REINSTITUTIONALIZATION OF PROJECT MANAGEMENT OFFICES

BY LARGE-SCALE AGILE FRAMEWORKS

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Abstract: This article contributes to the understanding of project management offices (PMOs) from the current momentum towards large-scale agile frameworks (LSAFs) as the dominating approach to organizing development projects. LSAFs embrace many typical PMO responsibilities; however, this study highlights that PMOs receive new and tentatively critical responsibilities when moving from a stakeholder position (ISO 21500) to (re-)institutionalizing as a core element in the project governance of enterprises. Essential PMO roles can be top-management alignment and reporting, cross-project coordination, funding and staffing, controlling, and external management of "political" and organizational matters. The research limitations relate to the use of Denmark as the key setting and the targeting of mostly larger companies and larger projects.

1. INTRODUCTION

Agile project management (APM) has received strong interest from information systems practitioners as it aims to overcome classical barriers in learning perspectives, team control, and user/customer adaptation between developers and users (Chow & Cao, 2008). Recently, the agile manifesto and Scrum celebrated their 20-year anniversary (Scotland & Boutin, 2008). However, the "clash" between linear and iterative system development methods has been ongoing since the 1970s (Dybå et al., 2014). Recently, APM has gained stronger momentum, and perhaps it has acquired dominance within project management frameworks (Brenner & Wunder, 2015). Whereas agile approaches in their early days were met with skepticism re-garding the ability to scale, this can be overcome by adding a scalable dimension to most APM frameworks to cope with projects with potentially hundreds of participants. From the early days of Scrum-of-Scrums, agile frameworks have been maturing, and especially Dean Leffingwell's Scaled Agile Framework (SAFe) is now situated in the mainstream of information system development (Petit and Marnewick, 2021; Theobald et al., 2019). Central to the understanding of PM governance is the project management office (PMO) (Philbin, 2016; Darling and Whitty, 2016). The PMO is the organizational construct for the cross-cutting activities of PM practices in an organization, for example management reporting, model devel-opment, training, and the management of

lessons learned. The PMO represents an organizational innovation of the organization's ability to work in projects, and institutional theory has been well used in understanding the PMO's role (Hobbs et al., 2008; Monte). The PMO can be referred to as using various synonyms, such as "method office", "practice office", "govern-ance secretariat", and more. Gartner and Folkedal (2018) described a practitioner's approach to establishing an enterprise PMO (EPMO) as a general response to "agile transformation" rather than a specific scaled approach.

Thus, this paper aims to answer the following research question: How are large-scale agile frameworks (LSAFs) influencing the institutional character of a project management office (PMO)? More detailed questions related to the mutual expectations between PMOs and LSAFs; for instance, do PMOs fit into a ubiquitous project management framework and are LSAFs expecting PMOs as externalisms to the management framework? Using mini-cases and questionnaires, this paper will focus on the empirical dimension of PMOs' and LSAFs' relatedness. This leads to the final question of the institutionalism of PMOs (Hobbs et al., 2008) and whether the stipulated institutional isomorphism of PMOs is preserved in the wake of LSAFs or whether we are witnessing a reinstitutionalization of PMOs.

1.1 Project management offices (PMOs)

A Guide to the Project Management Body of Knowledge (PMBOK guide – 6th edition) (Project Management Institute, 2017) defined a project management office (PMO) as "… an organization structure that standardizes the project-related governance processes and facilitates the sharing of resources, methodologies, tools, and techniques. The responsibilities of a PMO can range from providing project management support functions to the direct management of one or more projects" (p. 48).

This definition underlines that PMOs are complex organizational entities that vary significantly (Hobbs & Aubry, 2008). Moreover, it emphasizes the heterogeneous and multidisciplinary nature of PMOs, the interdependencies with the organization into which the PMO is embedded, and the various relevant to the authority of the PMO.

PMOs are highly influenced by the dynamics of the organization in which they operate (Hobbs & Aubry, 2008), and their degree of control and influence varies across organizations (Project Management Institute, 2017). This ranges from a consultative role with a low degree of control to a moderate degree of control with compliance requirements and ultimately a high degree of control, directly managing projects (Project Management Institute, 2017). PMOs can have considerable decision-making authority, with many projects and project managers located within them, less decision-making authority, with a few projects and a few project managers, or moderate decision-making authority and a mandate including most of the projects but few project managers (Hobbs & Aubry, 2008).

PMO role typology

This article follows the role typology, based on the relationships that a PMO establishes with its organizational environment, proposed by Müller et al. (2013). According to Müller et al. (2013), the responsibilities and actions of a PMO can be mapped into three roles: the serving role (a subordinate role profile), the controlling role (a superordinate role profile), and the partnering role (a coequal role profile). The defined roles are clearly exclusive, but the PMO is a complex multi-role organizational phenomenon and can take on various roles simultaneously (Müller et al., 2013).

