Facilitating Organizational Decision-Making Process through LEGO® SERIOUS PLAY® Method

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Abstract

Previous research has offered several processes/frameworks for facilitating/improving the Organizational Decision-Making Process (ODMP). However, limited research has practically identified a method to facilitate all decision-makers' participation, realize their views/ideas, improve their communications, and maximize the chance of making the organization's most effective and implementable decisions. LEGO® SERIOUS PLAY® (LSP) as a creative methodology has been utilized in organizations to facilitate discussions/meetings/workshops. However, no studies have been conducted on applying LSP to improve ODMP. This study explains the use of LSP to facilitate and enhance this process by developing a conceptual framework and offers a novel ODMP. It adopts action research, including interviews, a case study, and a focus group and facilitates a workshop to observe and validate the effectiveness of the proposed process. The research findings suggest that the proposed approach fosters a more visual, creative, interactive and collaborative experience, increasing all-around participation during the ODMP.

Keywords: Lego Serious Play; Organizational Decision-Making Process; Decision making; Decision process; engagement; stakeholders; gamification; Action Research; workshop participants.

1. Introduction

Organizational Decision Making Process (ODMP) is one of the most critical procedures, as it may lead to more (or less) profit for an organization (Patnaik et al., 2020). ODMP has traditionally been developed by gathering stakeholder requirements. However, this is the main challenge in any decision-making process as the requirements differ at team and individual levels. Identifying the initial stakeholder requirements is an important step, which already exists in any ODMP, but capturing the different views and needs of various stakeholders is challenging (Addy et al., 2015, Sinnaiah et. al., 2023). This can be due to inappropriate techniques, time restraints, poor understanding of the problem or the lack of a common definition (Thokala et al., 2016). Several frameworks, success factors, and approaches, such as gamification, have been developed to create a mechanism to explore the decision problem/opportunity, facilitate the process, and maximize the stakeholders' participation (Sailor et al., 2017). The use of serious games in ODMP provides a better environment for the decision-makers to participate, debate and challenge each other's beliefs to identify and structure the decision problem and alternatives (Ground and Meier, 2016).

LEGO® SERIOUS PLAY® (LSP), as a serious game method, allows participants to challenge assumptions while debating different perceptions through probing imagination, emotions and experience when thinking and developing metaphorical models to address a particular situation. These models are then used to elicit authentic discussions, reflections, and interactions to understand the different worldviews and assumptions and reduce conflicting individual interests (Wheeler et.al., 2020). The LSP is a method that has been used extensively as a more engaging way to solve problems or discuss issues through a common language. The LSP method can be used for various applications, including capturing stakeholder views of team members and ensuring that everyone can contribute to the model. Therefore, it would be a suitable method to resolve the problems associated with ODMP, especially in the early stages of identifying stakeholders' requirements (Porcellio and Delgado, 2017).

There is little existing research on the use of LSP in decision-making processes. For example, Wheeler et al. (2020) indicate that LSP has a positive role in empowering decision-makers to perform improved analysis through visual presentation of the problem space. It also helps to develop/improve the

participants' communication which will be useful for making more effective decisions (Henthorn and Schneider, 2012). However, there is a need to explore how LSP facilitates evaluating decision options, participation, and gathering information to help understand the decision problem and possibilities. As such, this research explores how organizations perceive the role of LSP in facilitating decision-making and at what stage of the decision-making process can be utilized to support decision-making. In addition, the issues associated with ODMP and the current practices to address the problems should be comprehended better. Hence, this paper looks at the LSP method to facilitate the process of organizational decision-making through the implementation of action research. As a result, the following Research Questions (RQs) will be answered; What are the challenges associated with ODMP and how are the organizations currently confronting these challenges? (RQ-1); How does the LSP method support overcoming the challenges related to ODMP and facilitate the process of decision-making? (RQ-2)

This study aims at developing a framework to represent the usefulness of LSP to facilitate ODMP to answer the research questions. Through the research, an innovative ODMP methodology will be designed, utilizing the capabilities of LSP. The following objectives will be achieved through this study:

1. To identify the challenges of ODMP;
2. To better understand the capabilities of LSP for the ODMP;
3. To utilize the LPS methodology for ODMP in a real-life decision-making scenario;
4. To develop and validate a conceptual framework for using LSP for ODMP;
5. To design a novel ODMP methodology.

Accordingly, the following section provides a brief background to the research problem, preparing the context for the action research. Section 3 outlines the research methodology, explaining how the research questions are answered through the implementation of an action research strategy. Then, the research findings from the literature and interviews to better understand the current situation of ODMP are summarized in section 4. Next, the results of implementing the research action (Facilitating ODMP using LSP) will be offered and analyzed in section 5. Then, the learnings and recommendations

extracted from the action will be discussed by developing and presenting a framework for ODMP using LSP. Finally, the conclusions of the research will be described.

2. Research background

2.1 Organizational Decision-Making Process (ODMP)

Decision-making in organizations is either done by a single person or a small team. However, team decision-making within organizations has significantly increased within the last few decades, especially for important decisions. It has also been noted that better decisions are mainly made by a team of decision-makers (Moon et al., 2003). Organizational decision-making is a set of processes undertaken to address the organization's decision problem from start to completion, which requires selecting a reasoned choice from a group of alternatives to achieve a particular organizational requirement (Simon, 1979). However, formalizing the decision-making process is influenced by individual decision-making styles, which can be driven either by intuition or rationality (Sinnaiah et. al., 2023).

The essential characteristics of organizational decision-making are that alternatives are initially unknown. Intuition allows categorizing and resolving unrelated information received into sorted knowledge allowing the decision-maker to search for and develop options that fulfil the requirements to solve the decision problem. Rationality focuses on the procedure to address and conclude the decision problem, which from an organizational decision-making perspective means selecting a reasoned choice from a set of alternatives to achieve a particular organizational requirement (Truong et. al., 2021; Sinnaiah et. al., 2023; Putra, and Ali, 2022). Understandably, many more decision-making process models exist but all of these share a similar ideology that organizational decision-making cannot be entirely rational, possibly because of the decision-makers' reasoning capacity or environmental limitations. For example, experience and education level can influence decision-making as tools and past experience can influence the decision-making process. Several other organization settings can influence decisions, such as objectives, definitions, finance and criteria (Truong and Manh, 2021; Siqueira and Lucena, 2023). This does not imply that all organization decisions are irrational; instead, it suggests the necessity to effectively focus on reaching a decision instead of the decision output. The

extant literature consists of various decision-making process models with either 3, 5 or 7 steps (Negulescu, 2014). These different steps can be summarized as shown in Figure 1.

