XII SINGEP
Simpósio Internacional de Gestão, Projetos, Inovação e Sustentabilidade
International Symposium on Management, Project, Innovation and Sustainability
ISSN: 2317-8302
CYRUS Institute of Knowledge MAKE A DIFFERENCE
CIK 12th INTERNATIONAL CONFERENCE

GESTÃO DE PORTFÓLIO ÁGIL NO CONTEXTO DE DESENVOLVIMENTO DE SISTEMAS DIGITAIS: ESTUDO DE CASO MÚLTIPLO EM EMPRESAS BRASILEIRAS

AGILE PORTFOLIO MANAGEMENT IN THE CONTEXT OF DIGITAL SYSTEMS DEVELOPMENT: A MULTIPLE CASE STUDY IN BRAZILIAN COMPANIES

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Comunicação:
O XII SINGEP foi realizado em conjunto com a 12th Conferência Internacional do CIK (CYRUS Institute of Knowledge) e com o Casablanca Climate Leadership Forum (CCLF 2024), em formato híbrido, com sede presencial na ESCA Ecole de Management, no Marrocos.

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Objetivo do estudo
O estudo visa avaliar como grandes empresas brasileiras utilizam a Gestão Ágil de Portfólio (GPA) em projetos de sistemas digitais, identificando padrões e apoiando a adoção de práticas ágeis. Sugere ainda pesquisas futuras para abordar lacunas e explorar novas alternativas.

Relevância/originalidade
A relevância do artigo está na contribuição para o entendimento e aplicação prática da Gestão Ágil de Portfólio (GPA) em grandes empresas brasileiras Ele identifica padrões, desafios e adaptações críticos, oferecendo insights estratégicos que aumentam a competitividade no mercado e preenchem uma

Metodologia/abordagem
O estudo utilizou uma metodologia qualitativa de estudo de caso múltiplo, analisando quatro grandes empresas brasileiras. Incluiu entrevistas, análise de documentos e observação direta.

Principais resultados
O estudo identificou padrões na Gestão Ágil de Portfólio (GPA) em empresas brasileiras, como a adoção e adaptação dos frameworks SAFe, Scrum e Lean Kanban. Os desafios incluíram transformação cultural, alinhamento estratégico, alocação de recursos e gestão financeira, exigindo abordagens personalizadas.

Contribuições teóricas/metodológicas
As contribuições teóricas do estudo incluem identificar padrões na Gestão Ágil de Portfólio (GPA) no contexto brasileiro, analisar criticamente os desafios de implementação e fornecer uma base teórica para futuras pesquisas sobre metodologias emergentes, incluindo Inteligência Artificial.

Contribuições sociais/para a gestão
O estudo oferece insights práticos para a implementação da Gestão Ágil de Portfólio (GPA), destacando a importância do engajamento da alta gestão e consultorias especializadas, facilitando a adaptação organizacional, a transformação cultural e a vantagem competitiva em mercados dinâmicos.

Palavras-chave: Gestão de Portfólio Ágil, Ágil em Escala, Agilidade nos negócios, Lean Portfolio Management , Desenvolvimento de Software Ágil

AGILE PORTFOLIO MANAGEMENT IN THE CONTEXT OF DIGITAL SYSTEMS DEVELOPMENT: A MULTIPLE CASE STUDY IN BRAZILIAN COMPANIES

Study purpose
The study aims to assess how large Brazilian companies use Agile Portfolio Management (APM) in digital systems projects, identifying patterns and supporting the adoption of agile practices. It also suggests future quantitative research to address gaps and explore new alternatives.

Relevance / originality
The article's relevance stems from its contribution to the understanding and practical application of Agile Portfolio Management (APM) in large Brazilian companies It identifies critical patterns, challenges, and adaptations, offering strategic insights that enhance market competitiveness and address a gap in academic

Methodology / approach
The study employed a qualitative multiple case study methodology, analyzing four major Brazilian companies. It included interviews, document analysis, and direct observation.