In a serving role, the PMO offers a number of support functions, such as training, consulting, and specialized task execution, by responding to stakeholder needs (Müller et al., 2013). In a controlling role, the PMO operates as a management unit by enforcing project management standards (methods and tools), controlling compliance with standards, and monitoring and evaluating project performance and even employee performance relevant to career promotion (Müller et al., 2013). The partnering role is characterized by reciprocity and mutuality between the PMO and the other organizational stakeholders, enabling cooperation and mutual interdependencies (Müller et al., 2013). Here, the PMO engages in an equal exchange of expertise and knowledge sharing, joint learning with equal-level stakeholders, and lateral ad-vice-giving.

The most common role associated with a PMO is the controlling role, which refers to the monitoring and (financial) controlling of projects. Hence, the controlling role is the prevailing role among PMOs, followed by the serving role and rarely the partnering role (Müller et al., 2013). A balanced PMO role reflects equilibrium in the intensity of the three-role dimension.

2 Literature review – Agile PMOs

Agile practices and critical success factors for organizational agile transitions have recently received increased attention (Chow & Cao, 2008; da Silva & dos Santos, 2015; Ghayyur et al., 2018; Kalenda et al., 2018; Naslund & Kale, 2020; Shameem et al., 2017). However, PMOs' role and functionalities have not been explicitly emphasized as success factors related to scaled agile transitions. The traditional PMO and its central structure have even been reported to be a bottleneck anchored in the waterfall paradigm, controlling all the aspects of a project, which needs to be dismantled for the organization's adoption of agile practices (Dikert et al., 2016). Despite the growing interest in and studies on agile practices, the literature on agile project management structures and governance (Pinto & Ribeiro, 2018), such as agile project governance (Lappi et al., 2018), agile project portfolio and programme management (PPM) (Stettina & Hörz, 2015; Stettina & Schoemaker, 2018), and project management office (PMO) responsibilities (Pinto & Ribeiro, 2018), is limited.

Perceptions of the traditional PMO, the responsibility of which is to ensure standardization of project management practices, conflict with the agile principles of inspect and adapt as well as self-organization (Scotland & Boutin, 2008). In the following, a systematic literature review is conducted (Kitchenham et al., 2009) to shed light on PMO characteristics in large-scale agile transformations (Rezvani and Khosravi, 2018). Articles and conference papers were searched for using the words "agile" and "project management office" or "PMO" in the title, abstract, and keywords in 10 typically used databases (ScienceDirect, SpringerLink, Wiley Online Library, Taylor & Francis Online, Emerald Insight, Directory of Open Access Journals, Scopus, ABI/INFORM, Web of Science, and Google Scholar). This search resulted in 52 articles. After scanning the abstracts for relevance and screening for duplicates, we were able to reduce the number of articles to 14. The subsequent review eventually decreased the number of articles to 11. Reviewing these 11 articles (snowballing), we identified one more article, producing a total of 12 articles addressing PMO characteristics in an agile environment.

We applied the conceptual framework for PMO role typology by Müller et al. (2013), which consists of serving, controlling, and partnering. The three-dimensional role perspective (Müller et al., 2013) provides a structure for identifying large-scale agile frameworks' influence on the character of the PMO. **Table 1** provides the coding of the agile PMO characteristics structured according to the three roles of the PMO role typology (Müller et al., 2013) identified from the Systematic Literature Review (SLR).

The PMO as a catalyst for the organizational agile transformation

Prior to their agile transformation, large organizations typically have an existing PMO with established structures and functions that are affected by the introduction of agile working methods. However, a PMO can also be established as an initial part of the agile transformation to support multidisciplinary activities (de Sá et al., 2019). An already-existing PMO can play a central role in the transformation process of converting a waterfall organization into an agile organization by restructuring and dissolving it to establish teams dedicated to programmes (Hamad & Al Fayoumi, 2018).

PMOs' processes can be compatible with an agile environment, and a PMO can add value to the agile teams within the organization (Scotland & Boutin, 2008) and support the strategy to scale the agile approach throughout the organization (Ferreira et al., 2019; Petit & Marnewick, 2021). Hence, organizations can transform their PMOs into agile centers of excellence – agile PMOs (Project Management Institute, 2017). With the right kind of people with an open mindset in a PMO, it becomes a partner in the organizational agile transformation journey rather than an obstacle belonging to the plan-driven environment (Tengshe & Noble, 2007).

Several authors have proposed that the responsibilities and practices of a traditional PMO should be adapted to

it an agile environment and enable it to become an agile PMO. However, according to Power (2011) and the experience of Cisco's Unified Communications Business Unit, the PMO retains responsibilities such as ensuring that the organization is compliant with the ISO and other mandatory regulations. Nevertheless, the PMO should support the progression in the agile journey in collaboration with the newly established agile office. The tasks and responsibilities of the agile office (Power, 2011), such as coaching, facilitating, and ensuring knowledge transfer and learning between teams relevant to agile practices, are in line with the multidisciplinary perception of other studies that the PMO should evolve into an agile environment (Project Management Institute, 2017). The identified responsibilities of the agile office (Power, 2011) are considered in relation to an agile PMO in this study.

