

Marnewick, Carl; Romero-Torres, Alejandro; Delisle, Julie

## Article

# Rich pictures as a research method in project management: A way to engage practitioners

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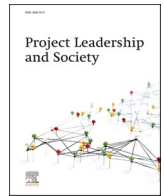
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Empirical Research Paper

# Rich pictures as a research method in project management – A way to engage practitioners

Carl Marnewick<sup>a,\*</sup>, Alejandro Romero-Torres<sup>b</sup>, Julie Delisle<sup>b</sup>

<sup>a</sup> University of Johannesburg, Applied Information System, South Africa

<sup>b</sup> Université du Québec à Montréal, Canada

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## ABSTRACT

Project management needs a greater variety of research methods that go beyond case studies, interviews, surveys, and so on. We claim that soft systems methodology (SSM) has underdeveloped potential to contribute to developing project management knowledge. In this paper, we propose to mobilise this original research method (SSM) to shed light on the topic of product and project management integration – an emerging matter that is a source of tensions in practice, given that they rely on different logics. This study aimed to illustrate how rich pictures can elucidate concepts for clarification. This was done through a workshop consisting of practitioners involved in product and project management. The results from this study highlight that SSM can be used as an alternative to interviews and surveys to conceptualise a ‘messy’ situation. We highlight some benefits of the method, such as participant engagement and sense of ownership, and the outcome (visual artefact) can be used afterwards for feedback and communication.

## 1. Introduction

A picture is worth a thousand words. This adage conveys the message that a single picture can convey complex and sometimes multiple ideas. Just think about the usage of emojis in text messages to convey feelings or bring messages across. The purpose of this article is to articulate how rich pictures, as part of soft systems methodology (SSM), can be used to uncover and master complex concepts (Pandey et al., 2019). We do so by exploring a topic experienced as a ‘messy’ situation by practitioners, that of the complexities around product management and project management and how these concepts are integrated in digital and agile projects to co-create value and sustain it.

There are various research methods to uncover facts around a research problem. The research method is typically informed by the philosophical stance and the approach (qualitative, quantitative or mixed) that the researcher wants to follow. Within the project management domain, research methods include case studies (Sergeeva and Winch, 2021; Sergeeva and Kapetanaki, 2022), interviews (Morkan et al., 2023; Maylor et al., 2023; Wiewiora and O’Connor, 2022) and surveys (Zheng et al., 2021; Rezvani et al., 2018; Liu et al., 2018), to name but a few. Few new research methods are introduced to elucidate the results of the research conducted by project management

practitioners and academia. Scales et al. (2015) investigated this phenomenon and reflected on other studies focusing on the same phenomenon. They concluded that a “methodological inertia [exists] in the majority of research” (Scales et al., 2015). This lack of new research methods creates a level of staleness where the results can almost be predicted based on the research method. For example, researchers doing surveys, in most instances, end up doing model testing through exploratory factor analysis and confirmatory factor analysis.

Case studies (Prakash et al., 2023; Mahalingam, 2022) and surveys (Zhang et al., 2022; Princes and Said, 2022) are typically used to uncover complexities around a specific topic. Although these methods “do the job”, they do not engage participants actively in the research process. They are merely reporting on a phenomenon and are not necessarily part of the solution. New and innovative research methods are required to introduce new energy into project management research. One such innovative research method is soft systems methodology (SSM) (Checkland, 2000; Checkland and Winter 2006). This method has been used in previous project management research, for example by Walker and Steinfors (2013) who focus on complex aid reconstruction development projects, as well as Sankaran et al. (2009) who analyse how to manage organisational change. SSM captures the nuances of a situation, where human emotional factors can easily be ignored. Some of the

\* Corresponding author.

E-mail addresses: [cmarnewick@uj.ac.za](mailto:cmarnewick@uj.ac.za) (C. Marnewick), [romero-torres.alejandro@uqam.ca](mailto:romero-torres.alejandro@uqam.ca) (A. Romero-Torres), [delisle.julie@uqam.ca](mailto:delisle.julie@uqam.ca) (J. Delisle).

nuances captured by SSM are “messy” situations (Checkland, 2000) where the problem source is obscure, hidden and difficult to discern; “wicked” problems (Hancock, 2010) where there is no optimum solution and “the devil and the deep blue sea” solution (Hancock, 2010) where any potential solution may raise other issues.

SSM typically consists of seven stages (Checkland and Winter 2006): (i) identify research context: unstructured problem, (ii) represent cause-effect confusions by rich pictures, (iii) make sense developing a root definition, (iv) develop conceptual high-level model ideals, (v) compare the model to the context – ideals, (vi) prioritise ideals and define an action plan and (vii) implement actions. The focus of this study was on the first two stages to illustrate how rich pictures can be used as a research method in project management.

Within the information systems domain, the usage of agile as a mindset, and through specific frameworks, to deliver projects introduced some new challenges for organisations. One of these challenges is the blurred lines between project and product. Project managers in engineering and construction use a project to deliver a product and this once-off product is then operationalised and used by customers. Typical examples are bridges, roads or buildings. There is thus a distinct separation between the project and the product. Within an IT environment, agile methods such as Scrum (Moe et al., 2010) are used to deliver a minimum viable product as soon as possible and subsequent enhances to the product are done on a continuous basis through sprints (Sońta-Drączkowska and Mrożewski, 2020). Technically speaking, the product is never finished and the line between project and product management thus becomes blurred or messy. SSM is a research method that can be used to address this messiness. The focus of this article is to highlight how the first two phases of SSM, and particularly rich pictures as a research method, can be used to create a better understanding of the relationship between product and project management when digital products are created using an agile project management approach. The relationship between product and project management typically creates tensions as will be illustrated later.

