IREM
International Review of Economics and Management
ISSN 2148-3493

Citation: Said, H. & Aktaş, B.N. 2024. Evaluating The Multifaceted Advantages of Lean Project Management In Smes: A Qualitative Analysis. *International Review of Economics and Management, 12(1), 113-141.* Doi: http://dx.doi.org/10.18825/iremjournal.1556638

EVALUATING THE MULTIFACETED ADVANTAGES OF LEAN PROJECT MANAGEMENT IN SMES: A QUALITATIVE ANALYSIS[1]

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Başvuru Tarihi: 26 / 09 / 2024 – Kabul Tarihi: 27 / 11 / 2024

Abstract

This study explores and evaluate multifaceted benefits of lean project management (LPM) in small and medium enterprises from various industry. The 11 corresponding participants were interviewed utilizing semi-structure forms; their responses were interpreted at the mezzo level with MAXQDA 2020 software. The findings revealed that cost reductions are achieved in the use of LPM due to the elimination of features that adhere to the processes and time-to developments. By reducing costs significantly, on account of detailed budget and forecasting, morale is stimulated and surged in the team, which operates on optimal operational efficiency. Lean principles help SMEs deal with unexpectedly challenging times by designing efficient processes, streamlining communication, and aligning their strategic visions to ensure sustainable growth and innovation. Furthermore, effective communication and stakeholder relationship-building contribute to the project's success. It also reveals that gender has some major differences of opinion, wherein females were more cost-saving and resource allocation-oriented while males were cost-benefit ratio-oriented. The study's limitations are a small sample size and the qualitative nature of the data, but key findings still emphasize cost efficiency and financial optimization drivers in SMEs' successful performance through tailored project management.

Keywords: Lean project management, lean practices, lean principles, SMEs

Jel Classification: H21, D23, D24

Article Type: Research Article

[1] This paper is derived from the master thesis titled “Lean Project Management in SMEs.”

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KOBİ'LERDE YALIN PROJE YÖNETİMİNİN ÇOK YÖNLÜ AVANTAJLARININ DEĞERLENDİRİLMESİ: NİTEL BİR ANALİZ

Öz

Bu çalışma, çeşitli sektörlerde faaliyet gösteren küçük ve orta ölçekli işletmelerde (KOBİ), yalın proje yönetiminin sağladığı faydaları değerlendirmek amacıyla hazırlanmıştır. Yarı yapılandırılmış mülakat tekniği kullanılarak 11 katılımcı ile görüşülmüş ve alınan yanıtlar MAXQDA 2020 yazılımı ile analiz edilmiştir. Bulgular, yalın proje yönetiminin, süreçlerdeki karmaşıklıkların ve proje geliştirme sürelerine bağlı belirsizliklerin ortadan kaldırılmasıyla maliyetlerde önemli düşüşler sağladığını göstermiştir. Ayrıntılı bütçeleme ve geleceğe yönelik projeksiyon uygulamalarının maliyetleri kayda değer ölçüde azalttığı, operasyonel verimliliği artırdığı ve bu doğrultuda çalışanların moral ve motivasyonunu olumlu yönde etkilediği görülmüştür. Ayrıca, yalın yönetim ilkelerinin benimsenmesinin, KOBİ'lerin verimli süreçler tasarlamalarını, iletişim kanallarını iyileştirmelerini ve sürdürülebilir büyüme ile inovasyon süreçlerini stratejik bir vizyonla uyumlu hale getirerek beklenmedik zorluklarla başa çıkmalarına yardımcı olduğu anlaşılmaktadır. Ayrıca, etkili iletişim ve paydaş ilişkilerinin güçlendirilmesi, projelerin başarısında kritik bir rol oynamaktadır. Bunun yanı sıra, çalışmada cinsiyetler arasında belirgin görüş farklılıkları tespit edilmiştir; kadınların daha çok tasarruf ve kaynak tahsisi üzerinde durduğu, erkeklerin ise maliyet-fayda oranına odaklandığı ortaya çıkmıştır. Çalışmanın sınırlılıkları, örneklem büyüklüğünün görece küçük olması ve verilerin nitel nitelikte olmasına rağmen, temel bulgular KOBİ'lerin proje yönetimi süreçlerinde maliyet etkinliği ve finansal optimizasyonun başarılı performansın anahtar faktörleri olduğunu vurgulamaktadır.