Agile work to become an agile PMO

A PMO in an agile environment should adopt agile methodologies by operating according to agile practices itself to be considered as an agile PMO, and the transition from a traditional to an agile PMO should be approached as an agile project itself (Pinto & Ribeiro, 2018; Power, 2011). Thus, it should operate in accordance with the pillars of transparency, inspection, and adaptation itself by acting as a PMO Scrum team adopting Scrum roles with a prioritized backlog of activities and Scrum ceremonies (Ferreira et al., 2019; Tengshe & Noble, 2007). Several studies have even mentioned that the name itself, project management office, is un-suitable for an agile environment and should be changed to agile management office, agile office, or agile coordination office or at least have agile added to the name – agile PMO (Moreira, 2017; Pinto & Ribeiro, 2018; Power, 2011).

2.1 The serving role

PMOs should engage in supportive and facilitative behaviour and focus on servant leadership to enable customer value rather than decision making when moving towards agile (Moreira, 2017; Pinto & Ribeiro, 2018). An agile PMO must hold a customer collaboration mindset, strive to deliver what is needed to agile teams and the organization, and adapt to their needs (Project Management Institute, 2017). Hence, a PMO in an agile environment should operate as a consulting business and provide what is requested for a given project, whether this is tools and templates or executive coaching (Project Management Institute, 2017).

Coaching, mentoring, and consulting

An agile PMO evolves into coaching rather than a controlling unit (Scotland & Boutin, 2008) by supporting and helping teams to adopt and adapt agile practices to achieve their purpose (Power, 2011). The agile PMO becomes a focal point for agile methods and provides ongoing consulting and coaching to teams on product backlog structures and grooming practices, planning, team formation and structures, roles and responsibilities, architecture, and agile technical planning. Moreover, the agile PMO can directly facilitate Scrum ceremonies when necessary (Power, 2011). The agile PMO engages with the teams before commencement and throughout the product's delivery cycle to leverage experience (Power, 2011).

Training, knowledge sharing, and best practice dissemination

An agile PMO provides or arranges training courses relevant to agile methodologies (Power, 2011; Project Management Institute, 2017) and coaching programmes for a broad audience within the organization (Tengshe & Noble, 2007). In addition, the agile PMO should share and foster proven practices instead of defining and enforcing a one-size-fits-all process (Scot-land & Boutin, 2008). Hence, the PMO should capture and disseminate best practices across teams (Pinto & Ribeiro, 2018). This is achieved through coaching, when facilitating multiple teams or moving between teams, and sharing good practices (Pinto & Ribeiro, 2018).

Embeddedness of an agile mindset

By undertaking a mentoring and coaching role, the agile PMO ensures progression in the agile adoption and the embedding of the agile behaviour and mindset within the organization through various training events and continuous coaching and mentoring of individuals, teams, and management (Pinto & Ribeiro, 2018; Power, 2011; Project Management Institute, 2017).

2.2 The controlling role

Moving towards agile instead of plan-driven methodologies, the controlling PMO and the role of an enforcer lose value (Pinto & Ribeiro, 2018).

Agile-compatible metrics

The transition from a plan-driven to an agile approach has an impact on the metrics applied to measure performance (Van der Linde and Steyn, 2016; Salamah & Alnaji, 2014). The traditional metrics for reporting project performance, such as cost, delivery, and quality, are not compatible with agile product development (Jinzenji & Hamuro, 2018; Philbin & Kaur, 2020). In an agile environment, an agile PMO must focus on the incremental delivery of value and not on the project itself. Adapting to the agile culture and processes, the agile PMO needs to learn what it means to be driven by customer value (Moreira, 2017). Hence, the PMO must rethink and convert the project control and reporting metrics into the value delivered, the speed and quality of delivery, and the business outcomes of revenue generated and connect them to executive management (Jinzenji & Hamuro, 2018; Moreira, 2017; Tengshe & Noble, 2007). Project reporting moves away from relying solely on financial and quantitative metrics but needs to balance quantitative metrics and qualitative reviews to enable a transparent connection of strategy to operations as organizations' agile approach becomes more mature (Stet-tina & Schoemaker, 2018). Salamah and Alnaji (2014) addressed the struggles of the PMO in an IT and software development organization, in which insufficient use of metrics was applied to measure PMO performance. Changes in project scope, scope creep, is among the biggest challenges that negatively affect the performance of a PMO (Salamah & Alnaji, 2014). This contradicts the agile software development methods applied in the organization in which the PMO is acting. Changes to scope should be granted and accepted in agile software development methodologies. When this concept is not well understood in an organization, conflict is experienced as scope changes are regarded as scope creep (Salamah & Alnaji, 2014).

Standardization and an agile-compatible toolkit

An agile PMO can develop and implement an agile-compatible toolkit by retooling the current project management toolkit (Tengshe & Noble, 2007). In addition, the agile PMO can make an effort to lean the project documentation, eliminating the detailed project schedules and Gantt charts that are typically associated with a plan-driven approach (Tengshe & Noble, 2007). Hereby, the agile PMO can ensure a level of standardization in the agile methodology by providing tools and templates for user stories, test cases, and cumulative flow diagrams, supporting multi-team project standards, and assisting teams with their compliance needs (Pinto & Ribeiro, 2018; Project Management Institute, 2017).

