing of information/data l remains a core component of landscape scale working is essential. Strong relationships are built up over time not forged and then forgotten.

Guidance and Prompts

- *Explicitly outline your current level and methods of stakeholder engagement?*
- *Review if they are adequate and up to date?*
- *Are all stakeholders adequately represented and have freedom to express their thoughts and opinions?*
- *If the relationships and collaboration between existing stakeholders has broken down, why has it? Can the relationship be mended or repaired?*

Policy making process stage 4 – VALIDATION, ADOPTION and COMMUNICATION



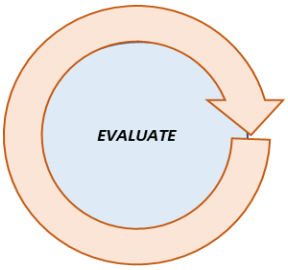
***QUESTION 6* - What are the stakeholders' and/or partners' views that need to be considered/included/ heard?**

When you have reviewed your stakeholder engagement methods It is essential to identify stakeholders and prioritise whose voices need to be heard within the defined area. It is also important to understand their distinct interests by using stakeholder mapping and other tools and to develop a strategy to engage with those key audiences throughout the project. This can help to reinforce effective partnerships and enhance the resilience of a project. Also, when working at the landscape scale it is vital to be clear about the explicit roles, responsibilities and lines of communication. This is important because at the landscape scale it is typical for no one or no organisations to have control over all of the different 'parts'. Finally, it is important to understand the status quo within the area and actual/potential power relationships between different stakeholders as this may influence your stakeholder engagement strategy.

Guidance and Prompts

- *Who are the potential stakeholders / interest groups within the area?*
- *Does your engagement strategy enable the range of views and interests to be heard and represented?*
- *Do any stakeholders dominate discussion and engagement?*
- *Is there a need to develop different strategies to effectively capture all of the prioritised stakeholders' views?*

Policy making process stage 5 – Mobilising and budgeting



QUESTION 7 **– Do you and other stakeholders have everything in place to deliver on your goals or vision? (*Mobilisation Phase*)**

Because of the dynamic nature of landscape scale working and the number of people involved in the delivery in collaborative across (often with limited resources and relying on volunteers) time is needed to mobilise these different elements between project planning and delivery. At this stage it is important to reflect on your current resources and the proposed outputs and outcomes to ensure that you can deliver.

In order, to achieve this there is potential incorporate some form of 360 degree reviews to look at yours and the other stakeholder's resources and deliverables as part of this stage. Make time for regular reviews with trouble-shooting learning lessons which then lead to appropriate action points / steps to adapt.

Guidance and prompts

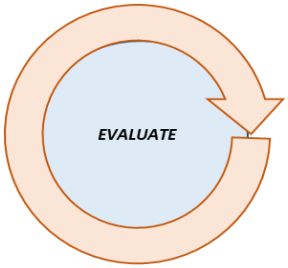
- *Do you have all of the resources in place to deliver project outcomes?*
- *Are all teams/ departments ready and do they understand their responsibilities?*

PROJECT DELIVERY

Guidance and Prompts

- *Consider how a formal launch of the project may help get wider support and publicity; but be mindful of some people feeling left out (e.g. if not invited).*
- *Consider how much publicity is good and how to maintain constructive media links and communication beyond the already actively engaged stakeholders.*

Policy making process stage 5 – Mobilising and budgeting



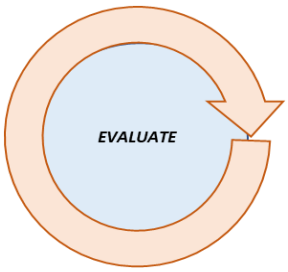
QUESTION 8 **– Are there opportunities for pooling of resources, and added value through a more joint-up delivery approach?**

Measure the effect of your project throughout using the indicators established at the start of the implementation phase to track progress. This should also facilitate identification of challenges or problems early on, and necessary/fruitful adaptations; also making use of any unexpected opportunities if appropriate. Working at the landscape scale the project outcomes/benefits must be shared within or beyond partnerships.

Guidance and prompts

- *How have the baseline variables changed?*
- *How has the project affected other measurable outcomes?*
- *To what extent are the impacts good or bad, and who benefits / loses out?*

Policy making process stage 6 – Implementation and Monitoring



QUESTION 9 **– Is everything on track to meet your desired vision and have you selected appropriate measures of success?**

It is useful to formally assess the impact at regular intervals and also critically assess how well the landscape scale project partnership is working. Addressing any problems early rather than letting issues fester may help keep the project on track and maintain trust and transparency. Importantly, with the help of the other sections of the process lessons can be learnt from success as well as set-backs. This then can inform improvements during the current project as well as in future landscape scale initiatives.

Guidance and prompts

- *How is the project performing? Is everything going to plan?*
- *What have you learnt and how will/should this influence future practice?*
- *What are the lesson learnt (both in relation to 'successes' and 'failures')? How can you make best use of those lessons in your ongoing and future work?*

Policy making process stage 7 – Evaluation

QUESTION 10: Did you achieve your vision and kept <u>the process</u> and its goals, relevant and up to date?

Evaluation is a key component of any successful project, approach or policy. As a result, the landscape scale process would not be complete without an inbuilt evaluation stage. This stage serves as an explicit point in time where you as an expert can look at the project/approach/policy as a whole it is important to reflect on all stages of the project drawing out both the things that went well, the things that did not go so well and how to mitigated against them. In reality however, there has been ongoing evaluation throughout each stage which has filtering through and made ongoing adaptations and mitigations. The information from this ongoing evaluation should be used to reinforce this stage.

Guidance and prompts

- *Did the project go entirely as planned?*
- *Was there any unexpected alterations or necessary changes?*

Policy making process stage 7 – Evaluation

QUESTION 11: How can you contribute to the wider learning and knowledge sharing of the landscape scale approach?

It was clear from the panellists involved in the project that is it important to the success and uptake of landscape scale concept that the experience gained form the project is shared. This information is contributing to the wider culture of landscape scale working. Helping to provide a database of information which can be used in the future.

However, when working at the landscape scale we must challenge some of the ingrained behaviours we have grown accustom with. For example, bringing forward the importance placed on trust and transparency (see…) it is vital to share both successful and unsuccessful components of a projects, highlight success and failures, barriers and opportunities. This is not so that the competency or

2

Appendix 8 – LANDSCAPE SCALE FRAMEWORK FINAL iteration based on external panel comments (not show to internal panel).

LANDSCAPE SCALE FRAMEWORK

'A framework aiming to help practitioners, policy makers and academics understand and delivery of landscape scale approaches.'

FOREWORD

The concept of 'Landscape Scale' means different things to different people depending on the prism it is being viewed through. After years of research into the concept, it became apparent that while some degree of flexibility was integral to the success of landscape scale approaches. A lack of established conceptually underpinnings was hindering its uptake and limiting its potential value. As a result, the following document was co-produced by a group of sixteen interdisciplinary experts and three academic researchers to establish some basic conceptually underpinnings and provide operational guidance to individuals charged with the application of landscape scale approaches. After a lot of development and refinement this landscape scale framework was produced.

The framework has been split into two distinct parts a conceptually part and an operational part each having different resources which can be used depending on a expert's requirements. The first part outlines some of the conceptual underpinnings of the approach, offers some **basic definitions**, the **key ingredients** and a set of important **principles** that constitute a successful landscape scale approach. The second part seeks to provide operational guidance in the form of a typical **landscape scale design process**, a **collection of case studies** and finally, relevant contacts and useful tools which will help to foster an improved culture of partnership working, allowing participants to view landscape scale challenges through a common lens.

In keeping with the theme of flexibility and the demands of different experts, the framework has been designed so that each resource can be used on its own without the need for working through the entire document. These sections can be navigated using the hyperlinks and provide in the signposting and introduction section. However, those who wish to enhance there understanding of landscape scale approaches are recommended to consider the framework as a complete document and use of all the resources together in the hope of stimulating a transformative change.

SIGNPOSTING

The following section contains hyperlinks in the form of prompts to help the reader navigate to different elements of the framework. Allowing for quick navigation to the most relevant part of the framework.

What is the added value of using a landscape scale approach to me as a practitioner, policy maker or academic?

Why should I trust the different elements of this framework?

What does landscape scale mean according to experts from different disciplines?

How does the term landscape scale relate to other associated terms like 'landscape', 'landscape function', 'landscape character'?

What are the key ingredients that constitute a landscape scale approach?