Main results
The study identified key patterns in Agile Portfolio Management (APM) within Brazilian companies, including the adoption and adaptation of SAFe, Scrum, and Lean Kanban frameworks. Challenges included cultural transformation, strategic alignment, resource allocation, and financial management, highlighting the importance of tailored approaches.

Theoretical / methodological contributions
The study's theoretical contributions include identifying patterns in Agile Portfolio Management (APM) within the Brazilian context and critically analyzing the challenges and adaptations needed for implementation It also provides a theoretical foundation for future research on emerging methodologies and tools, including AI

Social / management contributions
The study offers practical insights for companies and portfolio management professionals on effective Agile Portfolio Management (APM) implementation. It emphasizes the importance of senior management engagement and specialized consultancies, facilitating organizational adaptation, cultural transformation, and competitive advantage in dynamic markets.

Keywords: Agile Portfolio Management, Scaled Agile, Business Agility, Lean Portfolio Management , Agile Software Development

AGILE PORTFOLIO MANAGEMENT IN THE CONTEXT OF DIGITAL SYSTEMS DEVELOPMENT: A MULTIPLE CASE STUDY IN BRAZILIAN COMPANIES

1 Introduction

Project management in software development began to be discussed in the 1960s, with initiatives from NASA (Larman & Basili, 2003). The International Project Management Association (IPMA) was founded during this time, and at the end of the decade, the Project Management Institute (PMI) was established, responsible for publishing the PMBOK® Guide, which remains a key reference in industry processes and knowledge areas today (Larman & Basili, 2003; Seymour & Hussein, 2014). In 1970, the article "Managing the Development of Large Software Systems" introduced the concept of the project lifecycle, later known as the Waterfall method (Rajagopalan, 2014; Royce, 1970). Inspired by civil construction, this method is highly structured, with cost, scope, and timeline defined in the initial phase of the project, and any changes must be managed to avoid impacts (Nerur et al., 2005).

Traditional project management methods in software, based on extensive planning and codified processes, are effective in projects with stable scope but began to show limitations in the software industry starting in the 1990s (Dybå & Dingsøyr, 2008; Perides et al., 2021; The Standish Group International, 1995). More recently, with the advancement of digital technology, companies have needed to adopt new management models to compete in a dynamic and complex market (Kraus et al., 2018). This has led to an increase in the use of agile methods, especially in IT, with nearly 80% of companies adopting agile practices, primarily to accelerate development and improve predictability (Scrum Inc., 2022). However, these agile methods are complementary to traditional approaches and require organizational transformation to avoid the sluggishness of traditional processes (Kraus et al., 2018; Laamanen et al., 2018; Ploder et al., 2022).

Despite the benefits of agile methods, the lack of rigor and long-term vision in these projects requires more structured planning, as seen in traditional methods (Thesing et al., 2021). Implementing agility in large organizations, outside the software context, is complex and often requires deep cultural changes and collaboration with independent companies (Farris et al., 2006; Middleton & Joyce, 2012). In Brazil, only 34% of respondents have a clear understanding of the benefits of agility (Accenture et al., 2022).

Adopting agility at all levels of a company allows for rapid adaptation to market changes and increased innovation (Horlach et al., 2019; Putta et al., 2018). However, in Brazil, only 37% of companies apply agile transformation beyond IT (Accenture et al., 2022). To be agile, an organization needs to adapt its portfolio management and governance to incorporate the benefits of agile methods, overcoming the limitations of traditional models like PMI (Luna et al., 2016; PMI, 2021). New models such as SAFe and DaD offer solutions but are not suitable for all companies, creating gaps in planning and integration between technical and business areas (Hoffmann et al., 2020; Horlach et al., 2019; Suomalainen et al., 2015).

Large companies need to improve their Agile Portfolio Management (APM) processes to achieve the flexibility necessary to meet customer demands in digital technologies. This is due to intense market competition, which requires agile processes in portfolio governance and

management. Additionally, these companies must comply with specific regulations, but modern agile frameworks are still not fully compatible with these requirements (Hoffmann et al., 2017; Horlach et al., 2019; Suomalainen et al., 2015).