The results from this study highlight that SSM can be used as an alternative to interviews and surveys to conceptualise a messy situation. Participants also are more engaged in the process as they engage with each other in creating rich pictures or illustrations. This participation creates a sense of ownership for the participants. Another benefit is the artefact itself, which can be communicated to the participants for their feedback and diffusion for external stakeholders. Although this method was proposed some time ago, its potential has been underdeveloped. This paper contributes to highlighting its potential for the field of project management and provides researchers with insight into its use.

The paper is structured as follows: The literature review focuses on product and project management, research methods typically used in project management research and lastly on SSM. The literature review is followed by an in-depth description of the application of SSM’s first two stages in addressing the research problem. The article concludes with a discussion on rich pictures to clear up messiness around a topic pertaining to project management.

## 2. Literature review

A research method is a systematic and organised approach used to conduct investigations, gather data and analyse information in a structured and rigorous manner (Mandard, 2022). These methods are crucial in shaping the research process, ensuring the reliability and validity of the findings and guiding researchers in their pursuit of knowledge. Research methods cover a wide spectrum of techniques and procedures, and their selection depends on the nature of the research question, the goals of the study and available resources. Research methods can be quantitative (Khoza and Marnewick, 2023), which involves the collection and analysis of numerical data, and can encompass surveys, experiments and statistical analysis. Qualitative methods (Delisle, 2020), on the other hand, focus on exploring non-numerical data and often

include techniques such as interviews, focus groups and content analysis.

Project management literature is inundated with various research methods. These research methods include case studies (Sergeeva and Winch, 2021; Sergeeva and Kapetanaki, 2022), interviews (Morkan et al., 2023; Maylor et al., 2023; Wiewiora and O’Connor, 2022) and surveys (Zheng et al., 2021; Rezvani et al., 2018; Liu et al., 2018), to name but a few. Few new research methods are introduced to elucidate the results of the research conducted by project management practitioners and academia. New and forgotten research methods include design science (Mikkelsen et al., 2021), ethnography (Darling and Whitty, 2021), Q-methodology (Marnewick and Marnewick, 2021; Silvius and Schipper, 2020) and SSM (Walker and Steinfors, 2013; Sankaran et al., 2009). This lack of new research methods creates a level of staleness where the results can almost be predicted based on the research method. For example, researchers doing surveys, in most instances, end up doing model testing through exploratory factor analysis and confirmatory factor analysis. In this paper, we propose to mobilise a forgotten research method (SSM) to shed light on the topic of product and project management integration – an emerging matter that is a source of tensions in practice, defined here as “persistent contradiction between interdependent elements” (Schad et al., 2016), given that they rely on different logics. As both project and product management are used simultaneously in organisations, they may bring tensions related to all the four key types of tensions proposed by Smith and Lewis (2011): performing (e.g. between multiple and competing goals), organizing (e.g. between competing designs and processes to achieve the goals), belonging (e.g. between competing values and roles) and learning (e.g. brought by innovation and change). As plurality, change and scarcity render tensions more salient, and as an acceptance strategy of working through paradoxical tensions is required to avoid vicious cycles (Smith and Lewis, 2011), SSM appears as an adequate method to move forward this conundrum. The next section provides some insight into popular research methods used by academia within the discipline of project management.

### 2.1. Research methods in project management

A total of 634 articles were analysed from the following journals: *International Journal of Project Management* (IJPM), *Project Leadership and Society* (PLS), *Project Management Journal* (PMJ) and the *International Journal of Managing Projects in Business* (IJMPiB). These four journals focus specifically on project management, and top scholars and researchers publish in these journals. The analysis focused on the types of research methods used by the authors. The analysis was done from 2020 up to 2023.

- IJPM: All issues since 2020 up to issue 4 of 2023.
- PMJ: All issues since 2020 up to issue 4 of 2023.
- IJMPiB: All issues since 2020 up to issue 3 of 2023.
- PLS: All issues since 2020 up to September 2023.

Fig. 1 presents an overview of the most popular research methods.

The most popular research methods were surveys, case studies and interviews. This equates to 64% of the published articles. Articles on theoretical models, frameworks or similar were grouped together under *Models/Frameworks*. The Other category covers research methods that were used once or twice, such as SSM, text mining and observations. Where multiple research methods were used, the first applied research method was considered in the analysis. SSM as a research method was used only twice during the period of analysis: once in 2022 (De Melo et al., 2022) and once in 2023 (Prakash et al., 2023). In both these instances, the focus was on understanding the messy situation around the stated research problem.



Fig. 1. Most popular research methods.

2.2. Soft systems methodology (SSM)

SSM was developed by Peter Checkland during the 1970s (Checkland and Scholes, 1990; Checkland, 1972). It is used primarily to address complex, unstructured and ill-defined problem situations that involve human interactions and social systems (Liu et al., 2012). SSM focuses on an interpretive perspective of social settings where complexity is a given factor (Lane and Oliva, 1998). Unlike more traditional methodologies that focus on objective analysis, SSM starts by delimiting the problem situation before addressing the problem in depth by understanding and addressing the subjective perceptions, beliefs and experiences of individuals within a social context of a specific problem (Mingers and Rosenhead, 2004).

