

## How does the role of a Product Owner relate to the role of a Software Product Manager?

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**Abstract:** In the Scrum Guide, the Product Owner (PO) is defined as being accountable for maximizing the value of the product they are responsible for. Thus, a Product Owner shares many responsibilities with a Software Product Manager (SPM), who is defined as a role governing the creation of the highest possible value to the business from the product. Despite the vast popularity of Scrum and other software development methods based on it, the role of a Product Owner has not received much academic research yet. This study contributes to the literature by assessing the similarities and differences between Product Owners and Software Product Managers using exploratory semi-structured interviews with 16 Agile software professionals. The study shows that the concept of product value is not always evident to Product Owners responsible for maximizing it. In addition, we identify five Product Owner Scenarios. Depending on the Product Owner Scenario, Product Owners' responsibilities overlap to a varying degree with Software Product Manager's responsibilities defined in the ISPMA SPM framework. Overall, further work is required to clarify the role and responsibilities of a Product Owner in various types of real-life organisations.

**Keywords:** Product Owner; Software Product Management; Product Owner Scenario

### 1 Introduction

Customers invest in software for a reason. There needs to be a benefit that the customer will receive from the capabilities provided by the software. There are countless opportunities to leverage software for value creation. Assuming a typical, modern software development setting, the responsibility for maximizing the value falls on the shoulders of a nominated *Product Owner* (PO) [SS20]. Considering the ubiquity of software, the decisions made by POs have an impact on modern life in many ways. The PO is also a probable key contributor to the success of many contemporary businesses.

The role of a PO originates from Scrum [Ke19]. The Scrum Guide [SS20] describes the PO as a single person, not a committee, responsible for maximizing the product's value resulting from the Scrum team's work. A blog post by ScrumAlliance explains that the PO is responsible for tactical and strategic product decisions and is typically closely involved with the business side of the organization. At the same time, POs are given specific responsibilities

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to the Scrum team [SS20], which would typically be considered a part of the development organization. The blog post portrays the PO as a connector between product strategy and the development team. The attributes of great POs include being empowered, knowledgeable, empathetic, available, and decisive. The role is unique and challenging.

However, despite the substantial popularity of agile software development methods and Scrum in the scientific community, there is surprisingly little research on POs and product ownership. For instance, as of the end of January 2023, Scopus has indexed only 41 and 58 articles where "*product owner\**" is a part of the title or the keywords (either defined by the authors or the indexing database), respectively. For comparison, a Scopus search with the term "*scrum*" returned 1,220 and 1,978 articles with respective limitations. The number of studies explicitly addressing POs is remarkably low. For example, in a recent bibliographical study conducted in 2021, the authors found merely 142 studies addressing software or digital product management [HSS21].

Nevertheless, the PO is given the strategic responsibility for maximizing the product's value [SS20]. In addition, the PO has specific operational responsibilities to the Scrum team, mainly related to managing the product backlog [SS20]. Combining the two might seem like a lot for one person. While POs are accountable for maximizing the value of the product, Ebert [Eb07] defines *software product management (SPM)* as '*the discipline and role that governs a product from its inception to market/customer delivery to generate the biggest possible value to the business.*' The ISPMA SPM framework [Ki22] provides a structured view of the elements of software product management. The above suggests a potential overlap and conflict between the roles of a PO and a software product manager.

Thus, this study focuses on exploring the potential overlap between the roles and responsibilities of a PO and the elements of software product management, as defined in [Ki22], via two research questions:

**RQ1** How do Product Owners understand value in the context of their products?

**RQ2** How does the role of a software product manager, as defined by the ISPMA SPM framework, relate to that of a Product Owner in Scrum?

To answer the presented questions, this study adopts a qualitative research approach with semi-structured interviews. 16 experienced POs and Agile practitioners were interviewed, yielding 901 minutes of recorded interviews. For the data analysis, the Gioia method [GCH13] was applied. The remainder of the study is structured as follows. Section 2 covers the previous work on the roles of a PO and a software product manager. Section 3 discusses the research approach, and Section 4 the results. The implications of this work, as well as limitations and conclusions, are discussed in Section 5.