Research on APM is still scarce, with little empirical evidence. A systematic review in 2016 identified only six articles discussing the topic, and by 2023, the topic continued to be explored but without much depth, often as part of studies on other themes (Dikert et al., 2016; Goes et al., 2023; Goes & Costa, 2022).

In this context, the study conducted with large Brazilian companies and subsidiaries of international companies that have implemented agile frameworks for APM, using scientific pillars, will present possibilities and levers for other companies to advance in maturity and the use of agile methods in their Governance and Portfolio Management processes.

Aiming to answer the question “How do large Brazilian companies utilize APM in the context of digital systems development?” this article was developed based on the research conducted.

2 Theoretical Framework

Agile methods, which emerged in the 1990s, have strongly influenced IT and project management, and have been widely adopted by companies due to their iterative approach and ability to manage complexity (Ebert & Paasivaara, 2017; Ken Schwaber & Jeff Sutherland, 2020; Yvan Petit, 2022). Based on Lean philosophy, these methods promote continuous efficiency and cultural changes within organizations (Montini et al., 2020).

While they offer advantages such as short cycles and constant feedback, methods like Scrum face challenges in meeting the strategic needs of large organizations (Leffingwell, 2011; Stettina & Hörz, 2015). Models like LESS and Nexus were developed to scale agility, but they still need to improve integration with corporate strategy and portfolio management (Almeida et al., 2019).

The concept of portfolio management, which originated in the 1950s from financial investment portfolio theory, aims to ensure the effective use of resources and maximize the value generated, aligned with corporate strategy and risk level (Dolci & Maçada, 2012). Portfolio management involves the evaluation, selection, and prioritization of projects according to strategic and business objectives, ensuring that the organization's strategy is executed (Kaufmann et al., 2020; Luiz et al., 2019). In globalized environments, autonomous projects are essential to orchestrate organizational strategy, as they allow decisions to be aligned with market expectations (Kopmann et al., 2017; Maylor et al., 2018).

Effective portfolio management coordinates projects with different objectives, enabling resource sharing and knowledge advancement (Ojiako et al., 2023; Wassmer et al., 2017). Some portfolios focus on knowledge development and innovation projects, such as digital systems development. The issue of project selection has been highlighted in recent studies, which seek solutions considering resource constraints, synergies, uncertainties, and financial criteria (Etgar & Cohen, 2022; Hall et al., 2015).

Agile methods, initially created for small, independent teams, are being adapted for portfolio management as companies evolve in their agile maturity (Batista et al., 2022; Goes et al., 2023; McMahon, 2005). As agile methods expand, new challenges arise, such as risk management and dependencies between teams, complicating alignment and requiring greater involvement from senior management (Abrantes & Figueiredo, 2014; Kalliney, 2009). Traditional portfolio management, with centralized decision-making and linear annual plans,

contrasts with agile principles of incremental deliveries and cycles (Ahmad et al., 2017; Leffingwell, 2011).