What are the principles of landscape scale working?

How do you determine the scale of a landscape scale approach?

How do you use this work to amend your current projects and adopt some of the principles?

I am charged with designing an approach from scratch, but you don't know where to start?

I already have a landscape scale approach in place, but you don't know how measure its success?

I am confident in the holistic approach to landscape scale working I just need signposting to contacts and resources to help delivery them?

I want to give some feedback and comments on the framework how do I contact the author?

INTRODUCTION

ADDED VALUE OF LANDSCAPE SCALE WORKING

First of all, the landscape scale encourages experts to look outside their discipline and usual sphere of experience. In doing so we look at the problems we face as landscape scale issues rather than confined disciplinary problems. As a result, it provides us with an opportunity to explore the issue with experts with different specialist knowledge. Creating an environment for more robust and resilient solutions which are better suited to address the increasingly complex and multifaceted problems we face.

Secondly, landscape scale approaches can provide a number of pragmatic advantages. The bringing together experts from different disciplines to develop solutions using the landscape scale approach requires a high degree of collaboration. This high level of partnership working enhances the opportunities for sharing resources, cost, labour and some of the responsibilities associated with data collection, mitigation and monitoring.

Finally, as practitioners we are aware that it is impossible to work in isolation. There is increasing emphasis on effective stakeholder engagement as well as the development and maintenance of partnership at every stage of a project's delivery. Typically, different partners have a clearly defined project aim and scope from the outset which may not necessarily coincide with other partners goals.

In summary, the concept of landscape scale can offer a multitude of benefits. it can reduce cost and help share responsibility. As well as, providing a platform to encourage more effective stakeholder engagement and partnership working which in turn will yield more effective solutions.

BASIS FOR INFORMATION

The information and guidance contained in this framework are the result of months of co-production and development by sixteen interdisciplinary experts and three academics from the UK, and as far afield as USA and Australia. These experts represent a range of different organisations and work across academia, policy and practice, embodying an array of expertise

and interests that spans nationally and internationally. The framework has been shaped by several individuals who are currently involved in ongoing research or practical work related to landscape scale. A wide range of viewpoints were sought to ensure the validity of the research and to produce outputs that would appeal to, and cater for, academic, policy and practitioner perspectives.

The framework has been developed using an adapted form of an applied policy Delphi technique. This technique is tried and tested and, in this case, consists of five iterative rounds of consultation and feedback. Prioritising perceived opportunities, limitations and barriers has been a core focus of each round, with co-production of the different aspects of the conceptual and operational framework, being tested and further refined, at the end of each round. In overall terms, the rounds produced over a thousand minutes of semi-structured interview data and over a hundred pages of feedback with detailed comments for analysis and further development. The researcher played a key role throughout the development of the framework both as an active participant contributing to the discussions within the study, and as a scientific researcher, observing and interpreting the different inputs as they were put forward.

RESEARCHERS CONTACT DETAILS

If you have any questions regarding the framework or have suggestions on how it could be improved, please don't hesitate to contact the author on the details below. This framework is the culmination of years of research which is ongoing and continually developing. The current iteration of the framework was completed within a strict timeline as part of a PhD with the specific aim of aiding in the mainstreaming of the concept across different, but ultimately related disciplines. With continued testing and usage, it is hoped that the different elements of the framework can be refined in greater detail.

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PART 1 – CONCEPTUAL UNDERPINNINGS

INTRODUCTION

Part 1 of the framework formalises the concept of landscape scale and to establish some explicit conceptual underpinnings that will reinforce the holistic design and delivery of landscape scale approaches. This will ensure that regardless of any preconceived notions, experience or discipline lens, users of the framework will begin the development process by orientating themselves in a standardised way. In order to achieve this, the group of sixteen experts from across academia, policy and practice were asked to identify two potential resources that would help to definitively describe what was meant by the term 'landscape scale'. Based on a distillation of these resources, this section offers a set of broadly agreed definitions for the terms 'landscape scale', 'landscape', 'landscape character', 'landscape function' and 'landscape scale approach'. While not necessarily breaking new ground, this was deemed an essential first step in order to avoid confusion and/or potential misunderstanding of terminology across different disciplines- all of which have an essential part to play in the effective delivery of landscape scale policies and projects. For these standardised definitions to be truly effective, they need to be uniformly applied. The second component of this part of the framework is therefore a figure that consolidates, those things considered to be 'key ingredients' of a landscape scale approaches. These ingredients draw upon the knowledge and experience of experts from various environmental disciplines to ensure that those factors that underpin effective landscape scale working can be incorporated into any new or existing landscape scale approach.

1.A. USEFUL DEFINITIONS WITHIN THE CONTEXT OF LANDSCAPE SCALE

Five terms appeared recurrently within the iterative rounds of the applied Delphi as well as in the preliminary stages of the development of the framework. These terms were: *landscape*, *landscape character*, *landscape function*, *landscape scale* and *landscape scale approach*.

Many panellists requested that an explicit definition of 'landscape scale' be included as part of the framework. However, given that all the above terminology was clear within, but potentially being applied differentially across, the different disciplines, the decision was taken to produce explicit definitions for all the above terms within the context of the 'landscape scale lens' – thereby ensuring clarity in terms of their application within a 'landscape scale approach'.

The definitions developed jointly by the panel are given below in figure 3, It is important to note however, that a degree of flexibility has been built into the definitions, allowing them to be 'moulded' to fit different practical applications. In the early stages of the framework's development, it was implied that the definitions were 'nested', within one another. This was taken to mean that the t the 'blurring' of the terminology was intentional, allowing different disciplines to 'do their own thing' in the context of landscape scale working, whilst at the same time giving the impression of operating within a more robust governance frame. Whilst this is an important observation that suggests there is a need to retain some degree of 'wriggle-room' within the definitions in order to ensure engagement, the agreement of standard definitions for all the core terminology around landscape scale working is essential Figure 1 presents the definitions and their connections.

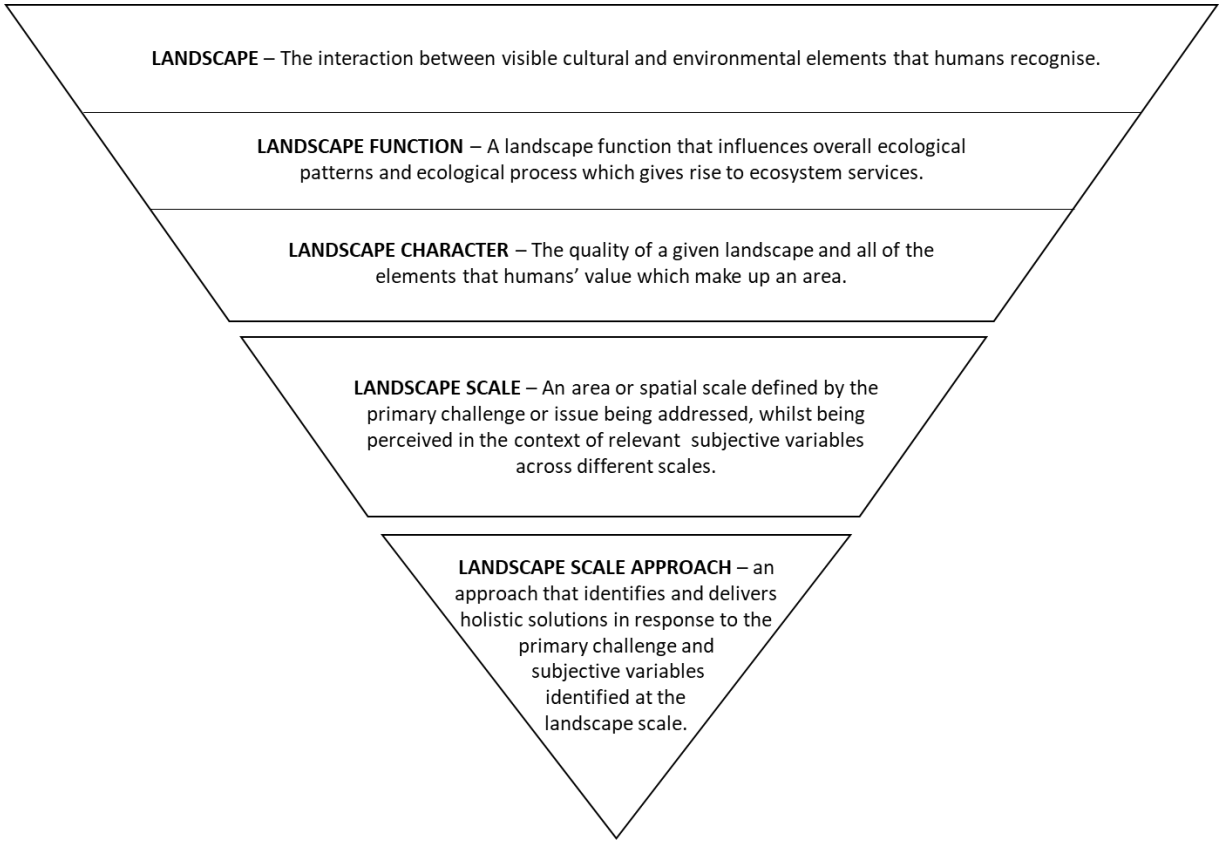

Figure 1 – The relational definitions of landscape, landscape character, landscape function, landscape scale and landscape scale approach which have all been unpacked within the context of the research and framework development.