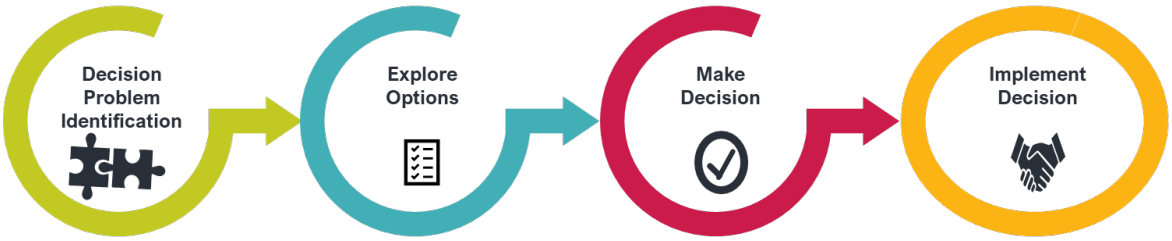

Figure 1: Summarized organizational decision-making steps (Source: Authors)

(i) Decision Problem Identification: the decision-maker (s) need to establish the need for the decision. This includes scanning the environment to identify any challenges and (or) opportunities that can support the organization's requirements and goals. The next step will be to determine the scale of the problem or opportunity and outline if it calls for a decision (Banks et. al., 2022; Ismail et. al., 2023). This stage aims to recognize the need for a decision, and once the condition is established, objectives are set; this is a crucial activity as it defines the decision outcome.

(ii) Explore Options: This stage focuses on understanding the problem or opportunity to formulate options. Once the alternatives are developed, they are analyzed to determine their feasibility for the defined need. Comparing and evaluating these alternatives is essential to the organizational decision-making process (Harrison, 1996; Truong and Manh, 2021). However, the evaluation is complex since new problems may arise, requiring additional information gathering. Therefore, organizational decision-making is a complex recursive process, dependent on the decision requirements. According to Negulescu (2014), brainstorming can help the decision-maker explore alternative options and select the optimal decision.

(iii) Make Decision: When the alternatives are evaluated, the decision is based on an optimal option. 'Optimal' here refers to the most feasible choice that fulfils the course of action that satisfactorily addresses the decision problem.

(iv) Implement Decision: at this stage, the decision implementation plan is produced for implementing the decision and analyzing its impact.

Despite this structured approach to making decisions, many organizations' decisions do not achieve the intended outcome (Daft and Marcic, 2016). This could be associated with organizations focusing more on the output instead of what starts or prompts these decision processes (Marguet, 2017). Also, the lack of a mutually agreed outcome between the decision-makers contributes towards not meeting the intended outcome (Truong and Manh, 2021). Hence, there is a need to adapt the decision-making process and style to accommodate the problem and factors affecting the decision problem (Litvaj, et.al., 2022). Also, there is a need to engage the various participants while embracing the organizational and personal culture; since cultural barriers determine how people engage in the decision-making process (Yates and De Oliveira, 2016). As suggested by Eden and Ackermann (2014), engagement in the decision-making process will be enhanced if an environment is created for the participants in which they feel fairness. Therefore, there is a need to have a strategy or approach to facilitate participation from all decision-makers. Their views and ideas are given equal consideration when evaluating alternatives. Involving all participants in decision-making at all stages will help the decision implementation by enhancing support and reducing resistance (Pluchinotta et al., 2019). Awulor et al. (2022) suggest that is it important to consider all views i.e., the positives and negatives as this may reduce conflict when making a difficult choice. Hence, the involvement of stakeholders must be stimulated so that they share their views (Nogueira, Borges, and Wolf, 2017); one approach to get stakeholders engaged is through the use of game-based approaches that can facilitate breaking down barriers, facilitate participation and explore the decision problem or opportunity (Nienaber and Kriszan, 2023; Sailer et al., 2017).

Serious games such as LSP enable debating and challenging each other's beliefs to recognize the decision problem and alternatives, as it allows incorporating ways to improve participation and knowledge (Grund and Meier, 2016; Wheeler et al., 2020). It will also facilitate in-process intervention, which has been considered a catalyst to make better decisions in organizations (Fisher, 2017).

2.2 LEGO® SERIOUS PLAY® (LSP)

LSP is a creative tool that can facilitate meetings, workshops, and discussions, establish better communication within teams, develop creative confidence and assist with generating solutions to specific issues or challenges (Hayes & Graham, 2019; McGehee, 2022). The LSP process involves participants using Lego bricks to create models of concepts or ideas, which are then shared with other participants. This consists of a combination of play (the enjoyment of building) with task-specific activities (build questions) based on topics that can be explored. The 'play' aspect helps create a suitable environment that supports forming ideas and knowledge that would be more difficult in formal conditions, such as a traditional meeting (Hadida, 2013; Wheeler et.al., 2020).

Dann (2018) explored using LSP to facilitate co-creation in a classroom environment. Similarly, Ajibade and Hayes (2020) used the LSP methodology to understand factors affecting international students transitioning to the UK education system, which allowed them to explore in-depth personal, support and curricula issues. Nienaber and Kriszan (2023) explored the use of LSP to break down barriers and allow stakeholders to engage through a creative exploration allowing participants to offer authentic views and ideas that can be discussed within the group (McCusker, 2020). Lopez-Fernandez et. al. (2022) utilized LSP to improve active learning and participation when teaching software engineering courses. The LSP method has also been used in a strategic management context in work. For example, the study of Grienitz and Schmidt (2012), focused on how businesses could create models of possible future scenarios and assess their impact. This relates to a further benefit of LSP: the ability to see situations from an alternative point of view, which is fundamental to the design of LSP workshops and can reduce implicit biases (Dijks et al., 2018). LSP functions most effectively where a "perfect solution" does not exist, as it is more beneficial for the discovery and the development of new knowledge rather than a tool for just recalling existing knowledge. However, all these studies highlight that it is essential to follow the LSP process, which means ensuring a problem is addressed and establishing clear aims and objectives (Lopez-Fernandez et. al., 2022).

2.2.1 The LSP Method

The LSP method has gained popularity across several industries, such as technology, banking and telecommunications, where LSP has been used to conduct large-scale workshops (Gkogkidis and Dacre, 2021; Meletiadou, 2023). This can be attributed to the fact that LSP creates a safe space where participants have time to think, engage and actively participate through reflection and meaning-making (Moore and O'Sullivan, 2023).

Through the process of LSP, each participant builds a LEGO model as a response to the build questions using LEGO bricks. Several build levels can be used based on individual, shared and system models (Figure 2). Individual models are the foundation of the LSP process, and participants are recommended to begin with these before moving on to the higher build levels. With shared models, it is possible to come to a shared understanding of vision, allowing teams to co-create in ways that would not be possible with more common team activities.