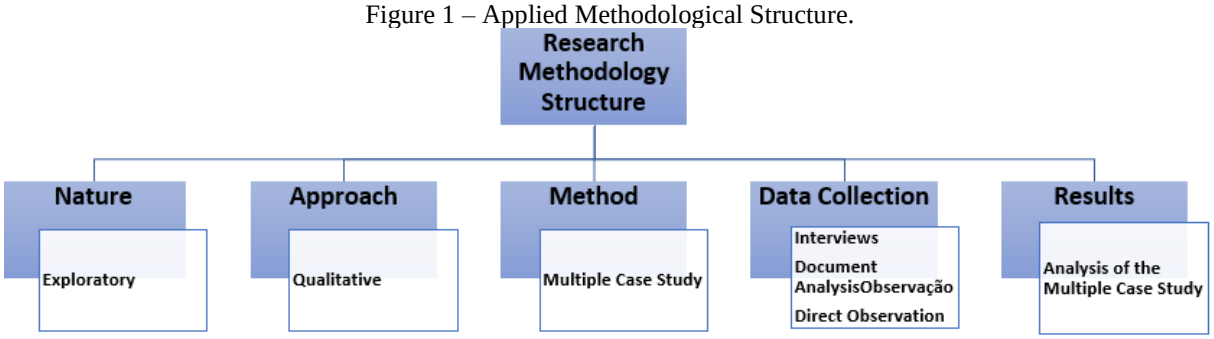
However, well-implemented Agile Portfolio Management (APM) can provide visibility and strategic alignment (Laanti & Kangas, 2015; PMI, 2017). APM challenges the traditional concept of projects with a beginning, middle, and end, treating initiatives as a continuous flow (Harvey & Aubry, 2018). Additionally, portfolio management and product management are interconnected, especially in digital systems, where flexibility in making changes after launch is crucial (Rautiainen et al., 2011).

New models, such as SAFe, have been proposed to scale agility in large companies, integrating portfolio management and project management (Leffingwell, 2011; Stettina & Hörz, 2015). SAFe divides the portfolio into strategic and operational layers, facilitating alignment across all levels of the organization, with short planning cycles and integrated visibility (Abrantes & Figueiredo, 2014). New models, such as SAFe, have been proposed to scale agility in large companies, integrating portfolio management and project management (Leffingwell, 2011; Stettina & Hörz, 2015). SAFe divides the portfolio into strategic and operational layers, facilitating alignment across all levels of the organization, with short planning cycles and integrated visibility (Abrantes & Figueiredo, 2014; Laanti & Kangas, 2015; Scaled Agile, 2023).

3 Methodology

Sciences use scientific methods to achieve their objectives, which involve systematic and rational activities that guide the study (Marconi & Lakatos, 2010). With the research objectives defined, the researcher can plan the necessary resources and activities (Da Silva et al., 2005; Santos & Parra Filho, 2000). Figure 1 illustrates the methodological structure applied in this research.

Figure 1 – Applied Methodological Structure.



Source: Author

This study is exploratory in nature, as there is little information available on the topic in the literature, requiring a bibliographic review during the research to formulate questions and problems to be studied. Exploratory research seeks explanations about concepts and their application in a practical environment, using interviews, field research, and analyses to support the understanding of the topic (Prodanov & Freitas, 2013; Yin, 2015).

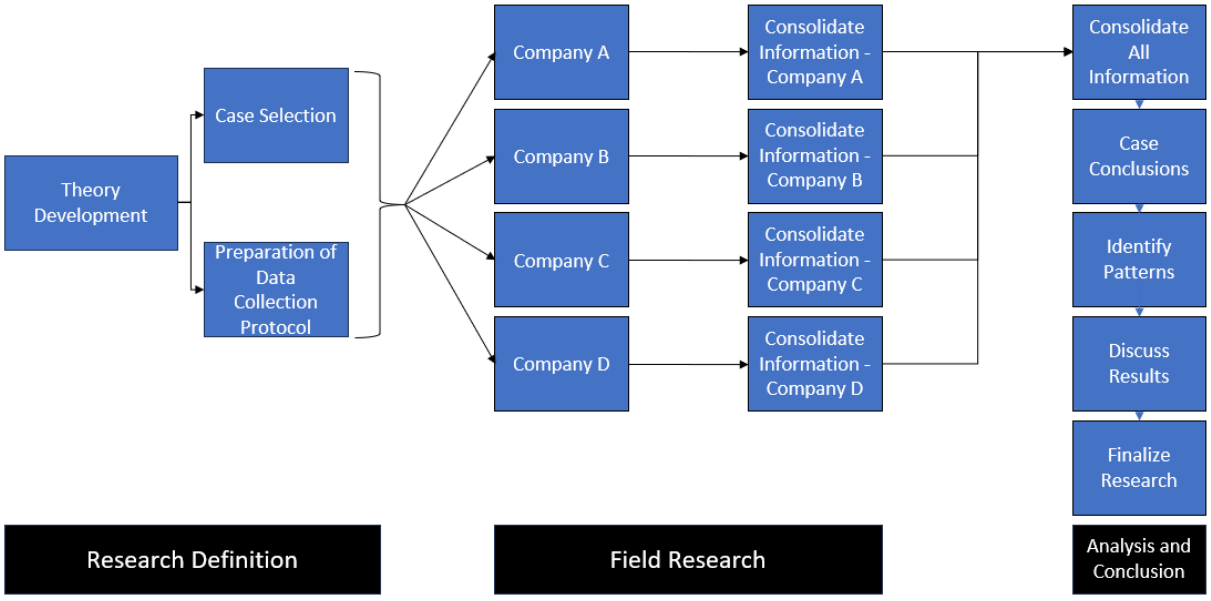
Regarding the approach, the research adopted a qualitative method, which aims to deeply and interdependently understand concepts in a practical context. The qualitative approach focuses on depth and comprehension of the phenomenon, rather than the quantity of data (Cauchick, 2018; Creswell, 2014; Yin, 2015).