2.3 The partnering role

Ensure organizational learning

In an agile environment, the agile PMO plays a crucial role in disseminating knowledge relevant to agile practices and capturing lessons learned to support the individual and team levels. However, the PMO elevates this task to promote and nurture communities of practice by facilitating community events that bring people together to share knowledge across the organization and to capture retrospective findings (Pinto & Ribeiro, 2018; Power, 2011; Project Management Institute, 2017) to ensure organizational learning (Pinto & Ribeiro, 2018). The agile PMO is responsible for capability building across the agile projects within the organization by ensuring knowledge transfer across a portfolio and enabling organizational capabilities to replicate learnings (Lappi et al., 2018). Hence, the agile PMO ensures that agile project practices are incorporated into organizational learning for future projects (Lappi et al., 2018).

Enable collaboration across teams

The PMO can support collaboration across teams when bigger releases require multiple teams to build the product (Moreira, 2017; Project Management Institute, 2017). By ensuring communication channels between teams or facilitating meetings similar to Scrum-of-Scrums, the agile PMO can enable effective self-

coordination among teams. This allows multi-team projects to share knowledge and information on progress, experience, impediments, and retrospective findings (Pinto & Ribeiro, 2018; Project Management Institute, 2017). As an extension to this, the agile PMO should facilitate shared backlog management to enable coordination in multi-team projects (Pinto & Ribeiro, 2018). Through a continuous focus on the process of sharing knowledge among teams, the agile PMO can ensure appropriate consistency, which is especially important in multi-team projects as they need to be in constant coordination (Pinto & Ribeiro, 2018).

Interaction and collaboration with organizational stakeholders

Acting as an agile flagship, the agile PMO can make a great effort to remove obstacles in terms of traditional roles and authority by obtaining buy-in from various management levels that agile is the right method (Tengshe & Noble, 2007). The agile PMO collaborates with the management to monitor and align strategic initiatives (Ferreira et al., 2019). Moreover, the agile PMO can assist teams by enabling interaction with other stakeholders and even provide stakeholder training to product owners and guidance on acceptance testing (Pinto & Ribeiro, 2018; Project Management Institute, 2017). Close collaboration between agile teams and the PMO is essential to uncover requirements and make standards and frameworks that satisfy all needs (Scotland & Boutin, 2008).

Engage in the broader agile community

As the agile PMO is the focal point of agile practices, the agile PMO itself should engage with the broader agile community outside the organization, for instance, at conferences and gatherings and in online forums, books, and journals, to stay up to date with the latest movements within the agile galaxy (Power, 2011).

2.4 Large-scale agile frameworks (LSAFs)

LSAFs are frameworks aimed at using the agile methods on the team level but adding a governance and control system for coordinating the efforts of multiple teams. LSAFs are often pinpointed as instrumental in the idea of "agile transformation" (Petit & Marnewick, 2021). This follows the idea that the team-level agile approach is in peril of being trapped in non-agile governance models and the need for strong and visible approaches to ensure both business requirements and delivery pipelines. A framework like the Scaled Agile Framework (SAFe) offers training, certification, and processes for stakeholders at any level from business users, over technologists, to (top) management (Brenner & Wunder, 2015). The governance model of SAFe is itself relatively complex, covering a range of roles and actors with designated and synchronized tasks and responsibilities. SAFe contrasts with PMOs by having SAFe-internal functions for typical PMO tasks, like portfolio management, budgets, prioritization, quality assurance, and KPIs. However, these are delimited to the SAFe environment. Dikert et al. (2016) presented a critical literature review of scaled agile processes, finding that issues like complexity, re-made bureaucracy, a lack of team-centricity, and (top) management in-sights could influence the quality of the project work. In contrast to this, enhanced quality assurance can be introduced into LSAF environments, such as CMMI (Sreenivasan & Kothan-daraman, 2019).

3 Method

The method of the research is dual (Venkatesh et al., 2013). A broad qualitative background of empirical elements was collected generally from the surrounding enterprises. A quantitative questionnaire was answered by a group of experts from the PMO and agile fields. The questionnaire was developed from the qualitative background and the SLR (Hummel, 2014; Okoli, 2015). The aim of the questionnaire was to ascertain the experts' positions on the expected status and change of PMO roles in the wake of "agile transformation" and the use of LSAFs.