The final level explores dynamic systems and how varied factors may impact those systems. This allows participants to explore different scenarios and strategies while working together safely. An example could be looking at external factors that may affect a business in the future or possible threats.

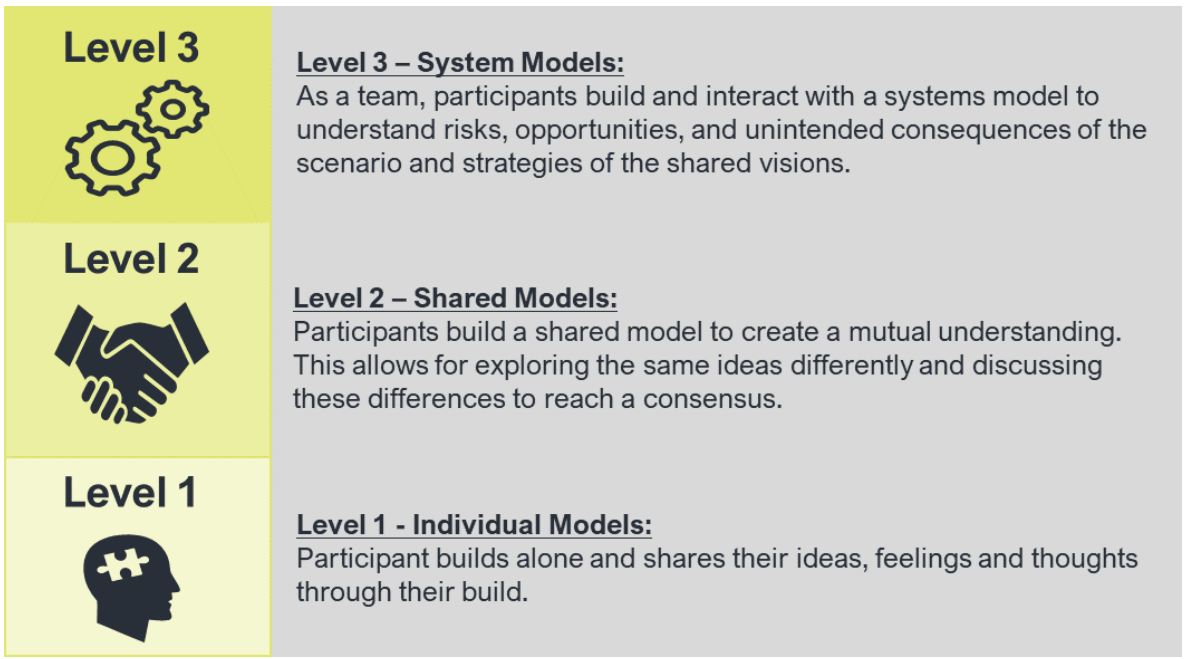

Figure 2: Summary of the Lego Serious Play Build Levels (Adopted from Blair and Rillo, 2016)

There are also six steps in the process (Figure 3), including the first two (which only apply to LSP facilitators). These are setting clear objectives and forming questions that will enable participants to get the most from the workshop.

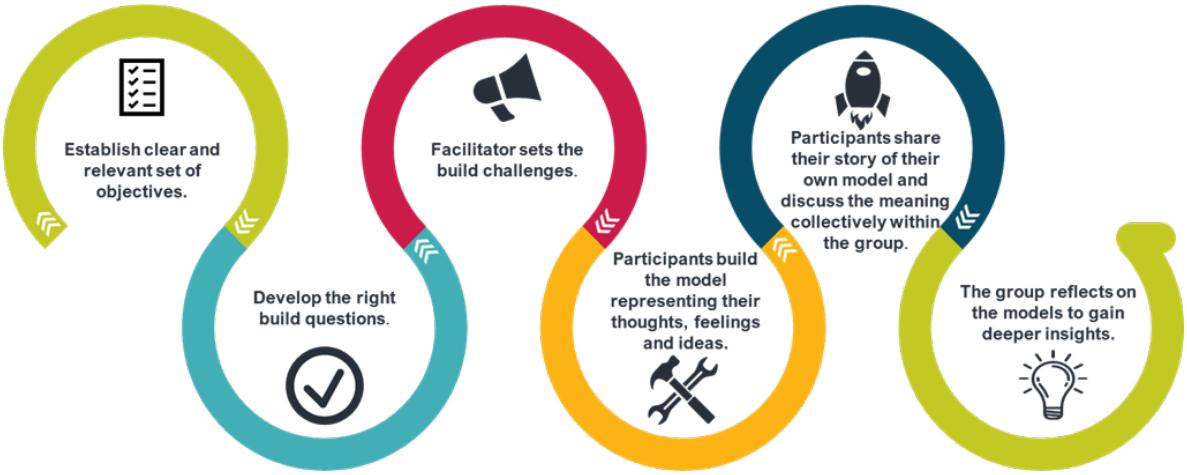

Figure 3: Summary of LSP Core Facilitation Processes (Adopted from Blair and Rillo, 2016)

The above steps represent two fundamental principles that underpin any LSP workshop. First, there are no wrong answers – everyone's model is equally 'good,' and participants are reminded not to judge models. The second point is that everyone builds, and everyone shares. These maximize participants' engagement for the project's primary purpose, which can be understanding, brainstorming, decision-making, and so forth.

Participants in the process use the LEGO bricks as metaphors to represent concepts, ideas, or experiences. This way, individual conceptions of intangible ideas can be presented as a LEGO model (McCusker, 2020). These models then become the basis for discussion, knowledge exchange and idea generation, in contrast to responding with words as expected when following a more traditional idea of a workshop or meeting. If necessary, the LSP method can be combined with other tools and established facilitation techniques.

2.2.2 Applications of LSP

The science behind LSP is grounded in the theory that people build and develop knowledge through their hands-on experience of the world and that learning takes place when there is engagement in the

physical making of an object (Papert & Harel, 1991). This theory of constructionism is evident in the LSP methodology.

Tuomi et al. (2020) explore the collaborative, hands-on approach to problem-solving that LSP offers for the adoption of new technologies. In this study, LSP was used as a catalyst for a structured discussion around imagining possible impacts that the introduction of a specific technological innovation may have. This is further discussed by Pichlis et al. (2015) as to how LSP can be implemented as a service design tool. They identify two fundamental elements that relate to its success: the core process and related etiquette to create engagements and the universal appeal of Lego, which allows the participants to 'think' using their hands. This correlates with Hadida's (2013) work, which observed that using Lego has intuitive appeal to most people, regardless of status, age or skills.