Due to the complexity involved in software development and project portfolio governance, the case study method is recommended. This method allows the description, application, or testing of theories through data collection, such as interviews and documents, in a real context (Yin, 2015). A multiple case study was applied, which examines the same topic in different contexts, allowing for deeper analyses and more robust results (Cauchick, 2018; Yin, 2015).

After data collection in a multiple case study, the information is compared with the literature to identify usage patterns and application of the management model, which can be used in the implementation of Agile Portfolio Management (APM) in large companies to facilitate the transformation process. The use of a research protocol is essential to ensure the reliability of the study, allowing it to be replicated or applied in similar cases (Martins, 2008; Yin, 2015). The protocol includes a set of codes and procedures that guide data collection and the application of the case study method.

The research was conducted as follows: The first stage, the research definition, was divided into three phases: (i) Theory development, completed; (ii) Case selection, and (iii) Preparation of the research protocol. Once the "research definition" stage was completed, the second stage, field research, began. This stage is divided into two steps: data collection in the companies and data consolidation. Finally, the analysis and conclusion stage includes the phases of case consolidation, individual conclusions of each case, identification of patterns, and the final stage, which is the discussion of results. Figure 2 presents an overview of the multiple case study developed.

Figure 2 – Stages of the application of the multiple case study in the research.



Source: Adapted (Yin, 2015)

In the Research Definition stage, the first step was to identify the companies that would be part of the study. Four large companies in Brazil that implemented Agile Portfolio Management (APM) and allowed the researcher access to their information and professionals were selected. The chosen companies include a national utility company belonging to an international holding, a global insurance and pension company, an educational sector company, and a digital bank.

Senior and mid-level to high-level management professionals in the technology area were interviewed, along with business professionals directly involved with the research topics. Also participating were those responsible for project methodology and management, as well as

specialized consultants involved in implementing agile methods and portfolio management in large companies.

Bibliometric mapping, complemented by a systematic study, was used to identify the state of the art on the researched topic and highlight research gaps, concepts, and perspectives essential for constructing the questionnaire that defines the scope and areas of interest in the interviews, according to the objectives of the exploratory research and qualitative approach (Moher et al., 2009; Yin, 2015).

The interviews were the primary research instrument, focused on professionals involved in implementing APM in the studied companies. They were conducted in person, by phone, or in groups, with a preference for remote video conferencing, which allowed for the collection of non-verbal information, such as body language, and ensured that the interviewees did not feel pressured in their work environment (Bryman & Bell, 2015; Runeson & Höst, 2008). Video conferencing tools like Microsoft Teams or Google Meet also facilitated document sharing and the use of explanatory diagrams.