Anahtar Kelimeler: Yalın proje yönetimi, yalın yönetim uygulamaları, yalın yönetim ilkeleri, KOBİ'ler.

Jel Sınıflandırması: H21, D23, D24

Makale Türü: Araştırma Makalesi

I. INTRODUCTION

The competitive environment of the modern business world constantly puts pressure on small and medium-sized enterprises (SMEs) to become more efficient, reduce costs, and maintain a competitive edge. Lean project management (LPM), with its roots in the Japanese concept of "Kaizen," is a tool for efficiency, flexibility, and dedication to continuous improvement directed at the reduction of waste and maximization of value for end-users (Ekström, 2024; Hosono, 2020), which is critical in the quest to increase efficiency and align operations with strategic organizational goals. It is, therefore, crucial for SMEs to set themselves apart from competitors and foster innovation (Lima et al., 2023). By adopting the concepts of lean, SMEs will have reduced operational costs and increased productivity that will benefit shareholders (Vrečko et al., 2023). LPM suits all corporations, not exclusively large ones; hence, it also suits SMEs because of the dynamic evolution in technology, global linkages, and ever-evolving customer expectations (Vargo & Seville, 2011).

Given the importance of SMEs for economies, it would also be crucial to investigate ways on how they adapt LPM to their specific contexts. This paper, therefore, seeks to assess the multifaceted benefits of LPM within SMEs. The data was acquired by conducting semi-structured interviews on 11 participants from different industries. The interviews gave the real sense of the applications and results of LPM in businesses that span various sectors. The qualitative approach enabled an analysis of immediate operational advantages, including cost reduction and productivity improvement, and also explored the long-term strategic impacts, including sustainability and growth.

The first section of the study is the in-depth review of the existing literature concerned with LPM, its basic concepts, SMEs, and the significance of this approach. The second part of the paper introduces the methodology, while the third part presents the findings derived from the conducted interviews. The next section discusses the findings from the current research and highlights their practical implications for SMEs. To sum up, the paper concludes with recommendations for SMEs interested in adopting LPM and suggestions for future studies.

II. LITERATURE REVIEW

II.I. Lean Project Management

LPM is a procedure oriented toward maximum value and waste reduction in project processes (Saier, 2017). At the core of this methodology lies the principles of lean

management, which border on the questioning of the necessity of each activity or process in the addition of value to a project (Wu et al., 2019). In essence, LPM is oriented toward efficiency as a way of removing non-value-adding activities and constantly improving processes. It focuses on delivering value to the clients by reducing waste of projects and ensuring high performance at the maximum level possible (Saier, 2017).

LPM has evolved as a concept, and numerous studies show its application in various industries that begin from construction and extend to software development and even manufacturing (Xia et al., 2017; Sutherland et al., 2020; Kashikar et al., 2016). For example, in relation to reducing costs, enhancing productivity, and improving quality, LPM results in huge increases of project performance (Meng, 2019; Uusitalo et al., 2019). This means that the application of lean principles in the organization's practices of project management would lead to better outcomes and, therefore, increase the competitive advantage of the organization (Giridhar et al., 2018). LPM, in turn, can possibly be characterized by continuous improvement and an elimination of waste during the entire cycle of the project. Such a nature of approach certainly sets itself apart from traditional project management practices, with clear goals of project delivery, maximizing of customer value, and control over the life cycle of the project (Ramani & Ksd, 2019).

LPM can be used in every industry to enhance productivity and reduce waste (Etges et al., 2018). Wide range of organizations achieve the optimization of production processes, management of resources, and accomplishment of sustainability through the implementation of lean (Maraqa et al., 2020).