PURPOSE & APPLICATION

An individual charged with designing, planning and/or implementing a landscape scale approach may find themselves in one of two positions. The first is that the concept of landscape scale is well embedded within their discipline or remit of working and therefore a clear understanding of the concept exists. This may sound like an ideal situation but may in fact hide a fundamental problem. As experts, we may say one thing but mean another, confidently progressing within our own 'silo(s)', whilst failing to engage effectively with another. Under these circumstances, the definitions offered in this section aim to provide a 'metaphorical touchstone'- a clear conceptual underpinning and baseline definition; something that all experts, regardless of their discipline or experience, can find some value in. In this spirit, the definitions outlined above can be used to explore the differing perceptions of landscape scale amongst a group of partners. The second position is where an expert may be new to the field and working at and with the landscape scale. In such circumstances the

definitions will provide much-needed clarity. Practitioners may initially feel some of the definitions are nonspecific and lack sufficient guidance, using terminology such as 'subjective' and 'variable' , in the definition of landscape scale for example. In the context of a piece of work designed to limit variation and subjectivity, this may seem counterintuitive but it is important to remember that landscape scale approaches must recognise the unique nature, needs and focus of each project so retaining a little 'wriggle-room' will be an essential feature of the 'toolkit's' success.

1.B. THE KEY INGREDIENTS OF THE LANDSCAPE SCALE CONCEPT

The term landscape scale stimulated some interesting discussions during the developmental phase of the framework. It became clear from the start of the framework's development that the term 'landscape scale' encapsulates many elements. The challenge, therefore, was presenting them in a coherent and accessible way. Figure 4 captures the key 'ingredients' of landscape scale which arose during the research and arranges them as 'petals' in four themes.

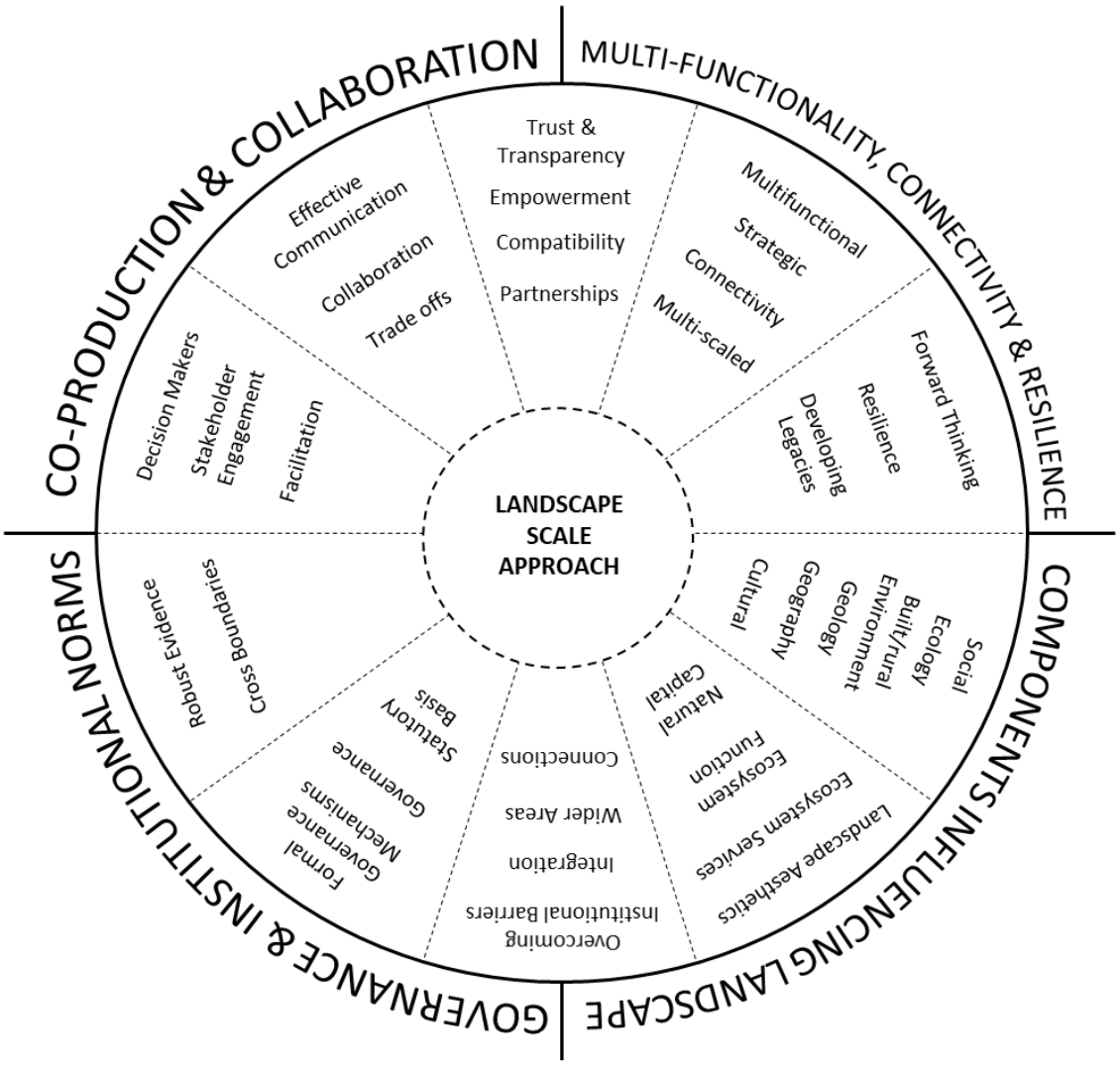

Figure 2 – This 'Petal Diagram' outlines what are the key ingredients of landscape scale working. These can be grouped into four overarching components with 10 clusters of associated 'descriptors', which form the petals.

For simplification, these key ingredients have been grouped into four themes (which are in no particular order of importance). The first section entitled '***co-production and collaboration***' refers to the importance of collaboration between different stakeholders/land users and managers and the role of coproducing solutions which are integral to effective, long-lasting landscape solutions which operate across multiple scales of working within different governance contexts. The next component entitled '***multifunctionality, connectivity and resilience***' highlights the importance of addressing multiple issues and developing solutions which consider varying perspectives across different scales. This, most likely, will be in accordance with governance and institutional norms but may also contain parts/actions which challenge or supersede them in some places. The third section entitled '***components influencing landscape'*** unpacks what are considered to be the different elements that influence the landscape's form and function within any given context. The final section explores the role of current governance mechanisms and institutional norms and how they can influence landscape scale.

CO-PRODUCTION and COLLABORATION – At the heart of a landscape scale approach is the need for effective two-way communication. The word 'communication' in the context of landscape scale goes beyond the simple preconceived notion of discussions (verbal or otherwise) and periodic stakeholder engagement. Instead, it requires an ongoing, transparent sharing of information, resources and knowledge between all stakeholders. This is important because landscape scale approaches often involve many partners from various disciplines and different priorities and interests, delivering against multiple agendas across varying scales. The sharing of insights and knowledge is therefore extremely important for stakeholders to understanding each other's short and long-term goals and for building more resilient, fit-for-purpose solutions that bring sustainable benefits. Furthermore, open discussions can yield multifaceted solutions which can provide overall benefits greater than the sum of the parts, an important factor when working in environments where financial and other resources may be limited. For this reason, it is integral for landscape scale working to maintain robust and transparent lines of communication across multiple scales that empower individuals to think about their own issues in the wider context, as well as continually reviewing and sharing their work with project partners and stakeholders. The need for review and overhaul of the current engagement process around landscape projects is clear. However, it is also acknowledged that this may not be as straight forward as it sounds. Collaborating across more partners and stakeholders will increase the need to work flexibly and compromise.