The preparation of the interviews was crucial, involving careful planning to ensure that the objectives were met and that the interviews remained focused on the topic under investigation. Creating safe conditions was essential for the interviewees to freely share information and perceptions. The interview guide, formulated as a questionnaire, was sent in advance to the interviewees and selected companies, promoting comfort and security regarding confidentiality (Boni & Quaresma, 2005; Marconi & Lakatos, 2012; Yin, 2015). The semi-structured interview, which combines open and closed questions, facilitated the exploration of the proposed topic, being conducted as an informal conversation to maintain focus on the subject under investigation, especially when the topic was broad and could generate a large volume of information outside the main focus (Boni & Quaresma, 2005; Yin, 2015).

In addition to interviews, the study used documents, historical data, and direct observation of the phenomenon within its context. These techniques, applied individually or together, allowed for an in-depth exploration of the topics within the real environment of the companies (Cauchick, 2018; Yin, 2015). The multiple case study, using various sources of evidence, such as interviews, documents, and observations, sought to identify patterns and conflicting situations, increasing the credibility and reliability of the results through triangulation of the collected information (Eisenhardt, 1989; Freitas & Jabbour, 2011; Yin, 2015). Direct observation enabled a better understanding of complex facts, generating in-depth questions during the interviews based on the observation of objects, behaviors, and facts related to the studied topic (Mattar, 2001).

The data collection, fundamental for the case study, was planned and conducted rigorously to ensure the correct direction of the investigation and maintain ethics (Yin, 2015; Zanelli, 2002). The information collection process followed a sequence of phases: initial contact with the companies, definition of participants, collection of documents and information, conducting interviews, and consolidation of results. This structured process allowed for detailed analysis and data consolidation, ensuring the robustness of the study.

The documents used, such as reports and analyses, will be decharacterized to protect corporate strategy, as the topics addressed are strategic, and their disclosure could harm the company's future results. The number of professionals interviewed will be limited due to scheduling difficulties and the sensitivity of the information related to the launch of new products and system updates, which are still confidential and should not be disclosed.

The study conducted interviews and collected artifacts in four large companies in Brazil that implemented APM. The interviews, conducted both in-person and remotely via Microsoft Teams, involved key professionals, including CEOs, CIOs, CTOs, and specialists in Value Management Office (VMO) and digital transformation. Professionals from a digital bank, a

utility company, an educational institution, and a telecommunications company, all with critical roles in strategy and technology management, were interviewed.

The interviews were carefully planned and recorded, resulting in approximately 22 hours of content. In addition to formal interviews, informal contacts and visits to the companies were made to complement the research. The interviewees were selected for their strategic importance and deep knowledge of technology, with most holding postgraduate degrees or significant academic contributions.

Data collection included not only interviews but also documents such as status reports, meeting minutes, and operational models, ensuring a detailed and comprehensive analysis of APM usage in the studied companies.

4 Analysis of Results and Conclusions

The analysis of the results was developed based on the processes of the studied companies, which were mapped and analyzed, describing how each one implemented Agile Portfolio Management (APM), the challenges faced, and the changes made. It was agreed that names, products, images, and reports would not be disclosed, and all collected materials were anonymized for inclusion in the study. After detailing the processes, a cross-analysis of the collected data will be presented, comparing it with the information obtained from the literature review in academic databases.

The analysis was structured around themes of interest defined from the literature review, namely:

- **Motivators and Frameworks Used** - This theme explores the factors that motivated companies to implement Agile Portfolio Management (APM). In the studied cases, the main motivators included the need to enter new markets, technological evolution, market changes, and new regulations. The SAFe framework was used by all companies, with some also adopting Scrum and Lean Kanban. However, most companies made adaptations to the frameworks to better suit their specific realities.

- **Implementation Process** - This theme details the APM implementation processes in the studied companies. All companies faced the need for significant cultural and structural changes. The active participation of high-level executives, such as CEOs and CTOs, was crucial. Most companies turned to internationally renowned consultancies to lead the transformation, highlighting the importance of a structured approach to APM implementation.