## 2 Background

Ken Schwaber and Jeff Sutherland introduced Scrum at an ACM research conference in 1995, implying that its history predates the Agile manifesto. Scrum has evolved significantly between 1995 and the 2020 Scrum Guide [Ve20], which as of 2022, can be considered the authoritative definition by the two co-founders. The Scrum Guide [SS20] introduces Scrum as a *‘lightweight framework that helps people, teams and organizations generate value through adaptive solutions for complex problems’* and states that it is founded on empiricism and lean thinking. Scrum intends to be applicable also outside of software development.

According to the Scrum Guide [SS20], a Scrum team comprises a Scrum Master, developers, and a PO. The Scrum Guide [SS20] describes Scrum teams as cross-functional and self-organizing groups of individuals collaborating to deliver a product. According to the Scrum Guide [SS20], the size of a Scrum team should be less than ten persons, while Verheyen [Ve21] suggests that teams have the highest cohesion when the number of people is between five and seven. Each Scrum team has one and only one PO accountable for maximizing the product’s value [SS20]. However, the provided framework does not give any definition or measure for the value of the product. The PO may represent the needs of several internal and external stakeholders. The PO defines a product goal that serves as a target for the team. Verheyen [Ve20] explains that the product goal should be derived from a longer-term product vision, although the Scrum Guide [SS20] does not mention the product vision. Product goal-related business expectations and ideas, in other words, requirements expressed by the PO, are continuously captured as items in a product backlog. The PO is responsible for creating backlog items, ordering them, and communicating the product backlog to the team. The PO has authority and responsibility over the product backlog. The PO is responsible for ensuring that attendees are prepared to discuss the highest priority backlog items and their relationship with the product goal. The PO also proposes how the sprint could increase the product’s value. Developers discuss with the PO to define a sprint goal and select the backlog items to be implemented in the sprint. The selected backlog items may be broken down into tasks [Su10].

Kittlaus [Ki12] discusses the potential conflicts between the roles of a PO and a Software Product Manager. The Scrum PO is a member of the development team, whereas the ISPMA SPM framework<sup>4</sup> [KF17, Ki22] represents development as one of the seven functional areas of Software Product Management. According to Kittlaus [Ki22], assigning the two roles to the same person is problematic because the operational responsibilities of a PO need to leave more time for the strategic responsibilities of a Software Product Manager. Kittlaus [Ki12] proposes that, in larger organizations, the two roles should be separate but dependent. In small organizations, the two roles may be assigned to the same person, taking care of the responsibilities of a PO as well as all the applicable parts of the ISPMA SPM framework [Ki12].

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<sup>4</sup> International Software Product Management Association (ISPMA) is an organization fostering software product management excellence. ISPMA has published a reference framework for software product management, see <https://ispma.org/bok/>

In academic research, Sverrisdottir et al. [SIJ14] interviewed five POs and found that the roles and responsibilities varied significantly between organizations. Based on a somewhat limited sample of five POs, Sverrisdottir et al. [SIJ14] concluded that the role and the responsibilities are seldom in perfect conformance with the Scrum Guide [SS20]. Bass et al. [Ba18] noted that few studies report how POs perform their role and what the related activities are. Bass et al. [Ba18] interviewed 55 POs and provided a grouping of the activities identified. However, detailed descriptions of the activities were left for further work. According to Bass et al. [Ba18], their research shows that POs perform a wide range of challenging activities requiring authority to influence.

Unger-Windeler et al. [UWKS19] conducted a mapping study to identify, analyze, and categorize existing research literature on the role of a PO. They found a need for additional, profound insights into the relationship between the roles of a PO and a Product Manager. One more takeaway from Unger-Windeler et al. [UWKS19] is that *'No PO role is like the other'*. Pursuing a similar line of thought, a LinkedIn post by Rafael Calovi<sup>5</sup> challenges the reader to find three persons who agree on the best definition of the role of a PO.