MULTIFUNCTIONALITY, CONNECTIVITY and RESILIENCE – When working within a landscape scale lens the project, policy or practical application cannot be designed or delivered in isolation. The landscape scale lens requires practitioners to consider their work from a more in-depth perspective than is currently the case across many disciplines. In the petal diagram this is captured in three petals and summarised for ease of application, using three terms; '*multifunctionality*', '*connectivity*' and '*resilience*'. Looking first at the term 'multifunctionality', the landscape scale lens refers to the importance of producing solutions that serve several functions at once rather than serving a single project outcome. To achieve this there must be collaboration between stakeholders, partners and local people from the start of a project, allowing potential multifunctional benefits to be identified and explored at an early stage. Typically, connectivity is a consideration of a project in the wider strategic context, ensuring that it coincides with ongoing work across larger geographically areas or alternatively, ensuring that clear connections have been established between smaller regional or local scales of working. However, the landscape scale lens emphasises the design of projects, policies and approaches that can be utilised at multiple scales. As a result, when considering the issue of connectivity, it is important to go beyond 'developing connections' amongst projects across different scales and to look more at designing approaches which can be attuned to fit bespoke project requirements over multiple scales, simultaneously.

The term 'resilience', typical refers to a projects ability to withstand change over the longer term and in this context, it is also important to recognise that often the long-term success of a project is not monitored beyond the initial scope. This may be as a result of initial funding end, outside of disciplinary/physical/imposed boundaries, or beyond the required regulatory baseline. A landscape scale approach, project or policy demands the need to look beyond these limitations and to consider the long-term success of goals across the landscape and wherever possible, to establish means to monitor them.

COMPONENTS INFLUENCING LANDSCAPE – Many aspects influence landscape. According to the experts involved in the development of this framework, the major elements of which are outlined in the petal diagram above (see figure 4). These different elements can vary dramatically depending on the project, approach or policy. Furthermore, they can be subjective depending on the partners and people involved. However, this should not be to the detriment of another. It is important to consider all the elements that make up the landscape.

GOVERNANCE and INSTITUTIONAL NORMS – the lens of Landscape scale requires us to work collaboratively with multiple partners to develop long lasting, innovative solutions. For most people, this will require them to work outside their 'comfort zone', to acquire knowledge and understanding beyond their specific field of expertise. For some, this will be a daunting prospect and it is therefore important to embrace this aspect of the work as an 'opportunity space'. An 'opportunity space' exists outside the confines of our usually clearly defined disciplinary boundaries and interests. Irrespective of the form this 'opportunity space' actually takes, it should be 'somewhere' that all stakeholders can bring their knowledge and expertise together in order to design more holistically, ensuring the development of solutions that are considered by everyone involved to be greater than the sum of the parts.

Working in this way will present challenges along the way. Solutions developed in an 'open space' format will have to be applied within the context of existing governance mechanisms and institutional norms and this may be difficult. In the long term however, this too should bring added benefits, providing valuable insight that will allow us to review our existing governance arrangements to ensure that in the future, they become and remain fit-for-purpose.

PURPOSE & APPLICATION

Figure 3 above, is designed to help experts better understand the different themes of landscape scale and the key ingredients of an effective landscape scale approach, policy or project. Figure 4 also helps in identification of the different elements when looking at an outcome, issue or solution through the landscape scale lens and can be used to explore an outcome or potential approach from a landscape scale perspective. In applying the petal diagram to any given situation, the desired outcome of a landscape scale project or approach can be placed in the centre of the figure, with the petals then used to 'unpack' the key ingredients into the respective themes using the petals around the centre. Alternatively, the petals can be used to allocate explicit roles and responsibilities to different partners around a specific project outcome or issue. This makes it easier to identify areas that have no, or insufficient resources allocated to them, mitigating project shortfalls later on in the process. This does not mean however, that these elements should completed in isolation from one another.

In allocating roles and responsibilities, this raises the issue of 'leadership'. With so many different ingredients and stakeholders potentially involved in the design and implementation

of a landscape scale approach, who co-ordinates the different components and helps to keeps momentum? The need for effective project management/project facilitation was identified repeatedly during the interview stage and with a lack of project funding a problem in most cases, this remains a difficult issue to address, However, in using the petal diagram as a design tool to bring stakeholders together to share expertise, develop shared goals, allocate roles, the petal diagram goes some way towards delivering a more co-ordinated approach, even where no central project management/facilitation exists.

1.C. CORE PRINCIPLES OF LANDSCAPE SCALE APPROACHES

The key ingredients outlined in section 1.B. (see page 17) as well as input from the sixteen panel members were used to produce a coherent set of eleven 'Landscape Scale Principles.' These principles are set out below in section 1.C. The eleven principles are not in any specific order of importance but are arranged according to a logical chain of considerations that will aid users in the development of a landscape scale process (see 2.A.). The aim of these principles is to create standardized set of 'building blocks' which go beyond the key ingredients set out in 1.B. by providing users with a more detailed set of practical descriptors. It was believed that by developing a set of standardized landscape scale principles, it would help to overcome some of the differing interpretations that currently exist and help to ensure compatibility across disciplinary lens's, bespoke applications and different scales of working.

PRINCIPLE 1: DEFINE THE PROJECT SCALE APPROPRIATE TO THE PROBLEM OR CHALLENGE.

Define and justify the scale based on the bespoke project requirements informed by how the area is currently used and managed. The area defined needs to be appropriate to the project or approach and coherent within the wider geographical context. It is vital to understand how this area is perceived in the context of a subjective set of variables applied across multiple scales. Landscape scale projects operate across multiple scales simultaneously. It is therefore important to align and integrate project and policy goals and outcomes with wider strategic thinking and delivery. Furthermore, because of the dynamic nature of landscape scale working, it is vital to consider the implications and effects of any decision across these multiple scales. The defined scale should be unique to every landscape scale approach, because the subjective variables acting on that landscape and the proposed outcomes or goals will almost certainly be different and need to be different, in each case. Crucially, the area should not be determined based on existing uses or currently defined boundaries as these may be a function of only a subset of the variables that need to be considered.

PRINCIPLE 2: UNDERSTAND THE INTERRELATIONSHIPS AND DEPENDENCIES BETWEEN PEOPLE AND LANDSCAPE.

Potentially, there is an ever-increasing list of inherent interactions between people and the landscape. It is therefore vital that these relationships are identified, unpacked and understood when working at the landscape scale. As we have already discussed, each project is unique and as a result, these interrelationships and dependencies are also unique for each project. These relationships can include a myriad of cultural, social, emotional, geographic and economic and factors and be unique to people from their own individual perspective.

PRINCIPLE 3: RECOGNISE INSTITUTIONAL, POLITICAL AND PHYSICAL BARRIERS AND PRIORITISE THOSE ONES YOU CAN DO SOMETHING ABOUT.

A collaborative effort should help to identify the myriad of institutional barriers (i.e. difference in organisations' priorities, policies and processes), political barriers (e.g. related to administrative boundaries and elected representatives) and physical barriers which may affect the scope and delivery of projects. It may not be possible to overcome all these barriers, so Identify and prioritise those barriers that you can do something about.

PRINCIPLE 4: IDENTIFY COMMONALITIES WITH ALL STAKEHOLDERS AND IDENTIFY ROLES, RESPONSIBILITIES AND LEADERSHIP

It is essential to identify common aims, goals and outcomes with all stakeholders and organisations in the defined area. Doing so via a transparent and proactive approach, can aid in conflict management and overcoming barriers relating to land ownership, differing interests and/or priorities. This is likely to include exploring organisations' and participants' values and reasons for their decisions. As a result, Landscape scale approaches tend to be 'complex' and multi-faceted with various stakeholders and individuals contributing to the policy cycle (ideas, survey, assess, plan, deliver and evaluate). Design and delivery in and across the various areas and sub-projects of landscape scale working, therefore, requires effective project management and clarity of roles and responsibilities.

PRINCIPLE 5: ESTABLISH LANDSCAPE INCENTIVES UPON THE FOUNDATION OF ECOSYSTEM INTEGRITY AND FUNCTION

Landscape character and landscape functions are fundamental to how we perceive, 'value' and reap personal and societal benefits. The, decision making processes at the heart of a landscape scale approaches must therefore protect and enhance natural functions as well as reinforce the integrity of ecosystems at their core. By extension, It is essential to outline a long-term strategy for a given landscape scale policy, project or programme. This is likely to include defining explicit actions to ensure measurable transformational change and/or considering how initiated changes and actions will be carried forward beyond policy/project/programme end.