The qualitative data collection included several activities: training observations, case studies, and industry discussions. The qualitative data are not unfolded and presented in detail here but served as a qualifier for the phrasing and composition of the questionnaire. The training observations included participant-as-observer in four "Leading SAFe" certification training workshops from 2018 to 2021 (Seim, 2021). This was to assure correct position framing and LSAF rhetoric. The five case studies

Role typology	Agile PMO characteristics	De Sá et al. (2019)	Ferreira et al. (2019)	Hamad and Al Favoumi	Jinzenii and Hamuro	Lappi et al. (2018)	Moreira (2017)	Pinto and Ribeiro (2018)	Project Management Insti-	Power (2011)	Salamah and Alnaii	Scotland and Boutin	Tengshe and Noble (2007)
Implementation	The PMO is a partner and an enabler in the organizational agile transformation journey	x	x	x					x			x	x
	The PMO must adopt agile methodologies by operating according to agile practices itself		x						x		x		x
	Renaming and rebranding the PMO as an agile PMO						x	x		x			
Serving	Engage in supportive and facilitative behaviour with a focus on servant leadership						x	x					
	Provide agile teams with ongoing consulting, mentoring, and coaching							x	x	x		x	
	Capture and disseminate best practices and ensure knowledge sharing across teams							x	x	x		x	x
	Provide or arrange training courses relevant to agile methodologies							x	x	x		x	x
	Ensure progression in the agile adoption and the embeddedness of the agile behaviour and mindset within the organization							x	x	x			x
Controlling	Ensure appropriate agile-compatible metrics for project performance reporting				x		x				x		x
	Develop and implement an agile-compatible toolkit by retooling the current project management toolkit							x	x				x
Partnering	Promote and nurture communities of practice and ensure knowledge transfer across a portfolio to enable organizational capabilities to replicate learning					x		x	x				
	Support and enable collaboration in multi-team projects						x	x	x				
	Interact and collaborate with organizational stakeholders to remove obstacles, align strategic initiatives, and assist agile teams in stakeholder management		x					x	x			x	x
	Engage with the broader agile community outside the organization									x			

Table 1. Literature coding – Qualitative agile PMO assertions

were collected by interviewing experts who use an LSAF in four financial services companies (manufacturing, mortgage, insurance, and banking) and one manufacturing company. The cases were transcribed and coded for PMO and LSAF positions. The industry discussions were collected through interviews and presentations. These discussions were used to validate the questionnaire.

The use of a smaller group of experts for the questionnaire is analogous to the Delphi method (Worrell et al., 2013). The derivation of results from the questionnaire was inspired by the analytical hierarchy process (AHP) method (Al-Harbi, 2001).

4 Data collection

The understanding of the roles and tasks of a PMO differs widely between organizations. However, from the perspective of LSAFs, some key data are worth considering. Company profiles, project cultures, and PMO responsibilities were needed as data for this study. The following questionnaire was directed towards a professional community of practice for project management professionals and stakeholders in the field.

The questionnaire required closed answers and was composed of 14 questions coded Q1–Q14. The questionnaire was developed, distributed, and analysed in www.surveyxact.dk. It was not mandatory to answer questions, and selected questions could receive multiple answers from the same respondent. Q1–Q6 were demographic questions.

The average age of the respondents is 35 (Q1). Most have an MSc degree (Q2). The key industries of occupation are manufacturing and IT (Q3). Most respondents are from Denmark (Q4). Half of the respondents are from the SME segment and half are from larger enterprises (Q5).

The roles of the respondents are diverse, with almost equal shares stating "employed in PMO", "Scrum master or similar", "product or business owner", "management", and "devel-oper" (Q6). Regarding PMO maturity (Q7), see **table 2**.

PMOs, in the eyes of the expert group, are a relatively new and useful construct that is largely connected to agile practices. Of the experts, 80% work for organizations that were using or planning to use agile methods but stated that the "agile transformation" had started on average 2 years ago, meaning around 2019 (Q8). Recognizing that most organizations have multiple PM frameworks, the experts were invited to give multiple answers regarding the frameworks used (Q9); see **table 3**.

We have had a PMO for several years	32%
Our PMO is relatively new	29%
Our PMO was established together with our agile transformation	11%
We plan to establish a PMO	11%
We don't have a PMO; the tasks can be done elsewhere	18%

Table 2. Q7: PMO maturity of the experts' companies

Project management framework of use	Score
Scrum	17
More general agile methods according to our needs (hybrid models combining both stage-gate and agile principles)	14
Waterfall or similar (not using agile principles)	12
SAFe adapted to our needs	8
SAFe	6
Prince2 or similar (not using agile principles)	4
"Post-SAFe" using SAFe but emphasizing certain business needs	2

Table 3. Q9: Project management frameworks in use

More LSAFs (DAD and LESS) were listed but scored zero. The experts were asked to rank the typical tasks associated with PMOs (Q10); see **table 4**.

Half of the experts stated that the PMO's existence is independent of the agile transformation, meaning that the PMO's tasks are cross-cutting project management frameworks (Q11). One-quarter indicated that the agile approach had increased the need for the PMO, whereas one-fifth indicate that the PMO is not needed in the longer term. Q12 asked the experts about the concept of a PMO as a "servant leader" (Müller et al., 2013), which led to the scoring of a set of statements as shown in **table 5**.

Q13 asked the experts about the PMO relevant to the partnering role in the agile concept with the possibility to rank a set of statements derived from the literature review, as listed in **table 6**.