LSP can also evaluate different choices and gather stakeholders' requirements. In this application, suitable objectives (through build questions) must be formulated for a successful outcome. The flow experience from playful activities, such as LSP, has been noted as an important precursor that can stimulate increased innovation and creativity (Primus & Sonnenburg, 2018). In addition, since LSP offers participants the opportunity to act out and evaluate a range of different scenarios, it facilitates the decision-making process in any organization where a transformation (e.g., technological adoption) is planning to occur. It allows researchers to conceptualize how new technology may transform a particular industry. The involvement of multiple stakeholders in the brainstorming process offers a broader understanding of any potential problems that may arise from introducing new technologies and innovations early in the process. Transparency and early involvement in the planning stages are powerful factors in getting stakeholders behind new ideas and innovations (Liedtka, 2015). LSP provides a new way for researchers to understand the different stakeholder values through applying the LSP process (shared model building and discussions) to align these different views and reach a consensus within a team.

3. Research Methodology

Addressing the aim of this research requires developing an approach that utilizes and implements LSP for ODMP, addressing the challenges of decision-making, especially from a 'people' viewpoint. Therefore, the purpose of this research is to develop such an approach, justify the use of the approach, and ultimately validate the empirical effectiveness of the approach through its implementation. An inductive qualitative research approach was adopted, utilizing action research and case study strategies. As illustrated in Figure 4, action research is the surrounding strategy for this study and includes several data collection techniques. By adopting the action research approach within this project, it was possible to investigate how LSP could be used for ODMP and the potential impacts. Action research provides insights into the actions suitable for a specific scenario. The following five stages of action research (Susman, 1983) were used to structure this research: diagnosis, action planning, action taking, analyzing the results, and discussing the learnings and recommendations.

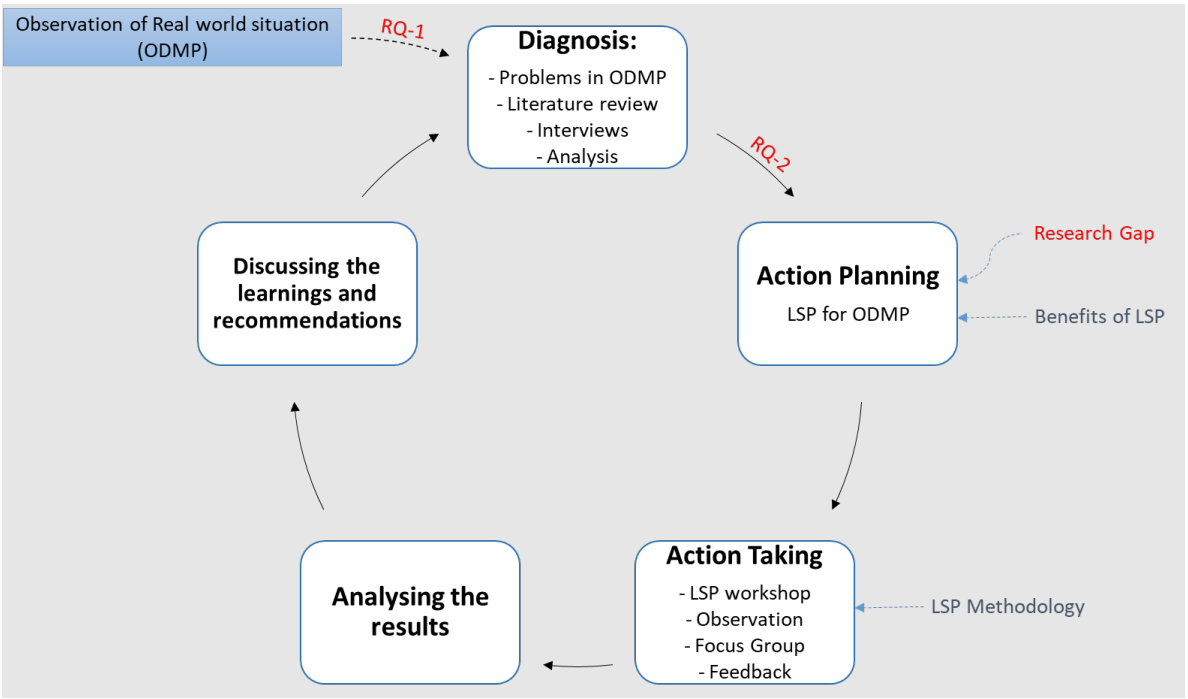

Figure 4: Action Research design (Source: Authors)

3.1 Diagnosis

From the initial literature review and observation of ODMP in organizations, such as the IT company of this research, it was realized that ODMP in organizations is problematic due to several reasons, such

as lack of engagement of decision makers. Hence, the first research question was formulated (RQ-1) (see section 1). As a result, the first stage of the action research, 'diagnosis', began by reviewing the relevant literature (explained in the earlier sections), conducting interviews within the research case study, and analyzing the results. This stage helped the researchers understand the current situation and challenges associated with ODMP better. The interview results also justified the literature findings regarding the ODMP challenges and created a basis to move to the next stage, planning for the action. Consequently, objective 1 (explained in section 1) was addressed.

As explained in section 2, another literature review with different keywords was conducted, and it was understood that LSP offers several benefits (including maximizing participants' engagement) for various situations, such as problem structuring, teaching, and learning (research objective 2); thus, it could have similar advantages to address the challenges associated with ODMP. Hence, RQ-2 (see section 1) was defined to understand LSP's capabilities better to facilitate ODMP.

The literature review was conducted to gather relevant secondary data from the following academic databases: Google Scholar, Scopus, Science Direct, IEEE and Emerald, regarding the challenges of ODMP, the use of LSP for various contexts, and establishing the usefulness of LSP for ODMP. A range of keywords and advanced search Boolean operators were used whilst querying the different academic databases. The keywords consisted of but were not limited to LEGO Serious Play, LSP, decision-making process, organizational decision-making process, LEGO Serious Play for decision-making, and LEGO for decision-making.

Six primary research participants in this study were selected from decision makers of our case study, who had at least three years of experience and involvement in decision-making in practical business settings. The initial interviews were also conducted before the LSP workshops by asking the participants a few open-ended questions regarding the challenges on ODMP within their organizations (specifically regarding IT solutions and upgrades, based on their expertise) and they have attempted to address those challenges so far. The interviewer also asked the participants to provide a few specific critical success factors. Each interview took 20-30 minutes, and they were recorded. In addition, the researchers took notes during the interviews.

3.2 Action planning

To address the second research question, the study went to the second stage of action research, planning for the action. In this stage, the research gap, identified from the literature review and the general benefits of LSP, was considered. Then, according to the LSP methodology (explained in 2.2), an LSP workshop for ODMP was designed as the action of this research to be implemented within our case study.