PRINCIPLE 6: ENCOURAGE COLLABORATION, COPRODUCTION AND COMMUNICATION

Landscape scale approaches require collaboration and clear lines of communication between all stakeholders. Because of the dynamic nature of situations and approaches that landscape scale working entails, it is important to foster an atmosphere of trust that involves communication across varying boundaries, sharing/aligning of resources and responsibilities and co-designing and co-delivering solutions. This includes the need to share lessons learnt. Furthermore, solutions developed within a landscape scale approach must generate multiple benefits. This can be a result of effective collaboration with all appropriate stakeholders. Trade-offs need to be explicitly acknowledged and the way they are decided and mitigated must be transparent.

PRINCIPLE 7: BASE ALL DECISIONS ON A ROBUST, PROPORTIONATE AND FIT FOR PURPOSE EVIDENCE

All decisions must be based on meaningful evidence (including data, stakeholder views, contextual knowledge), drawing upon different expertise at all levels. Evidence should be both qualitative and quantitative as appropriate.

PURPOSE & APPLICATION

The above principles form part of the conceptual foundation for landscape scale working. It was believed that careful consideration and adhering to these principles will help to create the consist of approach which is currently lacking from the literature. Helping to define an agreed landscape scale lens across different disciplines and stakeholder perspectives.

These principles are arranged in a logical order and in accordance with the key ingredients outlined in section 1. B so that they can be easily followed by those participating in a landscape scale process. These principles also form a bridge between the conceptual underpinnings and the operational guidance which makes up the next part of the toolkit helping to transfer the knowledge from one part to another.

1.D. BASIC LANDSCAPE SCALE METRICS

The following table outlines a set of simple landscape scale metrics develop from the key ingredients (see part 1.B.) and the landscape scale principles (see part 1.C.). It outlines what are some fundamental 'measurable' indicators within each of the four major key ingredients of landscape scale working.

COPRODUCTION and COLLABORATION	▪ All stakeholders involved in the process have the freedom to express their views without judgement. ▪ There must an opportunity for all stakeholders to reflect and comment on the collective input. ▪ Comprise and innovation takes precedent over conflicts and before simple dismissal of inputs. ▪ Decision for rejecting, amending or accepting input must be clearly and explicitly explained. ▪ Information, software and personal must be shared across organisations during the project. ▪ Clear leadership and lines of communication are established between organisations and stakeholders. ▪ A 360-degree review of stakeholder's resources, responsibilities and delivery will be essential.
MULTIFUNCTIONALITY, CONNECTIVITY and RESILIENCE	▪ Solutions deliver multiple benefits, for multiple people across multiple scales, simultaneously. ▪ The long-term impact of approaches must be established (even if this is beyond the scope of project funding or requirements). ▪ Evidence to show a clear understanding of projects and work that is going on across different scales. ▪ There must always be a multi-pronged approach to a problem coming from different disciplinary lens. ▪ An understanding of ongoing project or work at different scales will reinforce the approach.
COMPONENTS INFLUENCING LANDSCAPE	▪ Clear understanding of relevant ecological process underlying the area. ▪ Understanding the relationships of humans and place in the affected place/area/landscape ▪ Clear evaluation natural capital and ecosystem services that exist within a given area. ▪ Evaluation of cultural and sociology inputs. ▪ Robust collection of baseline data, environmental audit.
GOVERNANCE and INSTITUTIONAL NORMS	▪ Review of formal governance mechanisms in place and ensure suitability. ▪ Explore the context of the project, policy or approach at different scales. ▪ Develop 'boundaries' to the project that are appropriate not necessarily pre-determined. ▪ integrate the approach within wider work.

PURPOSE & APPLICATION

The above metric attempts to operationalise some of the key ingredients developed in the research project into measurable indicators. It is hope that these can be used to help steer landscape scale approaches and provide some consistency of approach.

PART 2 - OPERATIONAL GUIDANCE

INTRODUCTION

The aim of Part 2 of the framework is to build on the conceptual underpinnings outlined in part 1. So far in the framework we have unpacked the key relational definitions that were deemed relevant to aid in better positioning the term ‘landscape scale’ within our contemporary lexicon as well as establishing an explicit foundation for what we mean by the term ‘landscape scale’. Secondly, we have explored the key ingredients that contribute to the landscape scale lens - setting this out conceptually in the form of a ‘petal diagram’ (see figure page 17). Furthermore, these ingredients have been developed into a set of eleven standardized landscape scale principles. These principles act as a bridge, starting the process of pinning down the operational steps and guidance from the conceptual underpinnings.

Building upon the eleven principles, the following part of the framework takes this one step further and aims to provide some explicit operational guidance accompanied by working examples. The operational guidance within part 2, aims to help the design of approaches within the landscape scale lens, drawing from the conceptual unpinning’s. This is achieved by first outlining a set of fundamental operational steps. These operational steps will be familiar to practitioners as they are consistent with ‘general project management process’s ‘. This has been done so that it will be easily recognised by the majority of practitioners and therefore directly relatable and applicable in their current working. However, these fundamental operational steps have been arranged as a series of questions designed to not only make the user think more deeply about the design process but also to draw out and emphasise the added value of the landscape scale lens.

Finally, part 2 concludes with a collection of contemporary landscape scale case studies (which will be added to as time progresses and the framework gets more usage). Not only do these case studies provide excellent practical examples of what can be achieved but they also signpost readers to other experts providing valuable practical advice on delivery of projects.

2.A. FUNDAMENTAL OPERATIONAL STEPS OF A LANDSCAPE SCALE APPROACH

This section of the framework aims to provide some explicit operational guidance that will help users to design, apply and deliver landscape scale thinking across different disciplines. Rather than start from 'scratch' and design something completely new, the fundamental operational steps in 2.A. have been constructed around the typical stages of a 'policy making process'. These stages are defined as; 1. Preparation phase, 2. Issue identification phase, 3. Formulation phase, 4. Validation, adoption and communications phase, 5. Programming and budgeting phase, 6. Implementation and monitoring phase, 7. Evaluation phase. All practitioners and policy makers should find these phases familiar in their experience and daily working. These should not be considered a fixed instructions to be followed to the letter but rather as a series of questions designed to prompt the reader to think about the design process and to draw out the value of landscape scale thinking at each stage.