When researchers use SSM, they need to keep two important considerations in mind.

1. There is no unique definition of the problem (Liu et al., 2012). Different opinions will exist, and this conundrum is called “*weltanschauung*” (worldview) (Checkland, 2000). Using *weltanschauung*, researchers can explore and learn about ill-structured problems or what is called ‘messy’ situations.
2. Models derived or built are not an attempt to describe the real world and these models are also not normative models. *Weltanschauung* forces multiple models, and these models are then used to explore different perspectives of the problem at hand.

SSM consists of seven stages, as illustrated in Fig. 2. It typically starts with the ‘finding out’ stages (1 & 2) where the situation is described (Neves et al., 2009). It addresses two main concerns: one associated with the real world and the other focused on the system’s world in a systemic perspective. This is indicated by the line that separates stages 1, 2, 5, 6 and 7 from stages 3 and 4.

The aim of stages 1 and 2 is to identify the real-world situation that is considered problematic. This can be a complex or ambiguous problem. Relevant stakeholders are engaged with to understand their perspectives (*weltanschauung*) of the problem and to gather information about the situation. The description of the situation aims at making a diagnosis of the existing situation and identifying the participants and the problem nature. The most common strategy is the graphical representation of the problem. This graphical representation, called “rich picture”, includes all stakeholders and their relationships to offer a broad view of the problem. Using rich pictures to indicate the many elements in any

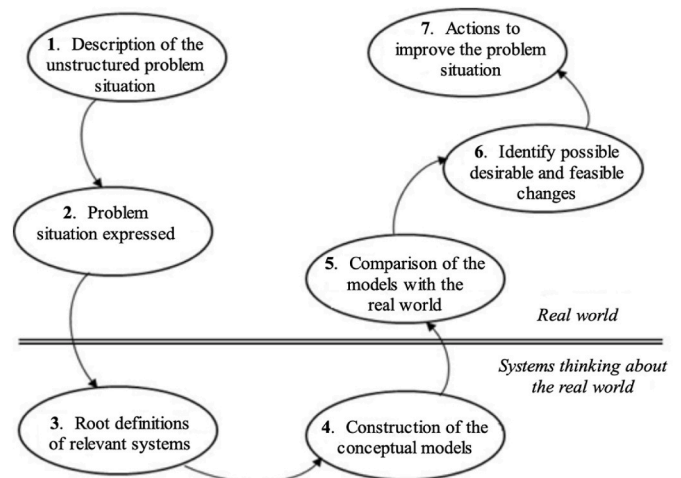


Fig. 2. SSM process (Neves et al., 2009).

human situation is something which has characterised SSM from the start (Checkland, 2000). Checkland (2000) asserts that the creation of rich pictures comes naturally for some people, whereas others find it challenging.

The conceptual models are built during stages 3 and 4. This implies having a clear definition of the system to be modelled, which is known as root definition. The root definition is created by using the CATWOE framework (Customers, Actors, Transformation, *Weltanschauung*, Owner and Environmental constraints). CATWOE helps to identify key elements of the problem, such as who is affected, what transformations are happening and what constraints or worldviews influence the problem. The root definition provides input for the development of the conceptual model.

Stage 5 compares the conceptual model with the real world. The participation of the stakeholders is of the utmost importance to generate debate on possible changes that desirably may occur to improve the situation. Based on these comparisons, in stage 6 change proposals are identified that will be necessary to introduce in the real system processes and structures. These changes should be both feasible (technically achievable) and desirable (acceptable to stakeholders), and are then implemented in stage 7. The success of the implementation requires

change proposals to be desirable and feasible.

SSM is a cyclical process, and it encourages ongoing learning and adaptation as the problem situation evolves. It emphasises the importance of involving stakeholders throughout the process to ensure that the developed solutions are acceptable and sustainable within the social context.

### 2.3. Rich pictures

Rich pictures are graphical representations that serve as a means of understanding, communicating and exploring the intricacies of a particular situation or problem (Cristancho and Helmich, 2019). Monk and Howard (1998) define a rich picture as a cartoon-like representation that identifies all potential stakeholders, their concerns and some of the structures underlying the work context. They highlight three important components of a rich picture: (i) a structure that covers all the people that will be affected by a new system, (ii) the process focusing on the transformations that occur in the process of the work, (iii) a particular individual's concerns about using the system. Monk and Howard (1998) state that participants should use the language of the people that they are depicting in the rich picture. There is also no right or wrong way to draw a rich picture. Rich pictures include symbols, images, words and diagrams to represent the various elements, relationships and perceptions involved. These visual representations are not limited by rigid structures or predefined formats, allowing for flexibility and creativity in their creation. Bell et al. (2019) caution that rich pictures might be interpreted differently by different stakeholders.

Rich pictures work best within the context of a focus group (2–6 people) that encourages the usage of visual understandings to find creative problems to complex socio-technical systems (Bell et al., 2019). The importance of using rich pictures is to depict the multifaceted aspects of a problem environment and to promote effective communication among stakeholders. The primary function of rich pictures in SSM is to facilitate the process of problem understanding and exploration. By creating a rich picture, individuals or teams can gain a shared understanding of the problem's complexity, helping to uncover hidden assumptions, challenges and conflicts (Cristancho and Helmich, 2019). Rich pictures encourage stakeholders to consider the problem from multiple perspectives and capture different mental models. They are also utilised to share and express what might be difficult to articulate and the vantage point from which people are interpreting the situation (Cristancho and Helmich, 2019).