- **Planning and Resource Allocation** - This theme addresses the strategies for planning and resource allocation, with an emphasis on the use of SAFe. The companies followed quarterly planning practices and maintained fixed teams within the trains, but their approaches varied regarding the flexibility of the teams. There was no consensus on the allocation of professionals between trains or by project, reflecting differences in organizational needs and structures.

- **Product Backlog Structure** - This theme describes the structure of the Product Backlog adopted by the companies. The structure was divided into different levels of granularity, allowing for effective management of initiatives. Each level of the

backlog was aligned with specific communication and management needs, with adaptations made as necessary for each company.

- **Rites and Ceremonies** - This theme details the rites and ceremonies used by the companies, most of which follow the SAFe framework. Some adaptations were made to better meet the specific needs of each organization, such as the introduction of an Executive Committee to provide updates on the status of initiatives to senior management.

- **Budgeting and Financial Management** - This theme discusses financial management in the context of APM, highlighting the use of the Lean Budget concept. The Lean Budget approach was used to avoid directly associating costs with specific projects, instead associating them with large teams (trains). The companies showed consensus in applying this strategy, reflecting a significant shift from traditional financial management practices.

- • **Performance Indicators and Management Tools** - This theme explores the performance indicators and management tools used. While the companies shared some common metrics, there were significant variations in the application and interpretation of the indicators. Microsoft Azure DevOps was the most commonly used management tool, with some companies utilizing standardized reports to monitor the progress of initiatives.

The objective of this article was to evaluate large Brazilian companies that implemented an Agile Portfolio Management (APM) process in the context of digital systems development. The results obtained from the four case studies conducted indicate that this research was successful. The data obtained through the literature review and the multiple case study were able to identify patterns in the application and use of APM in the Brazilian context.

The research showed that the increasing use of practices suggested by agile methods, initially used as a complement to traditional management, brought benefits. However, issues with long-term planning or projects that require more precise predictability due to their complexity still persist. It is also noteworthy that using agile methods only in the software development process did not yield the expected benefits. In a project-based company, the competition for resources is evident, and the need for integrated project portfolio management, as opposed to the individual project management approach inherent in agile methods, becomes mandatory.

When it comes to traditional portfolio management, it is not aligned with agile methods in many aspects. To address this problem, new models or frameworks have been developed; however, they encounter strong resistance within companies due to the need for transformation in management processes. This issue is further exacerbated in large organizations, as changes in processes and governance are slow, and there is a lack of understanding from senior management outside the IT domain.

However, in the scientific literature, studies addressing the topic are scarce, and most existing studies are written by market practitioners without the necessary scientific rigor. As a result, companies are left without a portfolio management process that is suited to the current market reality. IT project management professionals lack support to conduct the process and often resort to costly tactics for companies, which, in addition to financial losses, put the appropriate agile methods at risk.

This study identified that using agile methods in individual project management has benefits. It was also found that APM is not a recent topic and is underexplored in the literature.

However, no case studies were found that demonstrate the transformation process or the challenges encountered during the journey of implementing agile project portfolio management processes. On the other hand, information was found indicating that new management models are emerging frequently, thus redefining the way work is done.

Based on the systematic literature review and this information, a theoretical foundation was created to deepen the study of APM, allowing for the structuring of a questionnaire that guided and supported the investigations during the field studies.

Interviews were conducted both in-person and remotely with high-level professionals in four large Brazilian companies, totaling over 20 hours of recordings. The in-person interviews were also used to observe the reality of the companies and to collect documents. In addition to the interviews, visits and informal conversations with company professionals were conducted to seek relevant information without the pressure of a recorded interview, considering the discomfort when sensitive topics were touched upon.

In the end, a comparative analysis was carried out between the four companies studied. This comparison was conducted in blocks representing groups of topics of interest. Several significant findings were made, such as: the SAFe framework prevailed unanimously, although it was expanded with other agile methods used in the market, such as SCRUM, KANBAN, and OKR. Additionally, it was identified that companies make adaptations to the processes suggested by the chosen models to meet their needs in terms of metrics and the execution of rites.