### 3 Research Method

This study is exploratory and uses a qualitative approach. We chose a semi-structured interview method to collect data and uncover unexpected perspectives. However, it is worth noting that open-ended questions may produce data that can be challenging to code and analyse [KP02]. The interview instrument consisted of eight parts, specifically formulated to address the research questions of the study. The first three parts introduced the study, interviewee, and the organization represented by the interviewee. The following section assessed conformance to the Scrum Guide [SS20], while the subsequent parts examined the meaning of product value and the potential overlap between the roles of a PO and a Product Manager. Lastly, the interview concluded with two straightforward questions that asked the interviewee to identify the essential skills required for the role and any challenges they may face.

The interviews were conducted during the summer and autumn of 2022. All interviews were conducted one-on-one using Microsoft Teams video conferencing. Participants could choose to have the interview in English or Finnish. The objective of the interviews was to yield a sample that would bring out new insights into the role of a PO. The selection criteria for the participants were defined accordingly. Initially, the premise was that the participants of the study would be currently or previously working as POs. Candidates with at least five years of experience working in the software industry were preferred in the selection process. The intention was to select candidates representing different types of software development organizations, each with its own development processes. Interviewees from organizations that did not use Scrum were seen to add variety to the sample.

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<sup>5</sup> Calovi, R., 2021. Safe is too prescriptive. [Online]. Available: <https://www.linkedin.com/pulse/safe-too-prescriptive-rafael-calovi/>

Tab. 1: The interviewees with their respective organizations and the length of the interview records in minutes.

#	Org.	Len.	Summary
1	A	56'	Nearly 30 years of experience in the software industry, two years in the role of a PO
2	A	61'	The youngest professional among the participants with one year of experience in the software industry, recently taken over the role of a PO
3	A	80'	Approximately 20 years of professional experience in the software industry, four years in the role of a PO
4	A	47'	Approximately 20 years of professional experience, three to four years in the role of a PO
5	B	60'	More than 10 years of experience in the software industry, two years in the role of a PO
6	C	65'	Assumed the role of a PO during a period of five and half years
7	D	56'	Experienced Agile practitioner, never worked as a PO. Nevertheless, capable of explaining how the role and the related responsibilities were defined in the organization
8	B	52'	Various roles in the software industry, three years in the role of a PO
9	E	54'	Background in both industry and academia, three and half years of experience in the role of a PO
10	F	52'	Several years of experience working in the PO and Product Manager type of positions
11	G	43'	PO on a mission to develop business analytics for the organization
12	H	51'	Background working as an Agile Consultant and a PO, currently working as a consultant specializing in due diligence
13	I	44'	Long background in the software development industry, currently working as a PO
14	J	75'	Various positions in information technology including PO responsibilities
15	D	45'	PO based in Sweden
16	K	59'	Various PO and Product Management positions

The interviewed POs were initially recruited from personal networks. The sample was expanded throughout the interview process by asking interviewees to refer to other POs whom they knew. This kind of sampling technique is known as snowball sampling [Go61] or chain referral sampling. However, because people are likely to know and provide referrals to other people with similar traits, the reliance on personal networks may introduce sampling bias. The resulting sample is non-statistical and not necessarily representative of the whole population of professionals identifying themselves as POs. Conceptually, with a non-statistical sample, findings cannot be generalized back to the population. Therefore, any of the results must be considered exploratory and not conclusive, in line with its objectives.

The plan was to continue the interview and participant recruitment process until patterns or repetitions arose. A total of 16 experts were interviewed for the study (see Table 1). All except for one of the interviewees were currently or previously working as POs. Nevertheless, this person was capable of explaining how the role and its related responsibilities were defined in the organization. All but one of the interviewees met the criteria for having at least five years of experience in the software industry. The sample includes participants representing smaller companies as well as some of the largest technology companies in the world. While most of the participants worked in the software product business, some worked in the software service business. It's worth noting that the sample includes participants from organizations using the job title 'Product Manager' instead of 'Product Owner'.