II.II. Lean Project Management in SMEs

Studies have shown how SMEs use lean principles for optimizing processes and driving continuous improvement initiatives. Implementing lean practices in SMEs was associated with many benefits, from improved operational performance and reductions in costs to improvements in productivity (Ali et al., 2020). By focusing on critical success factors for the implementation of lean, SMEs are capable of cutting through the fat by streamlining operations, cutting inefficiency, and thereby achieving sustainable growth (Achanga et al., 2006). The implementation of lean principles in project management enables SMEs to emphasize value-adding activities while eliminating those that are not value-adding and optimizing the use of resources. By doing so, SMEs can perform the delivery of projects more effectively, meet the expectations of customers, and ensure business success (Battistella

et al., 2023). Over and above, implementing lean practices in SMEs is critical for overcoming barriers to lean adoption and realizing the maximum benefits from LPM. Even though SMEs face various resource constraints that might raise challenges during the initial stage of any lean initiatives, starting with small funding and progressively mobilizing other resources will help smaller businesses realize many benefits of lean implementation (Yadav et al., 2019).

Lean and green practices potentially increase the economic, environmental, and social sustainability performance of SMEs (Sajan & Shalij, 2020). Implementing lean practices improves operational efficiency, saves the environment, and guarantees social responsibility, which is increasingly becoming important in business practice (Oliveira et al., 2022). Furthermore, optimizing operational processes and reducing waste in aspects such as inventory, space, and lead time are some of the main goals that the SMEs want to achieve through the introduction of lean. Empowerment of employees at all levels of participation empowers SMEs to drive successful project management in lean and hence achieve sustainable improvement in their operations (Knapić et al., 2022).

SMEs should adopt lean practices that are easy and affordable to implement, i.e., with an emphasis on practical and feasible lean strategies (Sahoo & Yadav, 2018; Yadav et al., 2019). Researchers have explored the acceptability and implementation of lean manufacturing in SMEs with a focus on process, flow, and waste (Tanasić et al., 2019). In SMEs, which, by their nature, have limitations of every kind, the applicability of lean principles becomes more relevant, with which SMEs improve their competitive ability, their speed of innovation, and their reduction in production lead time, flexibility, and cost (Seneviratne et al., 2021). In spite of the challenges pertaining to the reluctance of management to adopt lean methods, the implementation of lean systems in SMEs results in productivity improvements (Singla & Sharma, 2023). Furthermore, successful implementation of lean management was associated with increased productivity, competence, and overall business performance (Pavlovic et al., 2019). The benefits derived from lean implementation are not limited to the shop floor; in fact, the advantages of lean extend into many dimensions of business. Manufacturing SMEs primarily aim at achieving lean practices to improve quality, meet customer needs for shorter lead times, and obtain a competitive advantage in price and service quality (Valente et al., 2019). Research has also linked the comprehensive implementation of lean practices, such as customer involvement, statistical process control, flow, and total productive maintenance, with enhanced measures of the market, financial, and operational performance of SMEs (Berlec et al., 2017).

Several critical factors can be discussed that may facilitate the successful implementation of lean in SMEs. Leadership and commitment of management, financial aspects, skills and expertise, and fostering culture that is receptive to inculcating lean practices by the organization are some of the factors that influence the implementation of lean practices in an organization (Shrimali et al., 2018). Top management involvement, attitudes of employees, resource commitment, and organizational culture are other factors that have also significant impact on the implementation of lean management in SMEs (Vlachos, 2015). Some industries in which the concept of lean management is highly relevant for SMEs. For example, in the food supply chain sector, where many of the firms are SMEs, a lean action plan has been developed to deal with the peculiar requirements of SMEs and the challenges they face, particularly in this sector (Sukwadi et al., 2013).