One of the most explored topics was the process of implementing the model or transforming the management model to which the companies were subjected. Regarding this topic, evidence shows that the success of this journey is supported by the active participation of senior management (C-Level), including the initiative for transformation coming from them. Another pillar of support is the need to hire organizational transformation consulting firms, specialized in this area and well-known in the market, which was highlighted and used by most companies. On the other hand, the use of internal professionals (employees) proved to be ineffective, as did the use of small or specific IT service providers. It is also noteworthy that creating a specific area to deal with this new scenario, the VMO (Value Management Office), is necessary.

Regarding team organization, similar scenarios were found in the companies studied, where professionals with new roles, pertinent to the new way of working and focused on themes that aim at synergy with experience and the relationship with the end customer. In this block, the role of the HR department is highlighted, as it took on the leading role in selecting professionals with the competencies to work with this new model. The rites and ceremonies, as well as the structure of the Product Backlog, were other topics that varied little between the companies. Basically, the SAFe framework guidelines are followed, with some complementary rites to meet the particularities of the company's environment. The same occurred with budgeting, where the strategy was little altered from the proposed framework.

When it came to project estimates, there was no consensus, and standardization occurred only in the structure that composes the user stories, where the estimates are made in terms of magnitude, with the scope well-defined for entering the downstream. Regarding prioritization and planning, the companies unanimously prioritize and revalidate initiatives and plan on a quarterly basis, using the WSJF technique from the SAFe framework and involving the most senior members of the organization. The metrics used are concentrated only at the upper levels of the Product Backlog structure, with lead time, cycle time, and throughput metrics, created by the Lean Kanban framework and widely suggested by SAFe, standing out. As for tools and reports, the Microsoft ecosystem is preferred. This package includes Office, Azure DevOps, and PowerBI as tools to assist management. However, there was no standardization among the reports found.

This work aims to contribute to the market by showing how companies use APM to their advantage and highlighting in detail the common points among the studied companies. The study presents how to provide the feasibility of applying APM in large companies and generate financial savings in investments made during the transformation process, bringing solutions that are in use by large companies in the Brazilian market.

In light of the results found, it is expected that companies, through their senior executives, consider APM as an alternative method to enable the company to adapt and respond more quickly to market changes, thereby achieving the best results.

The contribution for project and portfolio management professionals, or those working in PMO and VMO areas, is to seek inspiration and alternatives to leverage the implementation and maximize the benefits generated by APM.

Finally, this study also contributes to digital transformation consulting and corporate strategy firms by showing how these four market-leading companies use APM as a competitive advantage, which frameworks are used, the implementation strategy, and how the sponsors of this transformation should be engaged to achieve the expected benefits.

The results of this study can be used by professionals involved in the transformation process of companies to enable the implementation of APM. These findings consider the variables present in the Brazilian market, derived from its culture, legislation, and management characteristics, demonstrating and enabling the full use of agile methods management practices as obtained from the large companies participating in this research.

During the course of this research, topics emerged that need to be evaluated in new studies by the scientific community. Among them, the definition and application of the OKR methodology for goal management stand out. This methodology, widely promoted by Google and also mentioned in the SAFe framework, should be explored as it becomes one of the pillars for APM, given its flexibility and alignment with the philosophy proposed by agile methods.

The participation of the HR department in the selection process and the management of people during the digital transformation process should be treated as a key player in the transformation process, especially concerning cultural factors, training, and defining the profiles of professionals who best fit this way of working.

During the field research, early-stage initiatives applying Artificial Intelligence (AI) to the APM process were found. In light of this, it is suggested that studies on this topic be conducted, focusing on the sentiments of the professionals involved, the production of artifacts, estimates, and the consolidation of the knowledge base generated in a random manner. These points can be utilized as a competitive advantage in the use of APM.

Finally, it is also suggested that this study be expanded with quantitative research, aiming to identify the main divergences found or to provide alternatives to the gaps left in these case studies, including alternatives for managing long-term initiatives, new frameworks used, and new software tools employed in this management model.

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