Q14 asked the experts about PMO statements relevant to the controlling role in the agile concept derived from the literature review and a ranking; see **table 7**.

The data in Q1–Q6 largely confirm that the respondents are experts in the PMO and agility field. Q7 on maturity is somewhat surprising as PMOs have been in existence with various strengths for several decades. Q8 confirms the monumental drive towards new project management methods under the term "agile transformation" as a phenomenon that started in the late 2010s. Q10 emphasizes the corporate tasks of PMOs cross-cutting project management practices. Several answers to Q12 somewhat contradict other data, for example serving rather than controlling, but here ambiguities can be due to manpower allocation being,

PMO task ranking	Score
Management reporting, KPIs	18
Project portfolio management	18
Project resource allocation	13
General governance and top-management alignment	12
Stakeholder management	11
Risk management	9
Method training	8
Project model ownership	7
IT tools	7
Organizational entity for project specialists	4
Financial controlling	4
None of the these	2

Table 4. Q10: Typical PMO tasks

PMO statements relevant to the serving role	Score
A PMO is a servant leader and supports agile teams rather than controlling them	9
A PMO is a servant leader and supports agile teams by providing agile training methods	7
A PMO ensures knowledge sharing relevant to agile practices between agile teams	6
A PMO coaches teams to work in an agile way and focus on embedding the agile mindset	5
A PMO is the go-to place when seeking advice or knowledge on agile practices	3

Table 5. Q12: Ranking of PMO statements relevant to the serving role

to many, a service rather than a control feature. Q13, again, points to the enterprise-level responsibilities of the project – project coordination and funding. Q14 establishes quite a clear extra-project dimension of the PMO acting around and outside the project.

5 Discussion

Although the PMO as a concept has existed for decades, the agile transformation taking place now seems to offer a new perspective on it. It has been argued that the PMO is shifting from a recognized institution with a secondary character (ISO 21500: stakeholder) to one with a more critical character in the corporate project governance model. Additionally, it has been argued that the PMO in question is not the "agile PMO", as defined, for example, as embedded in SAFe, but the enterprise-level PMO.

PMO statements relevant to the partnering role	Score
A PMO is the most efficient way to coordinate projects	9
A PMO collaborates with product managers and owners and business managers to make decisions	6
A PMO performs continuous portfolio planning rather than annual project-based funding	5
Agile teams cannot spend time on project-external matters; the PMO supports this	4
A PMO collaborates with product owners and Scrum masters to gain visibility of the work being undertaken	4
A PMO works closely with product owners to create forward-looking plans and roadmaps	4

Table 6. Q13: Ranking of PMO statements relevant to the partnering role

PMO statements relevant to the controlling role	Score
Project support tools are best managed by a PMO	7
A PMO provides oversight and transparency of the agile transformational process and progress	5
A PMO continuously monitors and evaluates performance according to on-time and on-budget principles	5
A PMO grants autonomy for local team decision making	4
A PMO prioritizes within portfolios and makes decisions relevant to which projects will be executed	4
Local adaptions of the agile framework are well managed by a PMO	4
A PMO manages portfolios as products and not as projects	4
Cost controlling is better carried out in a financial department than a PMO	3
Full enterprise implementation of, for example, SAFe or Scrum-at-Scale would eliminate the need for a PMO	3
A PMO focuses on the delivery of value as the outcome rather than executing on-time and on-budget principles	3
The value assessments within the projects are insufficient; the PMO can better report the resources spent	0

Table 7. Q14: Ranking of PMO statements relevant to the controlling role

5.1 Implementation

The findings above, along with the positions of the literature, point out that a PMO can add value in agile environments and potentially have a central role in the transformation process and scale agile throughout the organization (de Sá et al., 2019; Ferreira et al., 2019; Hamad & Al Fayoumi, 2018; Project Management Institute, 2017; Scotland & Boutin, 2008; Tengshe & Noble, 2007). This assumption is also evident empirically from the score of 5 received by the statement "A PMO provides oversight and transparency of the agile transformational process and progress". In addition, the statement "Local adaptions of the agile framework are well managed by a PMO", with a lower score (4), supports the claim that a PMO can be an enabler in the organizational transformation journey. To become an enabler and a partner in the organizational transformation journey, a closer look at the three-dimensional role typology is necessary to identify movements within the three roles defined by Müller et al. (2013) in an agile context.