Benefits associated with rich pictures are that participants are required to slow down and reflect on the story they would like to share. The fact that participants also find it easier to describe their experiences in detail is also highlighted as a benefit (Cristancho and Helmich, 2019). Rich pictures are used to deliberate significant issues which arise during or after participatory drawing of the rich picture (Monk and Howard, 1998). It must be noted that the usefulness of rich pictures expires shortly after this second stage of SSM (Bell et al., 2019; Checkland and Winter 2006). Yet, rich pictures could serve as a reference point throughout the SSM process.

Rich pictures are an integral component of SSM, bridging the gap between complex, real-world problems and practical solutions. They aid in problem understanding, communication and stakeholder engagement, enabling a structured and adaptable approach to problem-solving.

The next section delves into the topic that we have explored through SSM, that of product and project management.

### 2.4. Product and project management

Product management and project management are integrated in digital and agile projects to co-create value and sustain it (Pandey et al., 2019). It must be noted the quantification of value is difficult and is dependent on the stakeholders' perceptions. Product management is considered as a vehicle to define and plan projects throughout the entire

life cycle of the organisation's products. These projects aim to either create the product, improve its performance by adding or updating functionalities and/or decide on its termination. This is observed in digital environments and agile development projects where digital products (software, applications, systems, among others) constantly evolve in function of the environment changes and stakeholders' needs.

A project is typically defined as an undertaking to create a unique product or service. This is done through project management, which is defined by the Project Management Institute (2021) as "the application of knowledge, skills, tools, and techniques to project activities to meet project requirements". The Project Management Institute (2021) defines a product, the outcome of a project, as an artefact that is produced, is quantifiable and can be either an end item in itself or a component item. Another definition is that a product is anything that satisfies a want or need (Demirel and Camcı, 2022; Fricker, 2012).

A product is typically associated with a life cycle and within this life cycle, multiple projects can occur, as illustrated in Fig. 3.

Ebert (2014) states that, irrespective of the business, all companies are in the software business i.e. all companies use some type of software application to manage parts of their operations. Examples include Enterprise Resource (ERP) systems, applications on mobile phones or software to run a vehicle. This is especially applicable to companies in the IT, software or even Fintech industries that are moving from a project-based approach to a digital product-based approach (Demirel and Camcı, 2022). This implies a customer-centricity approach that aligns digital product development with user requirements. The digital product covers the development of the product itself as well as the value proposition.

Product management and project management play pivotal roles in digital product development in guiding the journey from inception to production. These two concepts are distinct yet interdependent, especially when agile methodologies are used. However, they can also bring on tensions, depending on how they fit together, which we aim to explore through SSM.

Product management focuses on creating value for the customers as well as the organisation. As per Demirel and Camcı (2022), product management deals with (i) the development of a new product or (ii) the enhancement or improvement of a product to create value to the organisation and the customer. Ebert (2014) perceives product management as the governance of the business processes around a product's inception to its delivery. As per Ebert (2007), product management is complex as it involves various stakeholders and many responsibilities. The focus of product management is on vision and strategy. In an agile environment, the product owner is responsible for defining the product's vision, objectives and strategy. This often includes defining the product backlog, ensuring that the product team is working on the most valuable items first.

In digital product management, the product owner acts as the voice of the customer. The product owner continuously engages with customers, collecting feedback and prioritising features based on user needs. Agile product management thrives on adaptability and embraces changes throughout the development process, reflecting the iterative nature of agile methodologies.

One of the fundamental distinctions between product management and project management lies in the rhythm, as deliveries are conceived in two different fashions. As per Fig. 3, products can be delivered in a sequential way or in an iterative fashion as illustrated in Fig. 4. In an iterative fashion, project management and product management are intertwined and the lines between the two concepts become blurred.

In digital product development, project management becomes particularly vital because of the iterative nature of the process (Demirel and Camcı, 2022). Agile principles emphasise time-boxed iterations or sprints, during which specific tasks are completed. Project managers work closely with product owners and the development team to plan and manage these iterations. Their role includes resource allocation, task assignment and risk management (Shastri et al., 2021). They ensure that

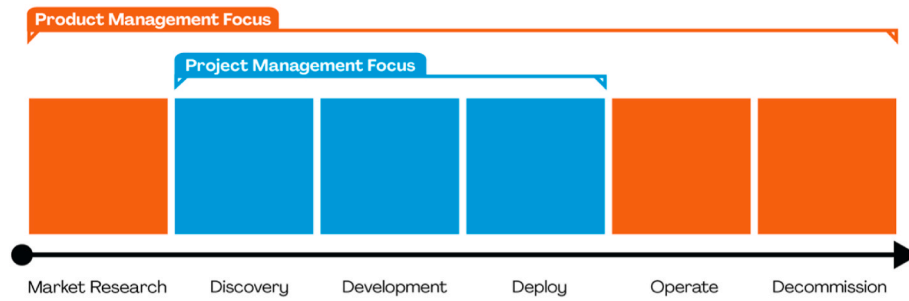


Fig. 3. Product and project life cycle (Project Management Institute, 2023).