The organizations represented by the interviewees are briefly described in Table 2, along with a brief description of the industry in which they operate. Some of the organizations are part of large, multinational companies. The roles and responsibilities of a PO may vary from

Tab. 2: Summary of the Organisations

#	Company Sector	Identified Product Owner Scenario
A	Communications industry	SAFe-like Organisation
B	Software service and product company	Compact Organisation
C	Medical technology	Separate Product Management
D	Insurance sector, respondents from Finland and Sweden	Internal Customer
E	Software products for the medical sector	SAFe-like Organisation
F	Online advertisement	Internet Company
G	Forest industry	Internal Customer
H	Management consultancy	–
I	Medical technology	Separate Product Management
J	Online retail	Internet Company
K	Prominent technology company	Internet Company

one part of the organization to another, implying that the experiences of the respondents are not necessarily generalizable to the entire organization. To maintain anonymity, no further information on the respondents or the organizations is not disclosed.

The recorded audio was transcribed by a professional transcription company using naturalized transcription, also referred to as ‘intelligent verbatim’ transcription, which aims to follow the conventions of written language [Bu00], ignoring the characteristics of spoken languages, such as repetition, filled pauses, and grammatical errors. As a result, 901 minutes of recorded audio were transcribed to about 100,000 words and 137 pages of text. The transcribed text was anonymized to ensure that the respondents or their employers could not be identified. QSR International’s NVivo software was used as the tool for conducting qualitative data analysis. The coding of the interview data was guided by the Gioia method [GCH13], which is a widely accepted approach for qualitative data analysis. The method allows for inductive concept creation while maintaining ‘*qualitative rigour*’ [GCH13]. The analysis process was iterative in nature. Along the process, concepts emerge from the data, and the process results in a three-layer abstraction hierarchy. While reading the interview transcriptions, codes for first-order categories were developed to mark parts of the text that were interpreted to convey a common message. First-order categories were grouped into more abstract second-order themes. Second-order themes were mapped to even more abstract codes referred to as overarching dimensions.

## 4 Results

### Product Owner Scenarios

The roles and responsibilities of Product Owners can vary depending on the organizational structure to which they belong. Unger-Windeler et al. [UWKS19] concluded their mapping study as follows: ‘*We hypothesize that the description of the Product Owners environment – especially in terms of organizational structure and the collaboration with traditional management roles – will make a difference in the description of this role.*’ The results of this study support their hypothesis, as five distinct Product Owner Scenarios emerged from the

interview data and analysis. These scenarios are primarily characterized by organizational structure and business model. Table 2<sup>6</sup> shows the mapping between organizations and their respective Product Owner Scenarios. The five identified Product Owner Scenarios are:

**Internal Customer.** Product Owners are typically members of software development teams responsible for creating software, such as business analytics, for internal use within an organization. In the Internal Customer scenario, the PO's role is primarily focused on meeting the internal customer's needs and requirements for the software. This scenario generally limits the commercial aspects of the role. However, the PO may also be involved in tasks such as internal invoicing, product marketing within the organization, and potentially even sourcing.

**Compact Organisation.** In the Compact Organisation scenario, Product Owners are often perceived as versatile 'jack-of-all-trades' individuals who assume many of the responsibilities traditionally associated with software product management. While some aspects of product strategy may be handled by higher-level personnel within the company, several respondents representing Compact Organisations noted that Product Owners still manage a heavy workload.

**Separate Product Management.** In the Separate Product Management scenario, the Product Owner is a member of a development team who interfaces with a separate product management function, which is typically located outside of the development organization. In this scenario, the PO is responsible for product planning related to the software component of the product.

**SAFe-like Organisation.** SAFe-like Organisations can be considered a special case of the Separate Product Management scenario. In the interviews, the POs representing SAFe-like Organisations were generally technically oriented, with a focus on requirements engineering. One distinguishing characteristic of these organizations is that the longer-term product roadmap is controlled by the product management function rather than the PO. While the respondents affiliated with this scenario noted that their organizations did not claim full compliance with the SAFe framework, they were clearly influenced by it. As such, the name 'SAFe-like' was used to describe this scenario.