5.2 The three-role typology

The serving role, with emphasis on responding to stakeholder needs by providing training and consulting (Müller et al., 2013), remains compatible with an agile environment according to the findings of the literature review. The PMO's responsibilities within the serving role in an agile environment emphasize facilitative behaviour and a focus on servant leadership (Moreira, 2017; Pinto & Ribeiro, 2018), strongly supported empirically by the score of 9 given to the statement "A PMO is a servant leader and supports agile teams rather than control-ling them", proving that training is a recurring element of the serving role proposed by Müller et al. (2013) in the agile PMO characteristics (Pinto & Ribeiro, 2018; Power, 2011; Project Management Institute, 2017; Scotland & Boutin, 2008; Tengshe & Noble, 2007). The empirical data show clear support for this claim, with a score of 7 received by the statement "A PMO is a servant leader and supports agile teams by providing agile training methods". Additional to the serving role, statements like "ongoing consulting, mentoring and coaching to agile teams" (Pinto & Ribeiro, 2018; Power, 2011; Project Management Institute, 2017; Scot-land & Boutin, 2008), "knowledge sharing" (Pinto & Ribeiro, 2018; Power, 2011; Project Management Institute, 2017; Scotland & Boutin, 2008; Tengshe & Noble, 2007), and "embeddedness of agile behavior and mindset" (Pinto & Ribeiro, 2018; Power, 2011; Project Management Institute, 2017; Tengshe & Noble, 2007) received less support empirically. Statements such as "A PMO ensures knowledge sharing relevant to agile practices between agile teams" and "A PMO coaches teams to work in an agile way and focus on embedding the agile mindset" both received a lower raking.

The controlling role in its traditional form, with an emphasis on the monitoring and evaluation of project performance as well as the enforcement of standards and controlling the compliance with these standards (Müller et al., 2013), is contradictory and of less value to agile working methods (Pinto & Ribeiro, 2018). The findings from the literature review show tension and challenges for the controlling role in its traditional form in agile organizations (Salamah & Alnaji, 2014). Although it is important not to regard the controlling role as redundant in agile environments, the literature review pointed to the necessity of reframing the traditional perceptions of the controlling role. Ensuring standardization of tools and templates for project usage remains a PMO responsibility relevant to the controlling role in an agile environment as well as in a plan-driven environment (Pinto & Ribeiro, 2018; Project Management Institute, 2017; Tengshe & Noble, 2007). Clearly, retooling is necessary to provide new tools and templates suitable for agile working methods. This finding from the literature review is strongly supported empirically by the score of 7 given to the statement "Project support tools are best managed by a PMO".

Nevertheless, it is worth emphasizing a voluntary approach to the application of standardized project tools and templates rather than enforcing compliance with them. Monitoring project performance is a comprehensive part of the PMO's responsibilities within the controlling role (Müller et al., 2013). The literature review points towards the necessity of reframing metrics for project performance reporting as traditional plan-driven metrics based on the project tri-angle are not compatible with agile working methods (Jinzenji & Hamuro, 2018; Moreira, 2017; Salamah & Alnaji, 2014;

Tengshe & Noble, 2007). To some extent, the monitoring of project performance remains compatible with an agile environment if agile-appropriate metrics are applied. However, this claim, based on the literature review findings, is less supported empirically, with a low score (3) given to the statement "A PMO focuses on the delivery of value as the outcome rather than executing on-time and on-budget principles". Contrarily, the statement "A PMO continuously monitors and evaluates performance according to on-time and on-budget principles" received a medium ranking (5). This implies that PMOs continue to monitor project performance according to the project triangle associated with the plan-driven approach. Hence, our data show that PMOs are still operating according to the traditional perceptions of the controlling role. Our data indicate that organizations have multiple project management frameworks in use, such as hybrid models combining both stage-gate and agile principles, which can explain the "on-time and on-budget" project monitoring metrics.

The partnering role, which is characterized by cooperation and mutual interdependencies between the PMO and the organizational stakeholders (Müller et al., 2013), is compatible with an agile environment according to the literature review findings. The PMO responsibilities within the partnering role in an agile environment cover elements such as "enabling organizational learning through knowledge transfer" (Lappi et al., 2018; Pinto & Ribeiro, 2018; Project Management Institute, 2017), "multi-team collaboration" (Moreira, 2017; Pinto & Ribei-ro, 2018; Project Management Institute, 2017), "assisting agile teams in stakeholder management" (Ferreira et al., 2019; Pinto & Ribeiro, 2018; Project Management Institute, 2017; Scotland & Boutin, 2008; Tengshe & Noble, 2007), and "engaging with the broader agile community" (Power, 2011). The importance of and the functions belonging to the partnering role appear to be comprehensive in an agile environment. The "multi-team collaboration" finding based on the literature review is strongly supported empirically with the highest ranking (a score of 9) for the statement "A PMO is the most efficient way to coordinate projects". In addition, the "assisting agile teams in stakeholder management" finding based on the literature review is supported empirically with a lower score (4) for the statement "Agile teams cannot spend time on project-external matters; the PMO supports this". Enabling organizational learning through knowledge sharing receives empirical support (a score of 6) for the statement "A PMO ensures knowledge sharing relevant to agile practices between agile teams".