3.3 Action taking

Six decision-makers participated in a three-hour LSP workshop. The workshop mirrored an actual decision-making situation using the LSP workshop to generate insights into ODMP and observe how LSP facilitated ODMP. The participants provided feedback after the workshop and participated in a focus group to answer a few questions regarding their experience using LSP for ODMP.

Two researchers of this study facilitated the workshop, took notes, and recorded the session (consent was taken). They were also observing the whole decision-making process, considering LSP's benefits. Hence, the case study strategy used observation and focus groups on collecting empirical data (Al-Saeed et al., 2019).

The focus group aimed to validate the LSP workshop for ODMP and identify how the LSP methodology facilitated the ODMP for the decision-makers. It generated primary data pertaining to the participants differing stakeholder values in the following subjects: the usefulness of LSP for ODMP; the ODMP challenges that can be addressed using LSP methodology; any issues observed during the LSP workshop; improving the use of LSP methodology for ODMP.

3.4 Analyzing the Results

After the workshop, all collected data were prepared for qualitative analysis. The audio records were listened to and transcribed by one of the authors responsible for this task. Then, the transcriptions were read several times to capture participants' opinions regarding various topics. Next, the transcriptions were compared with notes taken during the workshop and focus groups. Afterwards, a thematic coding approach was utilized to extract relevant data from the text. Then, the data were categorized and

compared, and similar ones were merged until no new category could be created. The remaining material was checked several times to connect relevant data to the categories.

3.5 Discussing the learnings and recommendations

In this stage, the study's findings generated from the analysis were discussed and structured as a framework to integrate LSP with ODMP. As a result, research objectives 3 and 4 were addressed. Then, to achieve objective 5, an innovative ODMP was produced and presented as the outcome of this study.

The study utilized a qualitative research approach comprising various data generation techniques that allowed multiple data sources to be synthesized. This resulted in generating empirical findings that were validated through a focus group approach after implementing an LSP workshop for making a decision based on a real scenario.

4. Diagnosing the current situation and planning for the action

According to the action research methodology, explained in section 3, when the problems were observed in ODMP within the field of systems upgrade, the first research question (RQ-1) was formulated. Therefore, more literature review was carried out to understand better the current situation associated with the challenges of ODMP and resolutions to improve it. Then, the participants of our action research were interviewed to comprehend the ODMP challenges and existing solutions in a real-world situation before the implementation of the research action. These helped answer the first research question. Next, the second research question was formulated, and the action was planned to answer it.

4.1 Findings from the literature

The thematic analysis of the findings from the literature suggests that despite many ODMP approaches developed, organizations are still struggling to implement the decision-making process effectively. Hence, adequate decisions are not being made to resolve the problems as expected. The following challenges and Critical Success Factors (CSFs) associated with ODMP are identified as follows:

Table 2: literature findings regarding the challenges and CSFs of ODMP

Challenges and CSFs of ODMP	References

Challenges	- Poorly-structured problems; - Lack of a common definition of the problem ; - Decision-makers personal judgement, intuition, and emotions, as well as environmental constructs, hinder making coherent and cohesive decisions; - Inappropriate techniques are utilized for ODMP; - Time restraints, so that thoughtless decisions are made without considering all decision makers' opinions and other imperative elements.	Shrestha et al. (2019); Yates and De Oliveira (2016); Grund and Meier (2016); Marguet (2017)
CSFs	- Understanding the decision-making stimulus; - Understanding the requirements for the decision to be made; - Identifying the stakeholders' expectations and requirements from the decision-making outcome; - The need for a more skillful interrogation of decision needs; - Effective interactions between decision makers; - Identifying individual interests; - Stimulating decision-makers to consider the different factors, minimize routinised actions, and offer the opportunity to challenge assumptions; - Engaging the decision makers while embracing the organizational and personal culture.	Harrison (1996); Negulescu (2014); Yates and De Oliveira (2016); Grund and Meier (2016); Marguet (2017); Shrestha et al. (2019)

4.2 Findings from the interviews

The interview results revealed that the ODMP situation in the participants' organization reflects many of the findings from the literature (to help answer RQ-1 and address objective-1, see section 1). For example, when interviewees were asked about the challenges of ODMP in their organization, one of them commented:

‘There are always cultural differences within the decision-making team. The decision-makers may not have a common understanding of the problem, they may not see the problem at all, so they will be reluctant to participate or make the changes…’

Two interviewees also explained that they usually get different responses when they decide on an online meeting compared to a face-to-face because the concentration and participation of the stakeholders when a meeting occurs face to face is dramatically enhanced.

Another interviewee said:

'Getting the decision makers to pay attention to the problem, participate in the decision-making meeting, concentrate, and contribute to the decision-making process is a particularly challenging job.'

The interviewees also declared that they observed the ODMP-related challenges in the middle stages when the actual decision was going to be made. For example, one interviewee said:

'Our aim (is) to understand the problem first before decision, so the early stages for us is to understand the problem before asking all participants to come together for making a decision. So, the middle stages when we are trying to get everyone's opinion about the decision to be made and get everyone's agreement is the most challenging one.'

When the interviewees were asked questions regarding the CSFs for ODMP, they outlined the factors, such as adequately defining and structuring the problem and understanding the requirements of the decision-makers. For example, one interviewee commented;

'We should have a process to define the problem clearly and explain it to all stakeholders, so they fully understand what sort of decision they need to make, what are the factors to be considered from their own viewpoint, get agreement and sign it off… They understand all bits and pieces of the situation, so they fully participate in the meeting and express their requirements.'

The interviewees also stated that they had no structured decision-making process in their organization to follow. Hence, they expressed their interest in trying new and effective approaches to make decisions more accurately that can be fully executed later while all stakeholders are satisfied.

The results of interviews regarding the challenges and CSFs currently being deployed in the research participants' organization are summarized in Table 3:

Table 3: Interview findings regarding the challenges and CSFs of ODMP

ODMP Challenges	ODMP CSFs
- **Participation depends on the topic (e.g., they would not like to attend the decision-making process if it is about change);** - **Convincing people to participate;** - **Cultural differences within teams, hence, lack of shared understanding of the situation;** - **Lack of decision-makers attention, concentration and contribution during the decision-making meeting;** - **Different responses (face-to-face vs online);** - **Lack of engagement of some stakeholders;** - **Lack of focus during the meeting;** - **Unequal contribution towards decision making (i.e. dome**	- The ODMP is to be driven by subject experts (e.g., decision-making about IT systems upgrades to be driven by the IT team); - Defining problems explicitly before going to the actual decision-making stage; - Getting agreement from all stakeholders and signing off; - Understanding the requirements of all decision-makers; - Trying new approaches/processes - Bringing correct decision makers for ODMP; - Creating an accurate agenda for the decision-making meeting; - Being clear about what the decision-makers are trying to achieve (common understanding).

participants talk more than others and dominate the conversation; - **The danger of scope creep.**	

The table represents some examples regarding challenges and general CSFs that may be utilized by the organizations. Hence, it helps answer RQ-1 and address objective-1 of this research (see section 1).