**Internet Company.** In the Internet Company scenario, the organizations conduct most of their business and interact with customers online, and some may use the SaaS business model. In this scenario, the interviewees representing the organization were referred to as product managers rather than Product Owners. Unlike in the Separate Product Management and SAFe-like Organisation scenarios, the product managers were members of development teams responsible for specific product functionalities. The development teams worked relatively independently of each other, but coordination between product managers from different teams was still required. Each team and product manager had specific contributions to the organization's business objectives, and the development teams had autonomy in defining their own ways of working.

<sup>6</sup> Respondent 12 shared experiences from various organizations instead of focusing on Organisation H. Thus, Organisation H is not explicitly dealt with in this study and is not assigned to any Product Owner Scenario.

### **RQ1: Value in the context of PO's products**

The study aimed to challenge the respondents' understanding of the meaning of value. Respondent 7, representing the Internal Customer scenario, noted that since the purpose of the product was to automate a process, the product would not provide user value to any individual. Instead, the product would provide business value to the organization and be measured in terms of cost savings rather than revenue generation. In contrast, the POs in the Compact Organisation scenario focused on the economic success of the product from the vendor's perspective. They tracked sales revenue and product development costs, indicating that they took responsibility for the profitability of the product.

'Since I come from a sales background, the revenue brought in is what matters to me. Are customers willing to pay for the product, how is it priced, and is the business around the product profitable... And, of course, I have been contemplating the value for the customers.

— Respondent 8 representing a Compact Organisation

Respondents 6 and 13, representing the Separate Product Management scenario, associated user value with the economic success of the product. Respondent 6 explained that the product needs to be user-friendly to build lasting relationships with customers, highlighting the importance of user value. Overall, the interviewed POs primarily approached product value from the perspective of the user. The cross-tabulation of the data revealed that user-centeredness was particularly prevalent in SAFe-like organizations. Notably, the POs in these organizations did not refer to any monetary indicators of the product value.

Two of the interviewees associated technical debt with product value. Technical debt can manifest itself as quality issues, delayed deliveries, and increased costs, indirectly affecting customers and users. Interviewees suggested that when ordering the product backlog, the POs should consider the need for refactoring. The organizations in the Internet Company scenario stood out from the rest in quantifying product value. The decision-making of the POs in these organizations was guided by product metrics and objectives. Through product analytics, they appeared capable of establishing a strong link between user value and the financial performance of the product.

To conclude, the results highlight the context-dependent nature of value. All interviewees presented user-centered viewpoints, reflecting the Scrum Guide [SS20] and the principles of Agile that emphasize customer satisfaction. In the Internal Customer scenario, the business case of the product was based on cost saving rather than revenue generation. The POs in the SAFe-like Organisation scenario did not refer to any financial indicators of the product value. On the other end of the spectrum, the most business-oriented POs were observed in the Compact Organisation scenario and in the Internet Company scenario. The organizations in the Internet Company scenario were advanced in using quantifiable data to measure product value and POs' success in maximizing it.



**RQ2: How does the Product Owner role relate to the role of a Product Manager?**

RQ2 outlines the intersection between the role of a PO and the role of a Product Manager as defined by the ISPMA SPM framework. The interview questions and the coding of the data for RQ2 draw inspiration from the ISPMA SPM framework. According to Kittlaus [Ki22], the framework provides a holistic view of software product management activities.

When comparing the accountabilities of a PO defined in the Scrum Guide [SS20] to the range of activities included in the ISPMA SPM framework, the latter is remarkably wider. The PO responsibilities defined in the Scrum Guide [SS20] are mainly related to development, which is only one of the seven areas covered by the ISPMA SPM framework. In contrast, the ISPMA SPM framework indicates that Software Product Managers are directly accountable for product strategy and planning, and they either participate in or coordinate the other activities included in the framework. However, the Scrum Guide [SS20] also assigns the PO with the all-encompassing responsibility of maximizing the product's value.