5.3 Shift in role intensity

The three roles should not be regarded as exclusive or "either–or" roles as the PMO under-takes all three roles with different intensities both in a traditional and in an agile project environment. Nevertheless, the controlling role is most commonly associated with a PMO, followed by the serving role and rarely the partnering role (Müller et al., 2013). The findings based on the literature review show a movement in the intensity of the roles. The controlling role, which is the prevailing role in traditional project environments, appears not to be compatible with an agile context. The role is still applicable and serves a purpose in an agile environment but needs to be reframed to become agile compatible and less prominent in terms of role intensity. The serving role appears to be very relevant, with an emphasis on servant leadership by responding to stakeholder needs. The intensity of roles moves towards the serving role and the partnering role in an agile environment. Interestingly, the partnering role is rarely present in traditional project environments (Müller et al., 2013) but appears to be prominent and highly relevant in agile environments. Thereby, an agile PMO undertakes the serving role to support agile teams directly according to their specific needs and the partnering role to elevate its support from the individual team level to the organizational level, such as multi-team collaboration.

Fully implemented large-scale agile frameworks highlight the redundancy of the PMO function. However, this claim receives less support empirically, with a low ranking (a score of 3) for the statement "Full enterprise implementation of, for example, SAFe or Scrum-at-Scale would eliminate the need for a PMO". Hence, there is still room for a PMO, obviously in a different form with respect to the intensity of the three-role typology. By rethinking and re-framing the PMO's functions and responsibilities, the PMO can undertake a central role and become a catalyst in the organizational agile transformation journey rather than remaining an element of the past that conflicts with the agile principles.

5.4 PMOs, LSAFs, and institutional dynamics

The literature review and the empirical research demonstrate that PMOs are fundamentally neutral project management methodologies. The waterfall and Scrum methods do not require a PMO. However, from the concept of "management of project management" (Too & Weav-er, 2014) and the PMBOK (Project Management Institute, 2017), PMOs represent the professionalization and institutionalization of project management practices within the PM organization. Building on the argument of PMO as being institutional isomorphisms and organizational innovations (Hobbs et al., 2008), PMOs provide project management practices with the necessary governance services and assure a clear link (of control) between the top management and the project organization. As argued above, the control dimension is less focused on the daily project practice, and control, as demonstrated empirically, is related to the enterprise level of knowing what resources are spent and what outcomes are attained by the project organization. Control on a daily basis is intrinsic to the agile methodology and is carried out on the team or team-of-teams level. This is well supported by Gartner and Folkedals's (2018) general concept of strengthened PMOs – enterprise PMOs that also outline a plan for implementation.

Therefore, a key finding of this study is that PMOs gain more importance in organizations with this need, especially organizations in which LSAFs, from outside the project organization, seem like a black box. With the management's need to deliver value and ROI, a PMO is an attractive tool to ensure transparency and governance. As an LSAF proves to be an efficient way of coordinating team effort, the PMO exhibits the dynamics to fill the role of enterprise project governance office with an emphasis on serving the SAFe and agile environments with problem fixing outside the agile scope, assuring resources and safeguarding management confidence through control processes.

5.5 Solutions and further work

Arguing for PMOs from the perspective of reinstitutionalization, drawing on Hobbs et al. (2008), they have a more pervasive role that is associated with corporate management rather than augmenting the project management organization. As several organizations are discussing taking the agile transformation to the C level, there are still strong indications that several project management and delivery frameworks exist concurrently in most organizations. A PMO is well suited to being a translator and mediator between projects within different frameworks. The (enterprise) portfolio and reporting tasks will ensure that the PMO is the organizational entity with the clearest view of ongoing and projected activities, as supported by Gartner and Folkedal (2018). Apparent shifts of PMOs from project-internal support to enterprise management "support" puts them into a more critical and demanding role. Further work and research implications could be related to measuring the efficiency of PMO task execution, especially empowering the PMO to see through the LSAFs to assure rightful spending of resources. This might cause conflict as LSAFs are accompanied by their own PMO-style internal models. A research and practitioner agenda comprises refined interfaces for PMO–LSAF information exchange, constructive organizational interfaces, and metrics for best practices of PMO–LSAF relationships and actual value creation.

6 Conclusions

This paper shows that an "agile transformation" has taken place in many or most larger IS organizations. This simplifies the story told of organizations, relationships, and control of IS (development) organizations to follow the guidelines of the selected frameworks or their local adaptation, as shown empirically to be either Scrum or SAFe. However, as an organization is not only about development, and the frameworks do not present themselves as static, there is a need for connection processes across the organization that is related to but not part of the execution of projects. This has long been defined as project governance (ISO 21500).

This paper points to a novel characteristic of PMOs as

being more corporate and more managerial. Tasks such as management reporting, allocation of funding and manpower, and enterprise portfolio management distance them from Aubry's more supportive approaches of partnering or serving. The PMOs have not chosen this path; it comes from the "self-sufficiency" of the agile approaches and especially LSAFs having their own portfolio management, resource control, and manpower management. However, LSAFs are not meant to handle or "see" what is outside the scope of the agile project, so this intrinsically calls for the project-external role, as we have seen.

As an adjacent finding in this article, the applied method offers an approach to unlocking current changes in PM practices by combining knowledge screening of current phenomena with exchange with experts' evaluation of current and future state assertions. The methodology places itself between in-depth case studies and broad polls to include more organization types, job roles, and organizational designs. Furthermore, it serves as a vehicle for maintaining an ongoing discussion of best practices in project governance.

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