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LEAN AGILE: COMBINING THE AGILE APPROACH WITH THE LEAN PHILOSOPHY IN THE SEARCH FOR ORGANIZATIONAL EFFICIENCY

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ABSTRACT

The purpose of this article is to discuss the implementation of Lean Agile and its principles and practices for improving efficiency, quality, and responsiveness in organizational projects and processes. The principles and practices of Lean and Agile stand out for their ability to maximize the delivery of value to the customer, minimizing waste and adapting to changes in the market. The article presents the principles of Lean and Agile, examples of their application in practice, and the challenges faced in integrating these approaches. In addition, common Lean Agile methodological procedures are discussed, such as customer value definition, prioritized backlog, continuous delivery, customer feedback, and postmortem cycles. The results and discussions show how these principles and practices can improve the efficiency, quality and responsiveness of organizations. The conclusion reiterates the importance of the study, its results and suggests future research in the area.

Keywords: Organizations. Development. Operational Efficiency. Processes. Value.

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INTRODUCTION

The *Lean Agile approach*, the result of the synergy between the principles of *Lean Manufacturing* and the *Agile* Manifesto, emerges as a fundamental strategy to improve the development of products and services today. The main purpose of this dissertation lies in maximizing the delivery of value to the customer, while minimizing waste and adapting in an agile way to changes in market demands and in the business environment. (Bastos, 2023)

The theoretical and practical support for the relevance of Lean Agile is broad and diverse. In his research, he highlights the dynamics and high relevance of this approach to meet the requirements of a constantly evolving business scenario. In a context where adaptability is essential in the face of rapid technological change, global competition, and growing consumer demands, *Lean Agile* emerges as a methodology that fosters continuous improvement.

Coutinho (2020) highlights the challenges faced by many organizations related to the waste of resources in their projects, emphasizing that this is where *Lean Agile* stands out. Its emphasis on eliminating waste not only contributes to significant savings in time and resources, but also makes it easier to adapt quickly to technological changes and market needs.

The integration of these sources and other related research highlights the critical importance of *Lean Agile* in the contemporary landscape of project management and product development. This research aims to deepen understanding and contribute to existing knowledge in this domain, as well as offer valuable insights for companies looking to improve their approaches to developing and delivering customer value. Therefore, it is not only an effective response to contemporary challenges, but also a strategic guide for organizations seeking operational excellence and sustained competitiveness.

The objective of this work is to deepen the understanding of *Lean Agile* practices, showing how the systematic application of these principles can transform processes, reduce waste and increase the responsiveness of companies to market demands. This research is justified by the pressing need to provide a detailed and applicable analysis that supports organizations in the implementation of these methodologies, but also the optimization of the value provided to the customer in an increasingly dynamic and challenging corporate environment.

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LEAN MANUFACTURING AND ITS REVOLUTIONARY PERSPECTIVE IN THE INDUSTRY

Lean Manufacturing is a management approach that has revolutionized industry around the world. Its history dates back to the post-World War II era, when Toyota, a Japanese car manufacturing company, faced monumental challenges due to the devastation caused by the conflict and the scarcity of resources. In this challenging scenario, Toyota developed a radically new production system that became the basis of what we now know as *Lean Manufacturing* (Carvalho, 2020)

The history of *Lean Manufacturing* is linked to the development of the Toyota Production System (TPS). Under the leadership of Taiichi Ohno, a visionary production engineer at Toyota, TPS was conceived as a response to the challenges facing the company. Ohno and his team looked at existing production processes and identified a number of inefficiencies and waste. They realized that an approach based on mass production was no longer feasible in a world of limited resources and variable demand (Barretto, 2012).

Some of the basic principles of Lean Manufacturing that emerged from TPS include Just-in-Time (JIT), which seeks to produce exclusively what is necessary, at the necessary time; the concept of uninterrupted flow, which aims to eliminate interruptions and bottlenecks in procedures; and Kaizen, or uninterrupted improvement, which highlights the incessant search for ways to improve processes and reduce waste. (Pacheco, 2014)

Lean Manufacturing gained international recognition in the 1980s, after the publication of the book "The Machine that Changed the World", by James P. Womack, Daniel T. Jones and Daniel Roos. This book highlighted the successes of the Japanese auto industry and described the principles and practices of TPS, inspiring companies around the world to adopt *Lean Manufacturing* (Gentil, 2017).

In the contemporary scenario, *Lean Manufacturing* is widely adopted in various industries, including manufacturing, services, healthcare, and technology. Its legacy endures as a management approach that promotes efficiency, quality, and flexibility in an increasingly competitive business environment.