4.3 Planning for the action

According to the findings from the literature and interviews outlined in the previous sections, having a strategy or approach to facilitate participation from all decision-makers in ODMP is essential. This will help understand the problem, stakeholders' requirements, views, and ideas and provide them with equal opportunity to discuss, express their opinion, agree/disagree during the process, and evaluate the alternatives. Hence, all participants will be fully engaged in decision-making at all the stages, especially the critical ones and will help the decision implementation by enhancing support and reducing resistance.

As explained in sections 1 and 2, the concept of serious play creates opportunities for imagination and creative thought processes compared to more traditional workshop approaches (Hinthorne & Schneider, 2012). Within organizations with a clearly defined hierarchy, a workshop using LSP creates an opportunity for all members to have an equal voice and contribute to the discussions and outcomes. LSP can also be used to enhance innovation and business performance.

Hence, looking at the capabilities of LSP to address the ODMP challenges, such as understanding the problem, engaging stakeholders and seeing different perspectives, suggests that utilizing LSP for ODMP seems to be very useful, especially in the early and middle stages of the ODMP. This was comprehensively analyzed in section 2.2 to address the second objective of this research. Therefore, this research aimed at answering the second research question (RQ-2), which was formulated as ‘How does the implementation of the LSP method support overcoming the challenges associated with ODMP and facilitates the process of decision-making?’

5. Implementation of the action and results

To answer RQ-2, the action was planned to implement an LSP workshop for deciding to upgrade the IT systems of an organization understudied to observe how LSP can facilitate an ODMP and better understand the benefits of using LSP in a real ODMP. Hence, the third research objective was addressed by implementing this stage. The workshop was carried out in three hours, followed by 30 minutes focus group discussion to discuss the usefulness of using LSP for ODMP, the applicability of LSP to address the challenges associated with ODMP, and how the LSP process can be improved.

The first two levels of LSP methodology were followed. Table 4 summarizes the steps of the workshop before conducting the focus group, and the goals and actions undertaken in each step.

Table 4: Interview findings regarding the challenges and CSFs of ODMP

No.	Step	Goal/Action
1	**Establish a clear and relevant set of objectives**	Carried out by facilitators prior to the workshop based on the objectives of the research to be addressed by implementing the workshop.
2	**Develop the right build questions**	Carried out by facilitators prior to the workshop based on the objectives of the workshop: to utilize the LPS methodology for ODMP in a real-life decision-making scenario, and better understand the capabilities of LSP for the ODMP.
3	**Introduction**	- Facilitators tried to help all participants to understand how the LSP workshop works - All participants introduced themselves to each other using LEGO bricks
4	**Warm-up**	Facilitators asked the participants to think about their organizations, their decision-making process, and the existing challenges and build a model of each and share it with others using LSP methodology.

5	**Setting the build challenges**	Facilitators set several challenges to build models using LSP to understand the current situations of IT system in the organization, requirements, decisions to make.
6	**Build**	Participants build the model representing their thoughts, feelings and ideas: - Understanding the current situation of IT system - Understanding a "perfect IT system" through building models by participants - Make a decision about upgrade
7	**Share**	Participants share their story of their own model and discuss the meaning of the abovementioned models collectively within the group.
8	**Reflection**	The group reflects on the models to gain deeper insights.

The facilitator started the workshop by explaining the process and then asked the participants to build several models for various purposes, representing their views through metaphors. They also shared their models by talking about them and asked every other participant to reflect on their opinion about their model. After realizing that a brick could represent anything, they built models based on the topic of 'upgrading IT systems' (Figure 5).

Figure 5: LSP for ODMP workshop (warm-up) (Source: Authors)

Then, we started to talk about different factors to consider when deciding to upgrade IT systems. Next, the participants built a model to represent their understanding of their current IT system' as an essential element to consider for an IT upgrade (Figure 6).

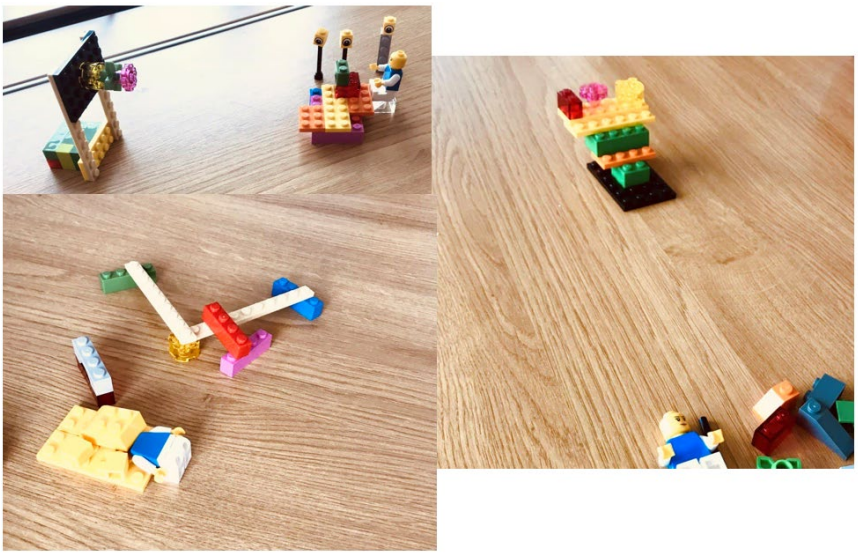

Figure 6: LSP for ODMP workshop (understanding the current IT system) (Source: Authors)

Consequently, they told the story of their models and asked everyone's opinions about their models. Then, the participants specified the main points in their models using the flags according to the LSP methodology (Figure 7).

Figure 7: LSP for ODMP workshop (Flagging the key points) (Source: Authors)

Finally, they voted on the flagged points and built a shared model of 'understanding their current IT system', voted, and agreed on the final model (Figure 8).

Figure 8: LSP for ODMP workshop (building a shared model) (Source: Authors)

5.1 Findings from observation of action

In summary, at level-1, participants had opportunities to improve their communication, express their thoughts, feelings, and understand each other's opinions through building their models. The observation at this level indicated the following key findings:

- The workshop was an informal but properly managed event for the ODMP;
- The participants had equal opportunities to talk;
- The participants were excited to use LEGO bricks for sharing their thoughts;
- Everyone was actively participating in the workshop;
- All participants had a chance to express their thoughts;
- The participants were talking about the process being different from their previously implemented processes;
- The participants were thinking carefully about building the model as they knew they had to present it, so every time they tried to be better;
- The participants were passionate about knowing about their colleagues' models;

- The participants were learning from each other's use of LEGO for expressing their thoughts;
- The facilitator should have been carefully managing the time;
- The facilitator should have been continuously making sure that the participants are on the decision-making track and preventing participants from deviating from the purpose of the workshop;
- Through the first level of the workshop, the participants became more aware of their own IT systems;
- During the first level of the LSP methodology, the participants became motivated to make a decision about the upgrade.