III. METHODOLOGY

III.I. Research Objective

Lean management is crucial for companies, regardless of their size. Nowadays, organizations from all over the world, including SMEs, are applying the principles of lean management for the achievement of operational excellence and overall performance improvement (Alguirat, 2023), rendering the topic all the more critical because of its importance to economies. In turn, the implementation of lean practices within SMEs has been related to a number of benefits, including significant advances in their operational performance, cost-cutting, and productivity (Ali et al., 2020; Fullerton et al., 2014). From this perspective, the present research was designed to focus on the specifics of using LPM by SMEs and aimed to answer the following questions: [1] What are the benefits of LPM for SMEs in terms of cost reduction, improved productivity, and project success? [2] How does the concept of LPM affect the long-term sustainability and growth of SMEs regarding their overall business strategy?

III.II. Semi-structured Interview Form

Toward the aim of the study and based on the research questions, semi-structured interview form was created. Qualitative research methods, such as semi-structured interviews, use an in-depth understanding of individuals rather than a statistical representation (Patton, 1990). The main goal of this basis is to generate conclusions from individuals holding similar characteristics or behaviors (Schofield, 1990). The formulation process of semi-structured interview questions involves various stages (Büyüköztürk et al., 2016): (1) Problem

definition, (2) Draft form creation, (3) Obtaining an expert opinion and creating an application form.

Based on this approach, a question pool was created after conducting a thorough literature review. Then, the questions were shared with the three experts for review to ensure the accuracy of the produced questions and be able to collect the desired data. The experts' review led to the removal of four questions from the draft form, resulting in the final version of the semi-structured interview questions, consisting of six questions.

III.III. Sample and Interview Process

In qualitative research, there is no guideline for sample size selection; rather, the process of selection is highly adaptive to the individuals. Techniques for sample selection include the extreme or contradictory sampling, maximum diversity sampling, affinity sampling, typical case sampling, critical case sampling, snowball sampling, criterion sampling, confirmatory or falsifier sampling, and easily accessible case sampling (Yıldırım & Şimşek, 2016). In this research, however, the snowball sampling is used due to the difficulty in finding those individuals who apply LPM in SMEs.

Interviews were carried out with a total of 11 individuals who hold the manager position or above in Jordanian companies that regularly implements lean management, or when they had a project. For example, hairdresser chain company was aligning services and inventory with customer demand by keeping popular hair products in stock while avoiding overstocking slow-moving items. Prior to the interview, the interviewers provided an overview of the questions, including details on the structure, purpose, and content. Then, the participants were scheduled for appointments via phone calls, followed by the conduction of online interviews. The duration of the interviews ranged between 1 and 1.5 hours. The interviews were video-recorded, and later the records were decrypted and transmitted to a computer. Table 1 presents the demographic characteristics of the participants in the interviews.

Following the evaluation of the application submitted to the Beykoz University Scientific Research and Publication Ethics Board on May 8, 2024, a positive opinion was formed, as evidenced by decision number 6 during meeting number 9 on June 6, 2024.

Table I. Demographics of the participants

Participants	Genders	Industries
Participant 1	Female	Hairdresser Chain
Participant 2	Male	Hospitality
Participant 3	Female	Digital & Media
Participant 4	Female	Event Organization
Participant 5	Male	Engineering
Participant 6	Female	Fashion & Apparel
Participant 7	Male	Software Development
Participant 8	Male	Agriculture & Food
Participant 9	Female	Education
Participant 10	Female	Travel & Tourism
Participant 11	Female	Recycling

III.IV. Analysis

The participants' responses were analyzed using a content analysis approach. A content analysis approach refers to the methodology of analyzing written material so as to make accurate and precise inferences. The main purpose of the content analysis approach is to uncover the latent meaning of written, audio, visual or any other kind of material that conveys symbolic, meaningful content (Krippendorff, 2004). The main purpose of using this technique is to represent the data and to reveal the hidden realities within it. The content analysis approach attempts to offer a significant outcome that answers the research question through data categorization in relation to some themes and notions (Yıldırım & Şimşek, 2016). Inductive content analysis, on the other hand, involves the derivation of themes and categories from data sets and the codes are based on the expressions of the participants and can be combined together to form meaningful statements. In this study, the method of explicit coding process of analysis was used where the categories are developed after assigning the codes and then combined to form the main themes. The analysis procedure, described in the following section, was used in this research:

- First, the identified codes were amalgamated and inspected and then associated with broad themes which may describe the data at a general level and group the codes in definite groups based on similar characteristics.
- Secondly, the data collected by the researcher has been organized. Their information is presented, explained, and illustrated in a manner that is understandable to the reader.