Although *Lean Manufacturing* has its roots in the post-war Japanese automobile industry, its usefulness and importance persist in expanding and adjusting to the transformations of the contemporary world. One of the areas in which Lean has stood out recently is in sustainability and environmental responsibility. Lean practices have been adopted by companies concerned with reducing their environmental impact by minimizing

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the waste of natural resources, energy, and materials. In addition, *Lean* has been successfully applied in corporate social responsibility initiatives, promoting safe and equitable working conditions and contributing to local communities.

This evolution of *Lean Manufacturing* reflects not only a search for operational efficiency, but also for a holistic and conscious approach to business management in the twenty-first century. By integrating *lean* principles with environmental and social concerns, organizations are not only maximizing their efficiency but also creating sustainable value for all stakeholders involved (Barretto, 2012)

AGILE METHODOLOGY AND THE REVOLUTION IN PROJECT MANAGEMENT AND DEVELOPMENT

The emergence of *Agile* marked a revolution in the way *software* developed and projects are managed. Its history dates back to the late 1990s, when a group of software developers met in *Snowbird, Utah*, in the United States, to discuss ways to overcome the challenges faced by traditional development methods. This meeting culminated in the creation of the *Agile* Manifesto, a landmark that defined the core values and principles of the Agile movement .

The Agile Manifesto, released in February 2001, defined four key principles: prioritizing individuals and interactions over processes and tools; valuing working software over comprehensive documentation; favoring customer collaboration over contract negotiation; and giving preference to adapting to change rather than following a plan. In addition to these principles, the manifesto presented 12 guidelines that guided the Agile approach to software development (Beedle, 2001).

Over the years, several Agile methodologies and practices have been developed to put the values and principles of the manifesto into practice. Among the most well-known methodologies are *Scrum*, *Extreme Programming* (XP), *Kanban,* and *Lean Software Development*. Each of these approaches has its own specific rituals and practices, but they all share the common goal of promoting the rapid, iterative, and collaborative delivery of high-quality software.

Agile quickly gained popularity as an alternative to traditional development methods, providing a more flexible and adaptive approach. In recent years, Agile has continued to evolve to meet the needs of modern organizations, giving rise to approaches such as Agile at scale, which deal with the complexity of large projects and distributed teams (Machado, 2018).

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The widespread spread of *Agile* has become increasingly noticeable across industries and organizations over the years. Companies operating in segments as diverse as finance, healthcare, manufacturing, and government have adopted *Agile* approaches as a response to contemporary project and process management challenges (Mattos, 2015).

This movement is motivated by the recognition of the concrete benefits that *Agile* provides, including the reduction of operating costs, the improvement of product quality, the increase in customer satisfaction and a remarkable ability to adapt to market changes. In addition, the collaborative and customer-centric culture fostered by *Agile* has spurred innovation and creativity in many organizations, empowering them to excel in an increasingly competitive and dynamic business environment.

As a result of this movement, *Agile* has transcended the category of a mere passing trend, establishing itself as a fundamental management approach for the sustainable success of companies in the twenty-first century (Mattos, 2015).

SCRUM AS AN AGILE METHODOLOGY FOR PROJECT MANAGEMENT AND DEVELOPMENT

Scrum is an agile project management methodology that is gaining increasing recognition and application in diverse industries and organizations globally. Emerging as an alternative to conventional project management methods, Scrum stands out for its flexible, iterative, and collaborative approach, empowering teams to respond efficiently to change and deliver value in an agile and continuous way. (Stopa, 2019).

At the heart of Scrum are some essential concepts that guide its implementation. The methodology is based on iterative and incremental work periods, called "sprints", which usually last two to four weeks. During each sprint, the team is dedicated to delivering a priority set of features or product increments.

Scrum also establishes specific roles within the team, including the Product Owner, who is in charge of representing the customer's interests and prioritizing the list of product items; the Scrum Master, who is responsible for ensuring that the team follows Scrum principles and practices and removing any obstacles; and the development team, who is responsible for performing the work necessary to deliver the product increments (Stopa, 2019).