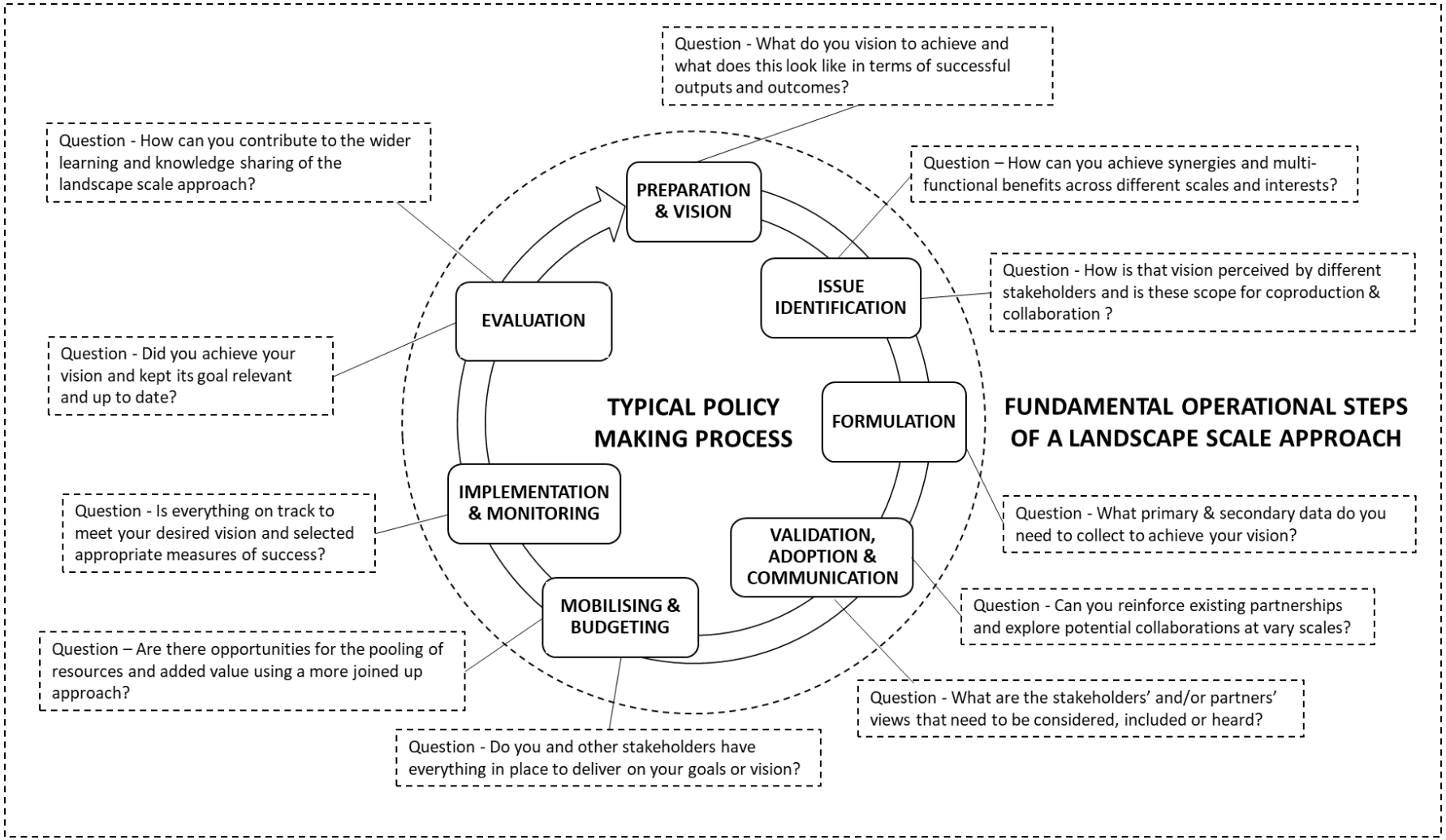

Figure 5 – The process of designing a landscape scale approach in the form of a 'generalised project management process'. Following the above questions (with the addition of the principles in part 1.c.) will help to shape a coherent landscape scale approach.

PREPARATION & VISION

QUESTION - WHAT DO YOU VISION TO ACHIEVE AND WHAT DOES THIS LOOK LIKE IN TERMS OF SUCCESSFUL OUTPUTS AND OUTCOMES?

From the outset of the project/plan or approach, it is essential to have a vision of what you are trying to achieve. This can vary depending on the problem being solved or the opportunity you are trying to exploit. Secondly, it is important to explicitly outline what success will look like. This leads to the development of clear indicators, outcomes and long-term trajectories. Having a clear vision from the outset will make setting and measuring indicators much easier and help keep any landscape scale approach on track. However, working at the landscape scale adds another layer of complexity to the initial project development. Because of the multifaceted nature of landscape scale approaches, outcomes must be negotiated and developed in collaboration with other stakeholders. Working with different stakeholders means that there must be room to allow for compromise in these negotiations.

Building on the idea of compromise, it is important to explore the alignment of the vision and expected trajectories with the vision held by other stakeholders' and the outcomes that they perceive at other scales where possible. Exploring such alignment may help to deliver your vision and be advantageous overall. It is important however, to stress that sometimes, landscape scale projects may need to fight new ground and first work towards setting new precedence. One of the most apparent complications that arises when aligning visions, goals and opinions is conflict amongst stakeholders who have different interests, experiences and desired outcomes.

The variables involved are subjective and any approaches have to operate across multiple spatial and temporal scales in order to deliver holistic solutions. It is therefore essential to establish the most appropriate scale(s) and coherent area of study/influence from the outset based upon the 'vision'. In this context 'Coherent' means a project area is defined by the project's outcome with meaningful boundaries and connections beyond it. However, the pre-existing operational boundaries or an organisation's defined working area may not always be the most appropriate boundary for the project. As a result, defining a coherent project area at the landscape scale may require a slightly different approach and explicit attention as to how project boundaries are defined.

GUIDANCE & PROMPTS

- *Outline the vision you are trying to achieve in its simplest form?*
- *What are the individual stages of your project or plan? Outline the different and potentially most appropriate way from start to completion.*
- *Alternatively, use a back-casting strategy where you work backwards from your goal and consider the pathways/changes needed from that future goal point back to the present.*
- *What are the indicators or metrics that can be used to best capture/measure the baseline variables and progress over time?*
- *Has anyone used a landscape scale approach in this kind of project before and how did they achieve or envision success.*

ISSUE IDENTIFICATION

QUESTION - HOW CAN YOU ACHIEVE SYNERGIES AND MULTI-FUNCTIONAL BENEFITS ACROSS DIFFERENT SCALES AND INTERESTS?

After a clear project vision has been established, it is necessary to explore the context of that vision. When working at the landscape scale this requires the practitioner to look beyond the immediate scale of working and explore that vision in the wider geographical context. This is an extremely important step in landscape scale thinking. Understanding the ongoing work and interests of different stakeholders at different scales can help to identify potential synergies and help to develop solutions which have multiple functions (first step in developing trust). However, this not without its challenges. Working across multiple scales simultaneously and bringing together lots of stakeholders with potentially conflicting interest can result in tensions leading to compounded or exacerbate project issues. It may be efficient and effective to strengthen relationships with existing stakeholders based on the goals and project outcomes you wish to achieve as a priority. There may also be a case to establish new links and develop new partnerships, especially if existing / old partnerships no longer work well or prevent important new stakeholders from participating. This reinforces project outcomes and any opportunity to create synergies through alignment with other projects'/people's goals and values.

As a result, when using the landscape scale lens to design multi-functional solutions to problems across multiple scales simultaneously, it is important that all stakeholders start with a clear perspective on what everyone else is trying to achieve and where possible, align their visions and goals. This should not be construed to mean everyone has the same goal or vision (although this would be easier) but it means that a clear understanding of each other's discourse

is established from the project outset. In order to achieve this, emphasis must be placed on equity, trust and transparency over the entirety of the project between all stakeholders. Also, one of the conceptual unpinning's of landscape scale is the importance placed on the relationship between 'people' and 'landscape'. This requires the sharing of primary and secondary information, data collection techniques, resources (including money, people and time), computer software, modelling data etc. , Initially, there may be some resistance to this style of working and some practitioners might be reluctant to engage especially if this involves the sharing of hard earned or expensive resources. However, engaging in the landscape scale lens can lead to multifaceted solutions which are greater than the sum of their parts and the sharing of such information has potential to create robust long-lasting partnerships and synergies which are based on trust and clarity.

GUIDANCE & PROMPTS

- *Identify the geographically 'scale' that you project operates within i.e. local, regional, national context and explore the ongoing work, policies and at other scales.*
- *Trace the vision back to basics and establish it in its simplest form. Ask yourself what you are trying to achieve i.e. 'prevent biodiversity loss of species X' or 'give X number of people access to a park'*
- *What is the vision and the perceptions of the other stakeholders and is there a common denominator?*
- *Ensure that you are completely transparent with other stakeholders, giving them access to resources and establish trust.*
- *Is all the relevant information going to be made available and if not, why?*
- *Are there explicit and effective lines of communication within your organisation and between you and your partners?*

QUESTION - HOW IS THAT VISION PERCEIVED BY DIFFERENT STAKEHOLDERS AND IS THEIR SCOPE FOR COPRODUCTION & COLLABORATION?

At this point users will have explicitly established the vision they want to achieve and explored the potential synergies or project overlaps. In keeping with the landscape scale approach, users will have looked beyond what is the scale of the current project and considered its influence across different scales. The greater the number of stakeholders involved in a project/approach/policy the greater the potential for these synergies. Care is needed at this stage as the more people involved a project, the more potential there is for conflicts and disagreements to arise. This in turn may create conflict with the initial vision. It is important therefore, to understand how your vision and (decisions made as a result of that vision) are

going to be perceived by different stakeholders. This not only requires an understanding of their individual visions but also the discourses reinforcing it. This encourages practitioners to look beyond their discipline, interests and experience in order to consider an issue, problem or opportunity from different perspectives. This is important because working at the landscape scale may require the amendment of the initial vision. Developing an understanding of the different stakeholder's discourse is key to the design of an effective landscape scale approach. Looking at the problem from different perspectives can lead to more effective coproduction and collaboration in the short term and help to reduce conflicts and disagreements in the long term. Enhancing your understanding of different stakeholders' visions and discourses can also help to align visions with others where possible. (second step in developing trust)

GUIDANCE & PROMPTS

- *It is necessary to consult other experts or stakeholders in order to better understand their perspectives and visions?*
- *Discourse analysis/stakeholder analysis?*
- *Do the users visions immediately align with the visions of other stakeholders 'or' is there potential for them to become aligned with minor amendments?*

FORMULATION

QUESTION - WHAT PRIMARY & SECONDARY DATA DO YOU NEED TO COLLECT TO ACHIEVE YOUR VISION?