Cross-tabulation showed differences between PO scenarios and their relationship to the surrounding organization. In the Internal Customer scenario, it is assumed that the product is developed for internal use within the organization. The responsibilities related to the business leadership of the product are limited. For example, marketing may be limited to the internal promotion of the product, whereas sales and fulfillment may be limited to the definition of internal Service Level Agreements (SLAs). However, as in any other scenario, the Internal Customer scenario requires the PO to understand user needs, steer development, and communicate the value of the product. The interviewed POs in the Internal Customer scenario were involved in some of these activities, with respondents 11 and 15 being not only involved in but responsible for product planning.

The interviewees in the Compact Organisation scenario are Product Managers as defined by the ISPMA SPM framework, who additionally take on the role of a PO in development teams. As Product Managers, they are responsible for or participate in, the wide range of activities defined by the ISPMA SPM framework. Respondent 5 explained the practice of organizing 'roadmap meetings' for product strategy and product planning-related decision-making. The roadmap meetings also ensured that the resulting decisions were adequately communicated within the organization. In general, Respondents 5 and 8 indicated active involvement in product strategy, product planning, marketing, sales, and fulfillment, as well as delivery services and support, typically in collaboration with other stakeholders of the organization.

The Separate Product Management scenario and the SAFe-like Organisation scenario have many similarities. In both scenarios, POs are part of development teams and interface with a separate Product Management function. POs in these scenarios are primarily responsible for development activities, with a focus on requirements engineering. Meanwhile, product managers are responsible for product strategy and planning, and they take on the business leadership of the product. According to the ISPMA SPM framework, product management 'orchestrates' product marketing, sales, and fulfillment, as well as delivery services and support. In the Separate Product Management scenario and in the SAFe-like Organisation

scenario, the POs participate in related activities as technical experts, but they do not orchestrate or coordinate them. However, the Separate Product Management and SAFe-like Organisation scenarios are not the same. In SAFe, POs take input from the program backlog defined by the product management. In comparison, Respondent 13, representing the Separate Product Management scenario, had a greater degree of autonomy in defining the product roadmap, practically excluding the hardware components of the product.

In the Internet Company scenario, the respondents see themselves as product managers, but they also have a close relationship with the development teams. Respondent 10 is part of a development team, whereas Respondents 14 and 16 hold senior product manager roles and lead initiatives that involve multiple development teams. These teams are organized around business areas, and it's worth noting that the product created by a development team may only be a part of the overall product offered to the market. Consequently, the product created by a development team may differ from what the market perceives as a specific product.

Product managers in the Internet Company scenario are empowered within their teams and business areas. They have clear business objectives to meet. Nevertheless, Respondent 10 explained that many of the aspects of product strategy are defined higher up in the organization. These aspects of product strategy, such as pricing, are broader than the business area of the team, implying that the representatives of this Product Owner Scenario only need to address some of the activities defined in the ISPMA SPM framework. The Product Manager is only responsible for some of the things that would be required for an individually branded, stand-alone product.

To summarise the results of RQ2, there were significant differences in how POs relate to the surrounding organization. In addition to being POs in development teams, the interviewees representing the Compact Organisation scenario generally fulfill the role of a Software Product Manager as defined by the ISPMA SPM framework. In the SAFe-like Organisation scenario, the PO takes a sharp focus on development. In the Internet Company scenario, development teams have been organized around business areas, allowing each of the development teams to have a Product Manager with meaningful business objectives. Nevertheless, different teams contribute to the overall offering of the company.

It is possible that Internet Companies chose to position Product Managers within development teams in order to emphasize the importance of their role in driving product development and ensuring that the final product meets the needs of the business. By naming the role 'Product Manager', these companies may have sought to highlight the business leadership aspects of the role, indicating that the Product Manager is responsible not only for overseeing the technical aspects of product development but also for ensuring that the product aligns with the overall business strategy and goals.