- In the last stage, the relationships between the findings were explained by the researcher in order to make sense of the collected data, cause-effect relationships were established, some conclusions were drawn from the findings and explanations were made about the importance of the results obtained.

Once the interviews and document analysis were completed, further findings were interpreted by linking them to the tables created from the dataset. Analysis were conducted by using MAXQDA 2020 package program, which is well-known for its effectiveness in qualitative and mixed-methods analysis.

IV. FINDINGS

IV.I. Themes and Coding Analysis

Table II. Codes for the theme of lean project management and cost productivity

Codes	N	%
Cost saving	11	26,83
Reduction in development time	8	19,51
Allocating more resources	7	17,07
Eliminating unnecessary features	6	14,63
Improved team morale	5	12,20
Value-adding activities	4	9,76
TOTAL	41	100,00

In the first interview question, the participants were asked to share a specific example of how LPM contributed to cost reduction or increased productivity in a project they managed. Based on the answers to the first question, regarding the theme of “Lean Project Management and Cost Productivity Increase,” the coding analysis resulted in: cost saving, reduction in development time, allocating more resources, eliminating unnecessary features, improved team morale, and value-adding activities, which are shown in Table 2 and Figure 1.

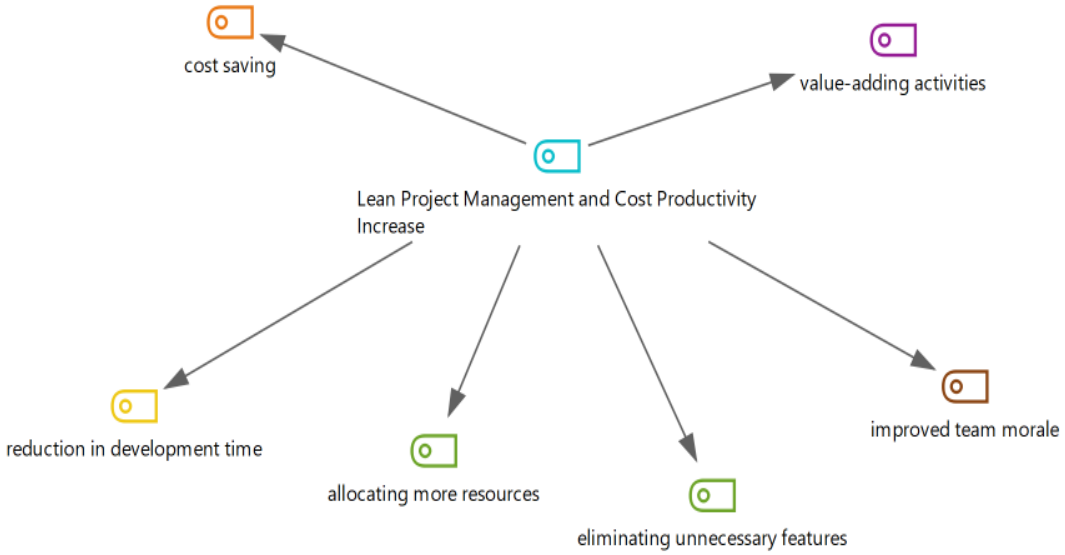

Figure I. Hierarchical code-subcode model for regarding the theme of lean project management and cost productivity increase

Participant 3 provided the most typical response in this context, which is as follows:

Participant 3: "In a digital media project aimed at enhancing our content delivery platform, we employed lean project management by streamlining our development process, eliminating unnecessary features that did not add value to the user experience. This focus on value-added features led to a reduction in development time by 20% and a cost saving of 15% without compromising the quality of the final product. This approach not only increased productivity but also significantly improved team morale as they could see the direct impact of their efforts on the project's success."