As with the formulation stage of any project, policy or approach, it is important to collect all the appropriate data necessary to measure progress to ensure delivery of the vision. Careful and accurate data collection is vital for a number of reasons. First of all, it helps to establish the baseline variables in any given area, allowing the development of well-informed indicators and accurate methods of measuring and tracking success. With this in mind, It is important to understand and explicitly outline what type of data needs to be collected and in what format. This data can come from both primary (i.e. collected by the user first hand) and secondary (i.e. collected by/from another source). Furthermore, where possible users are encouraged to include both qualitative and quantitative sources of information.

At this point, the potential synergies explored in question 2 and opportunities for coproduction and collaboration with other stakeholders that were explored in question 3 can help. Other stakeholders may already have collected some or all of the relevant data needed to help

achieve the vision. Alternatively, stakeholders can pool resources to collect the relevant data, reducing risk of repetition and the need for individual investment of time and resources.

GUIDANCE and PROMPTS

- *What is the baseline ecological, sociological and economic conditions/variables within your visions area?*
- *What are the most appropriate measurable indicators to help you achieve success and why?*
- *What does the success of the vision look like?*
- *Before investing in expensive methods of primary data collection, are there any potential sources of secondary data available (ask other stakeholders)?*
- *What are your short term and long-term trajectories of the vision?*
- *How can you overcome the limitations in funding, time and resources to increase the projects resilience?*

VALIDATION, ADOPTION & COMMUNICATION

QUESTION - CAN EXISTING PARTNERSHIPS BE REINFORCED INCLUDING THE EXPLORATION OF POTENTIAL COLLABORATIONS AT VARY SCALES?

During the design of a landscape scale project approach or policy, there is a lot of emphasis placed on stakeholder engagement and the identification of all the potential scales at which relevant stakeholders might have input towards the vision. While this is an essential component of an effective landscape scale approach, not all stakeholders will be new and, in some cases, connections and relationships with some stakeholders will be well established and longstanding. The important issue to be considered here, is one the need to review the stakeholder engagement process and continually reinforce those existing relationships to make sure they remain fit for purpose and adequate for the unique characteristics of each project

Ensuring communication remains open and transparent and that the sharing of information/data l remains a core component of landscape scale working is essential. Strong relationships are built up over time not forged and then forgotten.

GUIDANCE and PROMPTS

- *Explicitly outline your current level and methods of stakeholder engagement?*
- *Review these lines of communication they are adequate and up to date?*
- *Are all stakeholders adequately represented and have freedom to express their thoughts and opinions?*
- *If the relationships and collaboration between existing stakeholders has broken down, why has it? Can the relationship be mended or repaired?*

QUESTION - WHAT ARE THE STAKEHOLDERS' AND/OR PARTNERS' VIEWS THAT NEED TO BE CONSIDERED/INCLUDED/ HEARD?

When you have reviewed your stakeholder engagement methods It is essential to identify stakeholders and prioritise whose voices need to be heard within the defined area. It is also important to understand their distinct interests by using stakeholder mapping and other tools and to develop a strategy to engage with those key audiences throughout the project. This can help to reinforce effective partnerships and enhance the resilience of a project. Also, when working at the landscape scale it is vital to be clear about the explicit roles, responsibilities and lines of communication. This is important because at the landscape scale it is typical for no one or no organisations to have control over all of the different parts. Finally, it is important to understand the status quo within the area and actual/potential power relationships between different stakeholders as this may influence your stakeholder engagement strategy.

GUIDANCE & PROMPTS

- *Who are the potential stakeholders / interest groups within the area?*
- *Does your engagement strategy enable the range of views and interests to be heard and represented?*
- *Do any stakeholders dominate discussion and engagement?*
- *Is there a need to develop different strategies to effectively capture all the prioritised stakeholders' views?*

MOBILISING & BUDGETING

QUESTION – DO YOU AND OTHER STAKEHOLDERS HAVE EVERYTHING IN PLACE TO DELIVER ON YOUR GOALS OR VISION? (MOBILISATION PHASE)

Because of the dynamic nature of landscape scale working and the number of people involved in the delivery in collaborative across (often with limited resources and relying on volunteers) time is needed to mobilise these different elements between project planning and delivery. At this stage it is important to reflect on your current resources and the proposed outputs and outcomes to ensure that you can deliver.

In order, to achieve this there is potential incorporate some form of 360-degree reviews to look at yours and the other stakeholder's resources and deliverables as part of this stage. Make time for regular reviews with trouble-shooting learning lessons which then lead to appropriate action points / steps to adapt.

GUIDANCE and PROMPTS

- *Do you have all of the resources in place to deliver project outcomes?*
- *Are all teams and/or departments ready to delivery and do they understand their specific responsibilities?*
- *Are there any potential unforeseen issues or extra costs limiting the effectiveness pf the approach?*
- *Is the approach being delivered consist and integrated with resources and mobilisation a different scale?*

PROJECT DELIVERY

GUIDANCE & PROMPTS

- *Consider how a formal launch of the project may help get wider support and publicity; but be mindful of some people feeling left out (e.g. if not invited).*
- *Consider how much publicity is good and how to maintain constructive media links and communication beyond the already actively engaged stakeholders.*

QUESTION – ARE THERE OPPORTUNITIES FOR POOLING OF RESOURCES, AND ADDED VALUE THROUGH A MORE JOINT-UP DELIVERY APPROACH?

Measure the effect of your project throughout using the indicators established at the start of the implementation phase to track progress. This should also facilitate identification of challenges or problems early on, and necessary/fruitful adaptations; also making use of any unexpected opportunities if appropriate. Working at the landscape scale the project outcomes/benefits must be shared within or beyond partnerships.

GUIDANCE & PROMPTS

- *How have the baseline variables changed?*
- *How has the project affected other measurable outcomes?*
- *To what extent are the impacts good or bad, and who benefits / loses out?*

IMPLEMENTATION & MONITORING

QUESTION – IS EVERYTHING ON TRACK TO MEET YOUR DESIRED VISION AND HAVE YOU SELECTED APPROPRIATE MEASURES OF SUCCESS?

It is useful to formally assess the impact at regular intervals and also critically assess how well the landscape scale project partnership is working. Addressing any problems early rather than letting issues fester may help keep the project on track and maintain trust and transparency. Importantly, with the help of the other sections of the process lessons can be learnt from success as well as set-backs. This then can inform improvements during the current project as well as in future landscape scale initiatives.

GUIDANCE & PROMPTS

- *How is the project performing? Is everything going to plan?*
- *What have you learnt and how will/should this influence future practice?*
- *What are the lesson learnt (both in relation to 'successes' and 'failures')? How can you make best use of those lessons in your ongoing and future work?*

EVALUATION

QUESTION - DID YOU ACHIEVE YOUR VISION AND KEPT THE PROCESS AND ITS GOALS, RELEVANT AND UP TO DATE?

Evaluation is a key component of any successful project, approach or policy. As a result, the landscape scale process would not be complete without an inbuilt evaluation stage. This stage serves as an explicit point in time where you as an expert can look at the project/approach/policy as a whole it is important to reflect on all stages of the project drawing out both the things that went well, the things that did not go so well and how to mitigated against them. In reality however, there has been ongoing evaluation throughout each stage which has filtering through and made ongoing adaptations and mitigations. The information from this ongoing evaluation should be used to reinforce this stage.

GUIDANCE and PROMPTS

- *Did the project go entirely as planned or were there important adjustment or measures taken in order to ensure that it achieved it goals?*

QUESTION - HOW CAN YOU CONTRIBUTE TO THE WIDER LEARNING AND KNOWLEDGE SHARING OF THE LANDSCAPE SCALE APPROACH?

It was clear from the panellists involved in the project that is it important to the success and uptake of landscape scale concept that the experience gained form the project is shared. This information is contributing to the wider culture of landscape scale working. Helping to provide a database of information which can be used in the future.