At level 2 of the LSP methodology, the participants had opportunities to see how their colleagues see the situation differently, which helped them to share their understandings and create a common meaning toward the ODMP. During the second level of the LSP methodology, it was also observed that;

- The participants were talking about the importance of understanding each others' thoughts about the topic and the other models;
- The participation of the members was improved, especially during the storytelling stage;
- The participants were more curious about their colleagues' models;
- Some of the participants said that the flagging stage is stimulating;
- The flagging stage took longer than expected;
- The participants were talking about the decision becoming easier to make;
- The participants believed that their understanding of their current IT system was limited before the workshop;
- Based on a factor discussed during the workshop (understanding the current IT system), the participants could decide: that "they do not need to upgrade their IT system". However, they agreed that the LSP methodology should be implemented for all factors associated with ODMP to make the best decision.

5.2 Findings from the focus group after the implementation of the action

During the focus group, the participants were first asked questions regarding the usefulness and benefits of implementing the LSP methodology for ODMP, and the findings based on the experience of the participants are highlighted as follows:

All participants answered 'Yes' when asked if they realized any benefits of using LSP for ODMP during the workshop. They also indicated the usefulness of LSP in addressing the ODMP challenges. For example, one participant said:

> *'LSP visualizes the process of decision making, so it provides a better environment than traditional meeting setup.'*

Another participant commented:

> *'It was fun! We could make a decision in a different way. We could see how others think about the same topic and it confirms that we are on the same page.'*

One participant also stated that,

> *'LSP is a good prompt for discussion and queries. It's a collaborative work, which highlights the differences and similarities.'*

In addition, when the participants were asked about the challenges of ODMP that can be addressed using LSP, they mentioned many challenges, highlighted in Table. For instance, one participant pointed out that,

> *'Getting input from all stakeholders in a normal ODMP is challenging, so there is a lack of participation in those meetings.'*

Three participants also commented on the engagement challenge in the traditional ODMP and the lack of full attention of stakeholders during the decision-making process. One participant also commented:

> *'In the traditional ODMP, the challenge is that the things can be lost in the context.'*

Another participant said:

‘There might be barriers in a traditional decision-making process. For example, seniority! So, perhaps some people don’t share their thinking because of their seniors being in the meeting, but LSP brings equality, especially when using the equal bricks.’

Moreover, the participants were asked about any issues they may have observed in using LSP for ODMP. In answering this question, a few participants talked about the decision-making team arranged by the same department (IT). Hence, they may think the same. However, some other participants disagreed and commented that although they are from the same department, they can have different opinions as they experienced during the workshop. Also, one participant said:

'The decision making about IT upgrade should be made the IT department staff, anyway. Hence, I don’t think this was an issue.’

Another issue outlined by one participant was insufficient information about using LSP for ODMP had been provided at the beginning of the workshop. Then, the facilitator explained that the workshop's purpose was to provide a situation for participants to experience the benefits of LSP for ODMP themselves instead of explaining them in advance. Nevertheless, the workshop's purpose and aim were explained in the participants' information sheet before the workshop, as well as at the start of the session using a few slides.

Furthermore, when the participants were asked a question about the ways to improve the use of LSP for ODMP, they suggested some key facts for this purpose. For example, some of them stated that the warm-up stage at the start of the workshop should be longer. Another participant commented:

‘The use of more variety of bricks might be useful, so we could build better models’.

The facilitator explained that standard LSP packs were used for the workshop. However, there are bigger packs that can be used for different workshop purposes especially when many groups are involved and when going through the third level of LSP methodology is essential. Also, as explained at the beginning of the workshop, LEGO bricks can mean anything a participant wants.

Table 5 summarizes the findings from the focus group.

Table 5: Focus group findings regarding the challenges and CSFs of ODMP

Topic	Focus Group findings
The challenges of ODMP	- Lack of participation and engagement of participants - Inequality across teams/seniority as a barrier to participation - What was agreed could be forgotten - Notes/minutes are not always read - Lack of attention of the participants - Things can be easily lost in the context - Slow ODMPs - Lack of focus (bringing too many matters to the meeting)
The usefulness of LSP in addressing ODMP challenges	- Visualization of o ODMP o The way that others think - Bringing the stakeholders' thinking on the same page - Extracting various opinions from models/bricks - Creating a narrative for the topics - A model is a mental record - Providing a good prompt for discussion and queries - Enhancing collaborative work - Highlighting differences/similarities - Focus is on the model, not the individual - Making decision-making an interesting activity instead of boring presentation slides - Helps with dry subjects - Documenting the story of a system - Immediate changes to models make it easy to visualise any changes - Helps to understand and meet different expectations/needs

	- More memorable:
	  o Multiple senses
	  o Reinforces memory
	- Stimulating brain, hence the better-quality discussion

The issues that were observed while using LSP for ODMP	The following issues were outlined by a few participants, but the facilitator and the other participants believed that they are not issues and they tried to explain the reason(s): - Lack of too different opinions around the table - Insufficient information about the use of LSP for ODMP at the beginning of the workshop
Potential improvements in using LSP for ODMP	- Providing more variety of LEGO bricks - Longer warm-up activities at the beginning of the workshop - Providing a pointer at the start of the workshop (but we normally say to build a pointer using bricks)

6. A conceptual framework integrating LSP for ODMP

Based on the findings, it is apparent that organizations struggle with making effective decisions despite the many approaches developed and implemented for ODMP. These decision-making challenges are associated with the first two stages of the organizational decision-making steps discussed in section 2.1 and outlined in Table 6.

Table 6: ODMP steps and challenges

Stages	Summary	Challenges
Decision Identification	Establish the need for the decision	Poor-structured problems; lack of a common definition of the problem; inappropriate techniques are utilized for ODMP

Explore Options	Understanding the problem or opportunity presented to formulate options	Decision-makers judgement, intuition, and emotions; environmental constraints hinder making coherent and cohesive decisions; Time restraints, so that thoughtless decisions are made without considering all decision maker's opinions and other imperative elements

There is a need for the people involved in ODMP to understand the stimulus for making that decision. This includes knowing why the decision is made first and its benefits. There also needs to be more mechanisms to allow for skillful interrogation of decision needs, facilitating interactions between decision-makers. The interrogation of decision needs is essential as it will enable consideration of different opinions, interests, cultures, and values, minimize routinised actions, and offer the opportunity to challenge assumptions. Therefore, it is essential to have a strategic approach to facilitate participation from all decision-makers in ODMP.