Based on the study, the Product Owner is primarily a technical role within software development organizations. However, in the Compact Organisations scenario, the interviewed Product Managers also assumed the role of PO in development teams, similar to the Internet

Tab. 3: Summary of RQ2 results

Product Owner Scenario	Relation of Product Owner role to SPM framework
Internal Customer	The ISPMA SPM framework is only partially applicable in this scenario.
Compact Organisation	The POs assumed the role of a Product Manager as defined in the ISPMA SPM framework.
Separate Product Management SAFe-like Organisation	The POs focused on the development area of the ISPMA SPM framework.
Internet Company	The respondents assumed the role of a Product Manager as defined in the ISPMA SPM framework, although there may be several development teams and Product Managers contributing to the market offering.

Companies scenario. These scenarios were the only ones where the interviewees assumed ISPMA SPM framework-like responsibilities. Table 3 summarises the results of RQ2.

## 5 Summary

The key observations of this research are summarised as follows:

**Firstly**, if the parties involved in a discussion do not agree on the definition of product value, it is nearly meaningless to talk about maximising it. This paper argues that careless use of the term product value might create a false sense of professionalism that does not exist. Every now and then, the PO should take a step back and think strategically about where the value of the product is and whether there is a way to measure it.

Value is co-created with customers instead of being produced by companies. The roles of the producer and consumer become intertwined in value creation. The authors suggest that a service lens on value creation [BLV14] can help POs to understand the value of the product and support innovation in the software business. Given that the value is highly individual and ultimately judged by the customer, POs can only anticipate value. Nevertheless, the anticipated value should be captured in a value proposition conveying the benefit provided to the customer.

**Secondly**, appropriately defined metrics can help POs to make informed product decisions, and when linked to an organisation's business objectives, product and business metrics can also add a great deal of depth to the role of a PO. The study found that the POs representing the Internet Company scenario were far ahead of the rest in quantifying product value. However, outside of this scenario, most of the interviewees approached product value by anticipating the product's usefulness or usability, and only a few relied on user-research in their decision-making. The paper questions who would drive the implementation of product analytics if not POs themselves and proposes

that POs should consider measuring product value more effectively and making it visible to their teams.

**Thirdly**, POs representing the SAFe-like Organisation scenario reported a disconnect from the users of the product. In this scenario, the POs mainly interfaced with Product Managers rather than directly with users. Assuming that the objective of the PO is to maximize the usefulness or usability of the product, the disconnect from the users is concerning. Whether this is a common problem in organizations applying the market-leading framework for Large-scale Agile could be dealt with in future research.

**Fourthly**, according to the Scrum Guide [SS20], the PO is held accountable for maximizing the value of the product. The guide defines the internal responsibilities within the development team, but it does not aim to explain what POs should do to maximize value. Nevertheless, it is a product leadership role that shares many similarities with the role of a Product Manager. The ISPMA SPM framework outlines the activities typically carried out by Product Managers. The organizations represented by the interviewed POs are widely different from each other. In some organizations, POs fulfill the role of a Product Manager as defined by the ISPMA SPM framework. In other organizations, POs focus purely on the development activities of the framework.

#### **Limitations and future work**

The selection of participants may pose a threat to internal validity, even though exploratory research does not aim to confirm any causal relationships or provide conclusive results. As discussed in the context of interview planning, the sample is non-statistical, and the representativeness of the sample cannot be guaranteed in terms of internal validity. Given the heterogeneity of the Product Owner population and the broad scope of the research questions, a larger sample size may have provided new perspectives, but it could also have resulted in many repetitions.

It's worth noting that multiple respondents represented Organisations A, B, and D in our study. While each respondent provided their own unique perspective, there were no significant discrepancies between those representing the same organization. By using semi-structured interviews, we were able to ask follow-up questions as necessary, which could have increased the internal validity of our results. However, the limitations discussed earlier may reduce the generalisability, or external validity, of our findings. Further research would be required to draw conclusive results.

#### **Conclusions**

This paper presents a study on the role of a Product Owner and how it relates to the role of a Software Product Manager. The PO is responsible for maximizing the value of the product. Through empirical inquiry with 16 software development professionals, this study shows that POs have varying perceptions of what constitutes value. Additionally, while the role of a PO overlaps with that of a SPM, the specific responsibilities of a Product Owner vary between different companies.

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