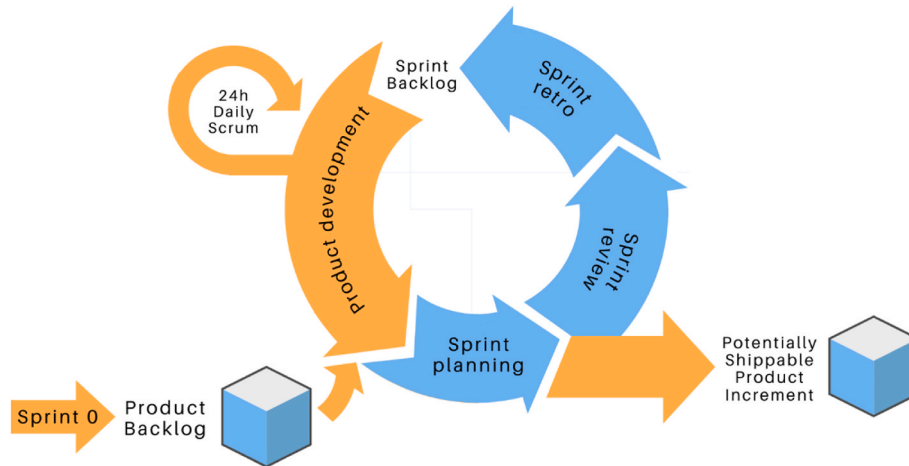


Fig. 4. Product and project life cycle in an agile environment (Bhavsar et al., 2020)

the work aligns with the sprint goals, and impediments are swiftly addressed to maintain the team’s productivity.

While product management sets the long-term direction, project management focuses on the journey to get there. Project managers are responsible for ensuring that the work required to deliver the product is carried out efficiently (Petit and Marnewick, 2023). Project managers emphasise short-term planning and execution, ensuring that the development team remains on track to meet the defined objectives.

Table 1 provides a comparison of the differences between product and project management. It must be noted that this is applicable to a specific project management context i.e. the application of agile project management in digital product development.

In digital product development, the roles of product management and project management are distinct, each with its unique objectives, responsibilities and temporal perspectives. Product management defines the *what* and *why* of the product, emphasising a long-term vision, and

**Table 1**  
Product management versus project management (Ebert, 2007, 2014; Demirel and Camci, 2022).

	Product management	Project management
Focus	Customer value and market alignment	Delivering the product, addressing tasks, resources and schedules
Timeframes	Extended timeframe, considering the entire product life cycle	Shorter, well-defined timeframes, often organised into sprints or iterations
Changes and adaptability	Welcomes change throughout the development process, adapting to evolving customer needs and market conditions	Maintains a more structured approach to deliver projects within established timeframes
Metrics	Customer satisfaction, product adoption and market share	Timelines, budgets and resource utilisation

project management orchestrates the *how* and *when*, focusing on efficient execution in the short term. Although these roles are distinct, Demirel and Camci (2022) identify five skill sets that overlap, i.e. leadership, communication skills, time management, stakeholder management and organisation skills. This overlap of skills is supported by the Project Management Institute (2023), adding collaboration with cross-functional teams as a skill. The Project Management Institute (2023) concludes that there is a 60% overlap between product management and project management. This implies that project managers need to acquire both product and project management skills and competencies. This overlap and subsequent confusion of the roles, responsibilities and skills create tensions.

This overlap between the two roles may introduce confusion and potential tension in an organisation. Are they collaborators to create and manage products or are they competitors for organisational resources? How can they coordinate and integrate their roles and responsibilities? How can organisations better frame product and project management for value creation? This is a complex situation experienced by many practitioners which has not been explored in the scientific literature so far.

The main research question pursued in this paper is therefore: How can rich pictures be used to create a better understanding of the relationship between product and project management when digital products are created using an agile project management approach.” Various research methods are available to answer the research question, including surveys, case studies or interviews; however, in this paper, we propose to build on an original and underexploited methodology, namely SSM of which rich pictures are part of.

### 3. Application of SSM

The purpose of this paper is to illustrate how SSM, and particularly

rich pictures, can be utilised to address a messy situation, for example the confusion surrounding concepts such as product management and project management (and above all, their integration). In this section we introduce SSM as a novel research method to capture the essence of a research problem.

3.1. The process

An exploratory workshop was hosted by PMI Montreal chapter. The workshop was scheduled for 2 h and facilitated by the authors and a graphic facilitator. Graphic facilitation is a form of communication that adds simple visual language to written and verbal language with the aim of promoting exchanges and reflections within a group and converging towards a common understanding (Conte and Davidson, 2020). Purposive sampling was used to select 12 participants from four different organisations. Having four diverse organisations assisted with having a broader perspective (*weltanschauung*). These participants represented four companies that implemented product management practices. The details of the participants are presented in Table 2.

The workshop comprised three stages, i.e. the brainstorm warm-up stage (35 min), the collaborative description of the situation stage (65 min) and the closing stage (15 min). The ideal number of participants mentioned is two to six, which is why we formed subgroups of 3 or 6 in the different activities of the workshop. Subgroups were composed of participants from different organisations to avoid any bias related to the participants' context.

3.1.1. Brainstorm warm-up

- **Generate:** The participants were divided into four groups of three. The following question was posed to the participants: *Product management/project management ... what does it mean to you?* Each participant had to complete as many index cards as possible within a 3-min period. Each index card had to reflect one idea. Fig. 5 illustrates some of the ideas generated by the participants.

3.1.2. Collaborative description

This second part of the workshop consisted of three steps, i.e. schematise, reflect and share. The participants were divided into two groups of six. The schematise step took 30 min, the reflect step 3 min and the share step 15 min.