Scrum is guided by a set of principles and values that encourage collaboration, transparency, accountability, and continuous adaptation. Among these principles is the

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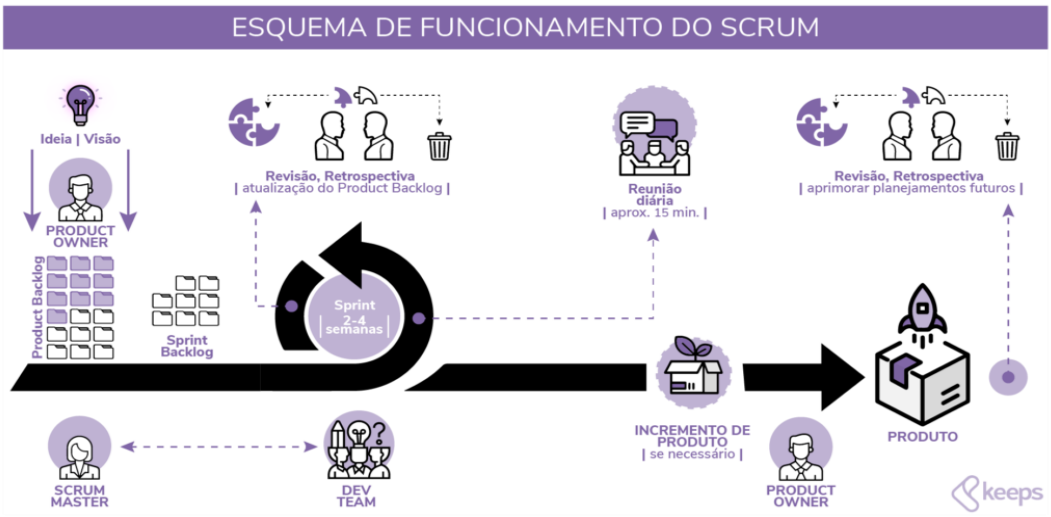
focus on delivering value to the customer, the ability to adapt to changing requirements, and the encouragement of self-organization of teams.

The application of Scrum has demonstrated effectiveness in various contexts and sectors, from software development to marketing projects, education, and even process management. Its advantages include increased flexibility, quality, and customer satisfaction, as well as the reduction of risks and costs associated with project development (Machado, 2018). Figure 1 presents the outline of the Scrum working process and its steps:

Figure 1 - Scrum: Schema of the functional process



Source: Keeps (2022)

INTEGRATING LEAN AND AGILE: A HOLISTIC APPROACH TO PROCESS IMPROVEMENT

The integration of Lean and Agile has proven to be a powerful strategy to improve efficiency, quality, and responsiveness in projects and processes. While Lean is dedicated to eradicating waste and delivering value to the customer, Agile fosters flexibility, collaboration, and continuous adaptation. In this study, we will investigate how these approaches can be combined to create an integrated vision that amplifies the value provided to the customer and promotes operational excellence (Lean Institute, 2012).

The methodologies have as their main objective the delivery of value to the customer. Uniting Lean and Agile implies prioritizing activities that provide direct value to the customer and eliminating waste in processes and systems. Both Lean and Agile promote continuous improvements. Uniting these approaches means establishing a culture of constant learning and improvement throughout the organization. Agile highlights the importance of team collaboration and the ability to self-organize. Uniting these approaches means empowering teams to make decisions autonomously and collaboratively.

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In addition, the union of Lean and Agile contributes to more effective risk management. With the Lean approach, processes are constantly reviewed to identify and reduce potential risks, while Agile empowers teams to react promptly to changes and unforeseen events during the development cycle. This merger strengthens organizational resilience, allowing companies to quickly adapt to market changes and minimize the negative impacts of potential failures.

The union of Lean and Agile not only improves responsiveness but also cultivates an atmosphere of innovation, where teams are encouraged to explore new ideas and approaches to always improve processes and products. By embracing this integrated vision, organizations are better prepared to face the ever-evolving challenges of the modern business world and ensure a long-lasting delivery of customer value. However, to make the most of the benefits of this integration, meticulous planning, proper training, and a company culture that fosters continuous change and creativity are crucial (Coutinho, 2020).

METHODOLOGY

In conducting this research on Lean Agile, we chose to conduct a literature review. This approach allows us to broadly explore knowledge by analyzing scientific articles, books, and technical reports that are dedicated to the topic. The literature review stands out for its ability to offer a comprehensive and up-to-date view of Lean Agile, uniting diverse theoretical and practical perspectives for a deeper understanding.

Generally speaking, a properly conducted literature review needs to draw on and evaluate a variety of different types of sources, including academic and professional journal articles, books, and other resources available on the *web*. By adopting the literature review, it was sought not only to enrich the theoretical knowledge about *Lean Agile*, but also to identify gaps in the existing literature (Rowley; Slack, 2004).

This approach is crucial to guide future research and to support the practical application of the concepts studied. Through the literature review, it was possible to build a solid theoretical foundation, essential for the development of robust arguments and well-founded conclusions.

Within the path towards the mastery of *Lean Agile*, the choice for the bibliographic review proved to be strategic. This methodology not only provided a broad and detailed understanding of the topic, but also contributed significantly to the advancement of knowledge in the field.