LSP has been reported to help participants understand the different expectations of decision-makers and essential factors in their perspectives more clearly. The responses from participants in the focus group reinforce these points, as it was found that LSP fosters equality in the decision-making process by enabling participants to communicate more openly in front of their seniors. In addition, the results showed that LSP addresses the lack of participation.

The study findings indicated that integrating LSP as part of the decision-making process allowed the participants to visualize it. It also facilitated the engagement between participants, sharing their thoughts to understand the situation (McCusker, 2020). This was facilitated by the fact the LSP allows for removing the barriers of seniority, which sometimes is common in the traditional decision-making process. The findings indicated that using LSP encourages creativity and reframes the challenges more strategically because of having a shared understanding, thus leveraging on one of the core strengths of

LSP (Hinthorne & Schneider, 2012). Based on the findings, it was apparent that integrating LSP could address some of the challenges associated with organizational decision-making, especially considering the decision-makers opinions and structuring of the problem. This is because LSP, as explained by Blair and Rillo (2016), promotes effective communication using multiple channels: auditory, visual, and kinesthetic.

As a result, a stage 'formulate shared mental model' is proposed, as shown in Figure 9, to integrate LSP as part of the decision-making process. This stage aims to facilitate understanding of the problem, decision requirements, views, and ideas and provide equal opportunity to discuss, express opinion, and agree/disagree during the process. The stage aims to facilitate participants in structuring and having a common definition of the problem that considers the different personal, organizational, and environmental factors. In addition, the paper proposes using LSP as a methodology to formulate a shared mental model as the method encourages participants to explore the issues in depth, resulting in an exchange of experiences and meaning. Cerezo-Narváez et al. (2019) is an effective approach for problem-solving in a group setting, as it helps reduce biases and conflicts in decision-making. Since LSP is a participative and democratic method allowing all participants to think actively, tell a story, and then reflect within a group. Thus, it is a more effective and powerful technique than traditional formats to understand the situation and consider all participants' expectations and requirements.

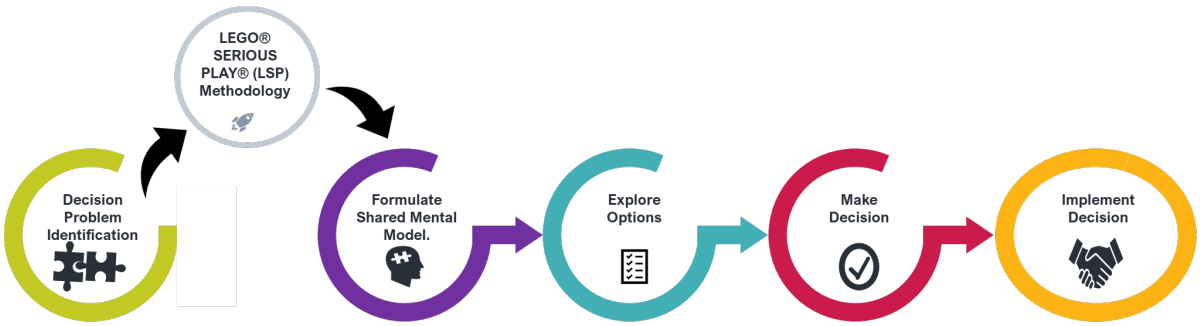

Figure 9: Conceptual ODMP stages with LSP (Source: Authors)

It is recommended to follow the standard core LSP facilitation process described by Blair and Rillo (2016) to integrate LSP as part of ODMP. This means that a facilitator must establish the decision objectives and design the workshop, which involves developing questions and setting challenges for

the workshop. In the workshop, the participants build several models, i.e., individual and shared models, through a sequence of 'build questions' based on the explored problem. The shared model is used to create connection and shared understanding which LSP is essential for effective decision-making (Cerezo-Narváez et al., 2019). Hence, reflecting on LSP's capabilities in addressing the ODMP challenges, it can be suggested that it offers an effective approach to understanding the problem, engaging stakeholders, and exploring the participants' perspectives. These are realized based on the following findings:

- LSP brings the stakeholders' thinking to the same page.
- It provides a good prompt for discussion and collaborative work.
- The focus is on the model, not the individuals.
- It makes it easy to visualize changes and helps to understand and meet different expectations/needs.
- It acts as a stimulant for better-quality discussions.

As with every ODMP model, the inclusion of LSP as part of the decision-making step must be done with care, as LSP can lead to many different opinions around the group. Therefore, it is important to have more detailed information about the decision problem before formulating the mental models.

Hence, this section addressed objectives 4 and 5 of this research.

7. Conclusions

This study investigated challenges in ODMP and examined how an organization addressed these challenges. Findings from literature analysis and interviews (4.1 and 4.2) addressed this purpose. Additionally, the study assessed how the LSP method supported overcoming these challenges and facilitating decision-making. A novel ODMP methodology utilizing LSP capabilities was developed, as shown in Figure 9, highlighting the usefulness of LSP for ODMP facilitation.

LSP promotes the co-creation of innovative shared models, facilitating the development of new knowledge through a common understanding. It encourages diverse perspectives and prevents the stifling of creativity by incorporating stakeholder requirements. The application of LSP has been found

to empower participants in idea-sharing, relieving the pressures of formal meetings. Its effectiveness has been demonstrated in empirical settings.

This study demonstrates the effectiveness of LSP for ODMP through action research and a case study. The article highlights how LSP addresses challenges such as lack of engagement, poorly structured decision problems, and hindrances caused by personal judgement. In business settings, challenges like inequality across teams, forgetting meeting agreements, and lack of participant attention were identified and addressed using LSP. The interview findings from workshops supported the challenges reported in the literature, indicating that decision-makers often lack a common understanding of the problem and may even be unaware of it. Thus, LSP helps decision-makers identify appropriate actions to tackle specific ODMP challenges.

Adopting LSP for ODMP resulted in increased participation, individual ownership, and a shared understanding of the decision problem. This approach provided equal opportunities for participants to freely communicate and feel more involved, fostering better-quality discussions and collaboration. The use of individual models within shared models facilitated the process. Although the workshop focused on IT system upgrades, participants recognized the potential for LSP in other ODMP decisions. The LSP facilitation process, integrated into the conceptual framework, enhances the exploration of decision problems and expedites consensus-building compared to traditional slow decision-making in ODMP.

Future research should explore the usefulness of LSP in ODMP in other business settings to assess the generalizability, impact and inferences that can be drawn from the results reported in this article.

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