**Table 2**  
Participant details.

Type	Role	Team for brainstorming	Team for rich pictures
Financial institution (1)	1. Product manager	4	B
	2. Product manager	3	A
Financial institution (2)	3. Director of organisational agility	1	B
	4. Scrum master	3	A
	5. Former portfolio director	4	B
	6. Product director	2	A
Video game institution	7. Lead project and portfolio manager	1	B
	8. Project manager	2	A
	9. PMO manager and coach agile	4	B
	10. Product operations manager	3	A
Municipality	11. Program and portfolio manager	2	A
	12. Agile and continuous improvement director	1	B

1. **Schematise:** The focus of this step was still to determine the connections between product management and project management. The focus was, however, to present these connections using rich pictures. This had to be achieved by describing the situation without providing a solution. The situation had to be described as visually as possible, and a list of issues had to be created. The two final rich pictures are presented in Fig. 7.

- Integration between product and project – they both imply co-existence and collaboration;
- A focus on the customers – how we can deliver more value for them;
- Organisations now have a good maturity to deal with this integration;
- Tensions related to governance, accountability/monitoring and roles/responsibility definition are still very salient;
- Product management is related to an iterative process;
- Project management is still relevant to ensure product delivery;
- Product approach seems to be more human-centred than project management, the latter sometimes being too focused on time-cost-scope;
- Different industries are introducing product management, but all of them face the same challenges;
- Whether information technology and business visions share similar vision and reflections.

- 3 **Share:** The two teams had 15 min to share the rich picture (Fig. 7) and that included some questions and answers.

Based on the research question posed, the graphic illustrator used all the index cards, the concept diagrams and the two final rich pictures to provide a final rich picture. This rich picture was commented on and validated by researchers to validate that it reflected participants' discussion. This is illustrated in Fig. 8.

We propose to highlight the following connections made between product management and project management.

- There is a tension related to time between the two concepts. Product management is long-term focused, whereas project management is short-term focused. This is especially the case where agile is used as the project management approach. This corresponds with the research of Ebert (2014) and Demirel and Camcı (2022).
- Both concepts co-exist and have the potential to collaborate.
- There are transversal needs shared by both concepts and there is a dependency between the two concepts.
- Project management is constraint oriented, which is not necessarily the case with product management.
- As product management has been increasingly applied along with project management in the last few years, organisations have gained in maturity (although important challenges remain).

Although the rich picture clarifies some aspects, there remain various issues that still contribute to the messiness between product management and project management. These issues are as follows.

- There is still some confusion around the definition of a product. This is especially the case where a minimum viable product (MVP) is launched and then enhanced through continuous updates. Participants mentioned that what is considered as being part of the product remains blurred.
- There is complexity regarding the governance around managing teams and organizing teams, especially in large organisations such as the ones that participants represented.
- The way budgets are managed in product versus project management is different. Product budgets tend to be multi-year allocations. Projects are allocated a budget as a once-off exercise. This is a major source of tension, as both are hard to reconcile.

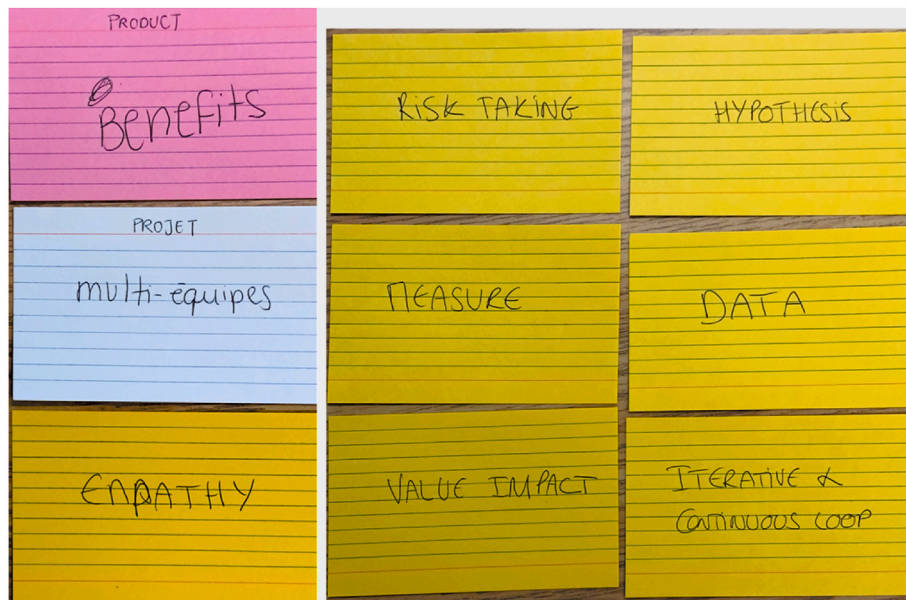


Fig. 5. Examples of index cards.

- **Conceptualise:** The second step of the brainstorm warm-up session focused on the connections between product management and project management. This step took 10 min to complete. Each participant had to draw three index cards, and the group then had to develop a concept from these cards. The concept had to be presented again on an index card. Examples of such concepts are presented in Fig. 6.

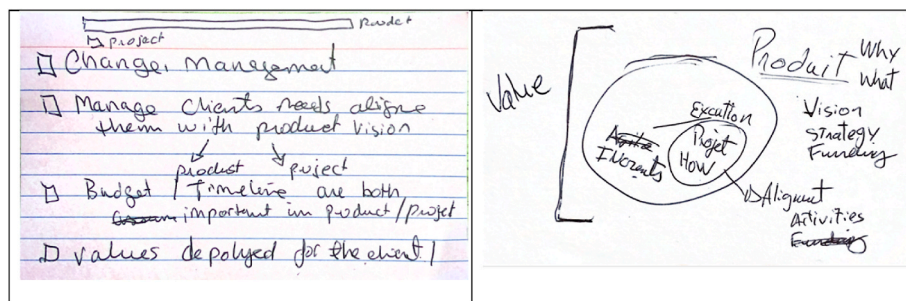


Fig. 6. Concept to present.