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RESULTS AND DISCUSSION

The positive impacts of Lean Agile are driving significant improvements in various operational and strategic areas. This way of working unites the principles of Lean Manufacturing with the values of the Agile Manifesto, and has proven to be fundamental for companies that aim not only to survive, but also to thrive in an increasingly dynamic and competitive business environment.

First, putting the customer first is one of the essential foundations of Lean Agile. Focusing on and offering products or services that truly satisfy customer needs, quickly and steadily, not only improves the customer experience, but also strengthens the bond between the company and its consumers, which results in greater brand loyalty and more positive financial results (Opussoftware, 2018).

Another fundamental benefit is the reduction of waste. It is dedicated to identifying and eliminating activities that do not add value, such as waiting, excessive carrying, and unnecessary inventory. This reduction in waste not only optimizes operational efficiency, but also results in savings in time, resources, and money for the company.

The ability to adjust to change is vital in today's business world. In this sense, Lean Agile offers companies the necessary flexibility to adapt quickly to changes in market demands, customer requirements, and the business environment in general. This skill not only allows businesses to adapt quickly to new circumstances, but it is also essential for maintaining their relevance and competitiveness in an ever-changing landscape. By uniting the principles of Lean and Agile, organizations can develop a dynamic approach that fosters continuous innovation and operational excellence, allowing them to address challenges and seize opportunities in today's market in a solid way (Awari, 2023).

In addition, Lean Agile fosters a culture of constant improvement, encouraging experimentation, learning, and continuous reflection. This enables companies to identify opportunities for improvement in their processes, products, and services, ensuring a continuous and progressive cycle of improvement.

Team collaboration and engagement are also aspects valued by Lean Agile. By highlighting the importance of collaboration among team members and self-management, this approach fosters a more participatory and collaborative work environment, where teams feel empowered to make decisions and actively contribute to the success of the project or the company.

The flexibility and adaptability offered by Lean Agile are essential to meet the challenges and take advantage of the opportunities that arise in today's business world. By

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taking a progressive and interactive approach, companies are able to quickly adjust to changes and revise their strategies as needed. This ability to adapt not only ensures the organization's resilience but also promotes its prosperity in an ever-moving and evolving business landscape.

With Lean Agile, companies are better prepared to deal with variations in market demands and customer needs, allowing for a quick and effective response. This results in a greater capacity for innovation and a lasting competitive advantage. In a world where change is constant, the ability to adapt quickly becomes a crucial strategic differentiator, ensuring that the organization not only survives but also thrives (Bastos, 2023).

In summary, Lean Agile not only brings tangible benefits, such as delivering value to the customer and reducing waste, but also promotes an organizational culture focused on continuous improvement, collaboration, and the ability to adapt to change. These combined benefits empower companies to achieve higher levels of performance and competitiveness, ensuring their long-term relevance and success.

Examples of applying *Lean* and *Agile* principles are provided, showing how companies such as *Toyota*, UPS, and *Spotify* have utilized these approaches to improve efficiency, quality, and responsiveness to changes in the market. The challenges faced in Lean Agile integration are also discussed, such as maintaining a steady pace of delivery, seeking continuous improvement, and balancing flexibility with stability.

In addition, common Lean Agile methodological procedures, such as customer value definition, prioritized backlog, continuous delivery, *customer feedback,* and retrospective cycles, are presented, with examples of effective implementation of these practices. These procedures aim to promote the rapid and efficient delivery of value to the customer, reducing waste and encouraging collaboration and continuous improvement (Bastos, 2023).

FINAL CONSIDERATIONS

In the ever-evolving business age, the *Lean Agile* approach emerges as a guiding beacon, offering companies a strategic and transformative route to navigate the turbulent waters of modern competitiveness.

By integrating the principles of Lean Manufacturing with the values of the Agile Manifesto, this methodology provides a solid foundation for improving not only operational efficiency, but also the quality of products and services, along with the ability to adapt to market changes.

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The tangible benefits brought by *Lean Agile* are like secure anchors in a sea of uncertainty, providing the company with a crucial competitive advantage. From delivering direct value to the customer to reducing waste, to promoting continuous improvement and team collaboration, to operational flexibility, every aspect of this approach contributes to boosting performance and strengthening the resilience of the organization.

The research conducted represents a reliable compass, guiding companies in understanding and effectively applying *Lean Agile.* By illuminating the paths of integration between *Lean* and *Agile*, this research not only expands existing knowledge but also inspires other organizations to embark on this journey of innovation and operational excellence.

In short, the conclusion of this dissertation reinforces the continued relevance of *Lean Agile* as a catalyst for business success and innovation. By adopting this approach, businesses can not only survive but thrive in a dynamic and challenging business environment, preparing to weather the winds of change with confidence and determination.

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