However, when working at the landscape scale we must challenge some of the ingrained behaviours we have grown accustom with. For example, bringing forward the importance placed on trust and transparency it is vital to share both successful and unsuccessful *components of a projects, highlight success and failures, barriers and opportunities.*

GUIDANCE and PROMPTS

- *Were any observations made or measures taken to aid in the success of the approach?*
- *How can you contribute to the wider application and learning of landscape scale?*
- *Is there a platform to share information and landscape scale work?*

2.B. COLLECTION OF LANDSCAPE SCALE CASE STUDIES

One of the cornerstones of the research was that all the panellists involved in the research would remain anonymous. This was essential to maintain the validity and reliably of the results and subsequent project outcomes. The case studies have been unpacked against a number of

At this point in time the research and development of the toolkit is still ongoing. As a result, the following case studies have been generalised to protect panellist' anonymity. Upon completion of the research project the following section can include more specific project details as per consent of the persons involved. An attempt has been made to strike a careful balance between valuable information and adhering to this core research component. The following case studies have been generalised from specific landscape scale case studies identified by the panellists involved.

GENERALISED CASE STUDY 1 - 'LOCAL SCALE CONSERVATION OF SMALL AQUATIC MAMMALS, AS PART OF A NATIONAL LANDSCAPE SCALE APPROACH'

SCALE (outlines the horizontal, vertical and temporal scale of the case study): Local project across approximately 80 km2 as part of a wider landscape scale approach across several local authorities. Project started early 2000's and monitoring is ongoing.

DISCIPLINE/PROFESSION (identifies the major disciplinary lens of the approach): Ecology and Conservation.

PROJECT AIM and OBJECTIVES (establishes the approaches overarching aim and specific project objectives):

- Increase the population numbers of an iconic aquatic mammal species along waterways through habitat restoration.
- Educate stakeholders and general public about the aquatic mammal and its habitat.
- Raise awareness of land users to the presence and need of the small aquatic mammal.

CONTEXTUAL SETTING (outlines the social, economic and ecological factors affecting the project in order to inform the reader of wider context and driving forces): This Project recognised the loss of an iconic aquatic species as a result of habitat destruction, water pollution and an increase in the population of invasive non-native species. Data collection and habitat mapping was conducted over the course of several years involving several partners in order to assess the mammal's population and distribution trends. This data was used to report against national targets and to adapt a geographic information system (GIS) to support measures and enhance strategic working at local as well as larger scales. It was recognised that 'simple' conservation efforts could be made in conjunction with current land users and land managers which would not affect the current water based recreational activities such as cycling, dog walking, boating and angling. Attention now focuses on identifying specific opportunities for multifaceted solutions which would increase numbers of the aquatic mammal and at the same time maintain or enhance the current environment for existing land / recreational uses.

WHAT KIND OF LANDSCAPE SCALE APPROACH WAS USED? (How was the landscape scale approach implemented):

- The project scale was defined by the organisation's current managerial structure (i.e. the ecologists' designated working areas) along county council boundaries. This was supplemented by information from the area's Biodiversity Action Plan and GIS.
- The work incorporated the needs and interests of multiple stakeholders, including farmers / landowners, local communities, charities and government groups at all stages of the project, from data collection to delivery and outcome monitoring.
- Funding was obtained from multiple sources including a large local supermarket chain and the European Union.
- Both the data collection and the strategy to increase the mammal population was based on ecological function.
- Information gathered from multiple sources included quantitative data from GIS and qualitative data from local residents.

SUPPORTING TOOLS (short outline of supporting tools that were used to support the project):

- Stakeholder mapping
- Geographic Information System (GIS)

ADDED VALUE OF LANDSCAPE SCALE (what added value did the landscape scale approach to the problem provide): Using a landscape scale approach to the project allowed strategies to be developed that extended beyond the limitation of county council boundaries and were more in line with the mammal's habitat. Furthermore, a more holistic and transparent approach to the stakeholder engagement process encouraged more volunteers to take part and aided with the project legacy and resilience.

ACHIEVEMENTS and SUCCESS (outline if the project achieves the vison it set out to):

- The national database and mapping techniques for the aquatic species were enhanced; also providing policy/decision makers with more robust data to formulate better informed strategies and plans.
- Community awareness and public engagement increased with better knowledge and understanding of the needs of the aquatic mammal species.
- The habitat area increased and therefore the potential distribution of the species.

BARRIERS (opportunity to highlight the major barriers to the project and how they were overcome/mitigated):

- It was highlighted that some stakeholders involved in the project had ingrained opinions and preferred their own methods which caused some tensions.

LESSONS LEARNT (what lessons were learnt and how can they be shared with other organisations and disciplines?):

- It is important to act early and established trust with stakeholders and partners. This has a dramatic impact on both the success of the project and the ongoing monitoring and maintenance.

GENERALISED CASE STUDY 2 – 'REGIONAL SCALE PROJECT TO SECURE WATER FISH SPECIES AND RECONNECTING PEOPLE TO THE ENVIRONMENT'

SCALE (outlines the horizontal, vertical and temporal scale of the case study): A major regional scale project with local goals and potential international implications along of a large river catchment in the UK. Project started in late 2016, set to continue for two years as a result, outcomes can be seen now.

DISCIPLINE/PROFESSION (identifies the major disciplinary lens of the approach): Conservation and Sociology (specifically engagement)

PROJECT AIM and OBJECTIVES (establishes the approaches overarching aim and specific project objectives): The project had two overarching aims. The first was too improve the habitat along a large UK river in order to increase the population of a specific rapidly declining fish species. The second was to improve public awareness of the water ways and fish species.

CONTEXTUAL SETTING (outlines the social, economic and ecological factors affecting the project in order to inform the reader of wider context and driving forces):

WHAT KIND OF LANDSCAPE SCALE APPROACH WAS USED? (How was the landscape scale approach implemented):

- The project was defined as a partnership pulling together expertise from different organisations but ultimately the project was delivered by one organisation.
- The project operates across planning boundaries and disciplinary lines following the path of large river catchment. The work on the river to restore habitat
- Funding was obtained from heritage lottery fund and the EU LIFE programme. Which required the project to deliver on multiple benefits
- Aims of the project are multi beneficial, delivering different aims across environmental, conservation and sociology to solve an issue.
- Stakeholder engagement and direct community involvement was extensive and transparent.

SUPPORTING TOOLS (short outline of supporting tools that were used to support the project):

ADDED VALUE OF LANDSCAPE SCALE (what added value did the landscape scale approach to the problem provide): Using a landscape scale approach to the project allowed strategies to be developed that extended beyond the limitation of county council boundaries and were more in line with the mammal's habitat. Furthermore, a more holistic and transparent approach to the stakeholder engagement process encouraged more volunteers to take part and aided with the project legacy and resilience.

ACHIEVEMENTS and SUCCESS (outline if the project achieves the vison it set out to):

- The national database and mapping techniques for the aquatic species were enhanced; also providing policy/decision makers with more robust data to formulate better informed strategies and plans.
- Community awareness and public engagement increased with better knowledge and understanding of the needs of the aquatic mammal species.
- The habitat area increased and therefore the potential distribution of the species.

BARRIERS (opportunity to highlight the major barriers to the project and how they were overcome/mitigated):

- It was highlighted that some stakeholders involved in the project had ingrained opinions and preferred their own methods which caused some tensions.

LESSONS LEARNT (what lessons were learnt and how can they be shared with other organisations and disciplines?):

- It is important to act early and established trust with stakeholders and partners. This has a dramatic impact on both the success of the project and the ongoing monitoring and maintenance.

2.C. RELEVANT TOOLS, CONTACT DETAILS AND HELP

The final section of the framework is an ongoing collection of potential tools, contacts which aims to signpost you as practitioners to useful documents, journal articles and critical summaries which may be of some use.

Potential reducing resources and time if certain elements of project work have already been completed.

Secondly from a wider perspective this section has the potential to help dissolve some of the ongoing disciplinary barriers, introducing practitioners to some of the relevent wider academic literature and visa versa.

CONCLUSION and NEXT STEPS

This is the first draft of the landscape scale framework developed as part of the ongoing wider research work and Birmingham City University and Northumbria University. This version was circulated to the original fifteen panellists for there use and review. It is hoped that as the framework is made available to wider practical and academic communities that it can be refined further outside of the scope of the original research project. Finally, during the course of the research work the panellists emphasized the need to develop a 'community of practice'. When addition funding is secured it is hope that the contents of this framework can be converted into a interactive website

It is paramount that any usage of the framework including comments, amendments of developments are feedback to the author. These developments are not only integral to the development of further iterations of the framework but will also help to mitigate potential barriers and limitations of the landscape scale approach.