- **Share:** The brainstorm warm-up was concluded with a 3-min session where each subgroup presented their concept to the larger group.

- Another bone of contention is the lack of continuity between the delivery of the product and its maintenance. In an agile environment, teams deliver an MVP that is then used, but then also still needs to be maintained. This creates some confusion between the roles and responsibilities of the product team and the project team.
- It is difficult to measure the value of the product. The fact that the participants highlighted this, indicates that further research is still needed in value or benefits realisation.

Although rich pictures created some tidiness, there are still some messes that need to be cleared up. This is typically addressed during stages 3–7 of the SSM process, which will be pursued in the next steps of the research project. Stages one and two highlighted the tensions and messiness between product and project management. Stages three to seven are typically used to explore and create potential solutions i.e. the ‘how’ of solving the identified tensions and messiness. This will be addressed in future research.

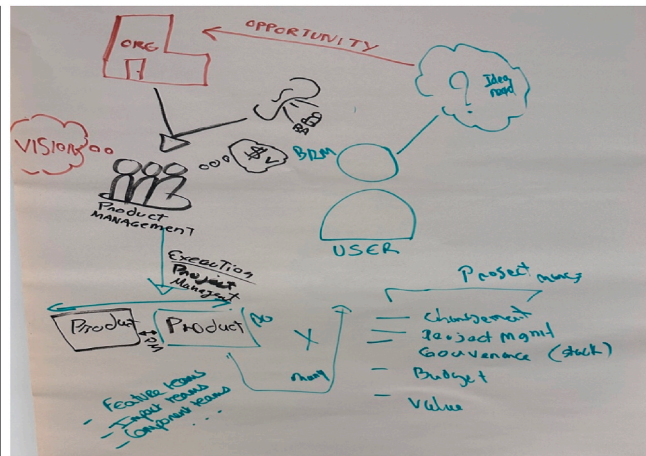
After the workshop, feedback was requested from the participants. They mentioned that they appreciated the topic, as well as the discussions between participants, and would like to participate in other workshops. The two topics that were suggested for future workshops are redundancy between the roles and responsibilities in project

management in a product management context and the challenges of implementing product management.

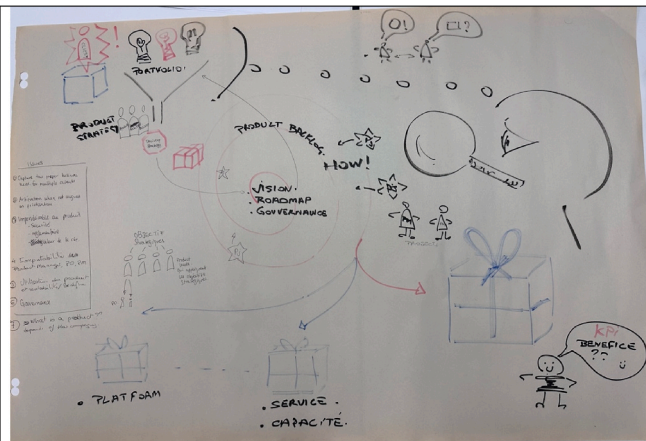
#### 4. Discussion

SSM has been used by various researchers in various disciplines to provide some clarity around a messy problem or situation. The rationale for using SSM is summarised by Lane and Oliva (1998), stating that SSM’s value lies in the systemic nature of the process. Neves et al. (2009) used SSM as an alternative to other mapping-based problem structuring methods. Using rich pictures assisted them in mapping an analysis model instead of traditional mapping tools. This sentiment is supported by Walker and Steinfort (2013) who used SSM to visualise and make sense of a problem. They go further to mention that rich pictures capture the emotions of the participants as well and not just the facts.

The authors’ application of rich pictures to understand the connections between product management and project management supports these views. Because the aim of this paper was to reflect on this methodology, we included personal reflections from the three researchers to provide a richer view of the process. The three personal reflections highlight different yet similar experiences.



Rich picture developed by team A



Rich picture developed by team B

Fig. 7. Final two rich pictures presenting the connections between product management and project management.

2. **Reflect:** Participants had to reflect on what they learned or what surprised them while doing this exercise. Some of the comments are as follows:

Based on these reflections, it seems that there was an eagerness to engage from the participants' side. This eagerness was driven due to the relevance of the topic i.e. the tension between product management and

project management. The results were practice-oriented and the participants could relate to it as that was not some abstract theoretical solution but a practical visual solution.

Through the application of rich pictures and the final consolidated rich picture (Fig. 8), we managed to adhere to two of the three components of a rich picture as per Monk and Howard (1998). The rich picture provides a level of structure as it highlights the differences and similarities between product management and project management. The process of product management and project management is not that well captured. This can be attributed to (i) either the short duration of the workshop or (ii) the inherent messy relationship between product management and project management. The participants managed to highlight some issues which can be used as inputs for future research.

5. Conclusions

In response to the assertion of Ackermann and Alexander (2016) that traditional research methods deployed by project management academia are insufficient to improve the management of projects, we applied rich pictures as a new research method to acquire new insights into new problems introduced by digital or software product development. In our endeavour, we reverted back to a Mode 1 of SSM as highlighted by Sankaran et al. (2009). Novices in SSM use Mode 1 whereas experienced users are attracted to Mode 2 even though it is more challenging. Mode 1 focuses on following the prescribed processes of SSM and Mode 2 focuses on sense-making through a more sophisticated way of using SSM.

This paper makes three key contributions. Firstly, the analysis of methods used in recent publications in project management highlights the need for a greater variety of methods. It proposes soft systems methodology as an original and underutilised approach to enrich project management knowledge, particularly when facing a messy situation. Secondly, it presents a concrete and detailed example of the application of this approach (more specifically the use of rich pictures), which may inspire other researchers in their use of this method. It presents some benefits of this method, along with opportunities for the future. Thirdly, by delving concretely into an actual messy situation (that of the integration of project management and product management), this paper highlights key areas of tension (as the ones related to time, structures, roles and responsibilities) and insights related to this topic, contributing to theoretical and practical knowledge of these matters.

The results from this study highlight that SSM can be used as an alternative to interviews and surveys to conceptualise a 'messy' situation. Participants also are more engaged in the process as they engage with each other in creating illustrations. This participation creates a



Fig. 8. Product management and project management rich picture.

**Researcher 1**

“This was quite a unique experience as I was never involved in SSM and rich pictures. I was intrigued by the notion of how people will draw the pictures. This process was eased by the graphic illustrator. She provided the participants with some icons that can be used in their pictures. An example is the usage of (☺). The participants can use this icon to present a team. This created uniformity in their pictures and is easier for us as researchers to interpret. What was also interesting is how the teams jumped from the index cards (words) to the final pictures. When one analysis the index cards, then there is no or little correlation between the index cards and the final pictures. To me, this is the value of rich pictures. Content analysis of the index cards would not have created this richness. A richer perspective is achieved due to the participants’ involvement in creating the rich pictures. The richness is a result of the ... I agree that content analysis might highlight some themes. One thing that is for sure is that you need a graphic illustrator to facilitate the process. For a left-brain person like me, it would have been difficult to facilitate this workshop.”

**Researcher 2**

“In general, involving practitioners in research is a key element, but involving them to play an active role can represent a challenge since most of the time they don’t have time or knowledge to reflect about research topics. Since this research is exploratory, we aim to identifying the most important concerns perceived by practitioners (here, product manager or people that have collaboration with product management). An SSM approach could be pertinent where the problem is not clear and there is no framework to structure discussion. We gave some freedom to the participants to highlight what is important for them and where they need more support. It’s a first step – here, different research avenues can be considered – either propose action research to collaborate with practitioners or more traditional research where results can contribute to the theory and practice. This approach should be carefully prepared. It’s not simple to ask practitioners to draw a specific situation since either they don’t have the capacity to develop schemas, or they can find that this is not a serious activity. To overcome this challenge, we structure the activity in three different steps and end in the schematisation. Schema analysis also needs to be carefully prepared – focus only on the schema is not enough, discussion about rich pictures need to be transcribed and analysed to have the full pictures. Some new elements can emerge from discussion that is not integrated in the figure.”

**Researcher 3**

“What stroke me the most is the motivation of participants to participate. We were not aiming for a large group, since we wanted to experiment and focus on richness rather than broadness. Getting our target number of participants (12) has been very easy, which contrasts with the challenges that may represent access to the field sometimes. Of course, the interest of participants for the topic is not innocent, but clearly the fact that it was a hands-on activity, really aligned with current issues they are facing also contribute to their high level of interest. Another strong point is the outputs (drawings) that have been generated by participants, which represent an original source of data, allowing us to look at a topic from a different angle than what would be generated by interviews of other classic practices. Finally, a third strong point is the relevance for practice. The reason we opted for this methodology is the fact that the topic represents a messy situation, and illustrations did contribute to making sense of it. As such, it is useful for practitioners, and it also gave us (researchers) key insights to pursue this research, that is just beginning. On the other side, something we could do to improve the richness of the data collected in our future workshop could be to be present in the subgroups to take notes on their process and what is being discussed (and may or may not be represented in the drawings). This would be interesting to also access the development of the outputs created, as much for the content than the process (for example, what is being discussed, but not included, and why? How people make sense together of the topic at hand, and how drawing supports their thinking?).”

sense of ownership for the participants. Another benefit is the artefact itself, which can be communicated to the participants for their feedback and diffusion to external stakeholders. Although this method was proposed some time ago, its potential has been underdeveloped. In addition, as SSM engage practitioners in analysing specific problems and identifying potential solutions, it can be also related to action research approaches where researchers and practitioners collaborate to improve a social or organisational situation. SSM can be considered as a stage or practice to facilitate learning cycles and identify the real problems and causes (Svejvig et al., 2023). This paper contributes to highlighting its potential for the field of project management and provides researchers with insights into its use.

Finally, from practitioner’s viewpoint, these workshops are practical, thought-provoking and reflective sessions. This paper is beneficial to strategy planners, product development, management and facilitators,

and the paper could contribute to the provision of guidance on facilitating such sessions.

**CRedit authorship contribution statement**

**Carl Marnewick:** Writing – original draft, Conceptualization. **Alejandro Romero-Torres:** Writing – review & editing, Methodology. **Julie Delisle:** Writing – review & editing, Methodology.

**Declaration of competing interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

Data will be made available on request.

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