The findings revealed that LPM has advantages to SMEs in terms of cost savings, reduced project development time, and elimination of unnecessary features. This encourages SMEs to move their development process towards only value-adding activities, which will lead to a 20% reduction in development time and 15% savings in cost without affecting the quality of the product, as indicated in the third participant respond.

Table III. Codes for the theme of integrating cost considerations into project plan, execution

Codes	N	%
Cost-benefit ratio	7	21,88
Adopting a value-driven approach	6	18,75
Upfront planning	6	18,75
Allocating resources efficiently	5	15,63
Informed decisions	5	15,63
Operational efficiency	3	9,38
TOTAL	32	100,00

In the second interview question, the participants were asked to recall their experience on how they integrated cost considerations into their project planning and execution. Based on the answers to the second question, related to the theme of "Integrating Cost Considerations into Project Plan, Execution," the coding analysis resulted in: cost-benefit ratio, adopting a value-driven approach, upfront planning, allocating resources efficiently, informed decisions, operational efficiency, which are shown in Table 3 and Figure 2.

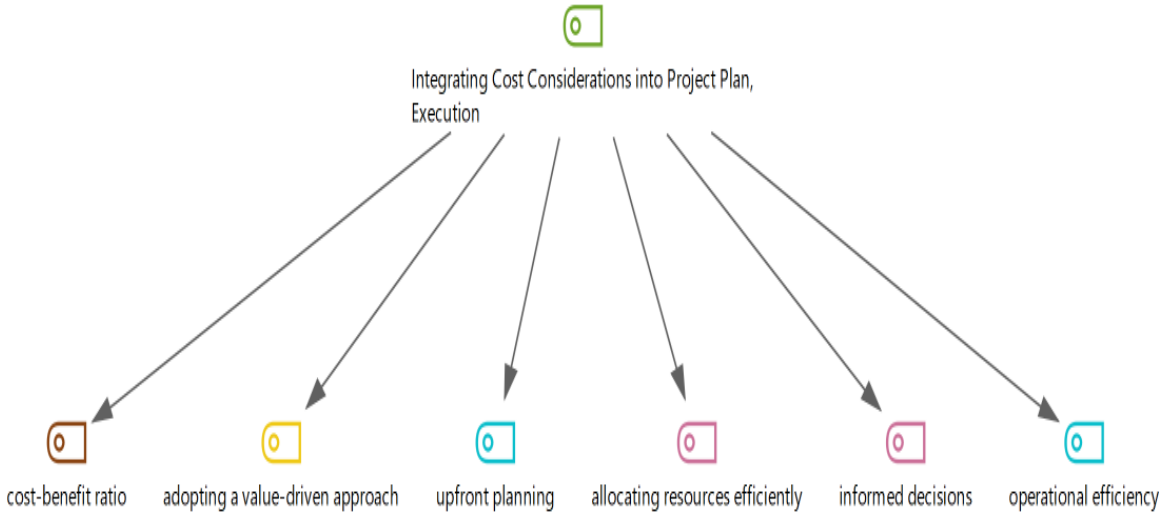

Figure II. Hierarchical code-subcode model for the theme of integrating cost considerations into project plan, execution

Participant 10 provided the most representative response in this context, which is as follows:

Participant 10: "Cost considerations are integrated from the start through detailed budgeting, forecasting, and the application of lean principles to identify cost-saving opportunities without compromising the quality of our travel

experiences. This includes negotiating with suppliers and optimizing internal processes."

Table IV. Codes for the theme of overcoming unexpected challenges with lean principles

Codes	N	%
More efficient process	8	22,22
Reducing time to market	7	19,44
Simplifying	6	16,67
Quickly reassess	5	13,89
Streamlining communication channels	4	11,11
Data integration	4	11,11
Minimizing disruptions	2	5,56
TOTAL	36	100,00

In the third interview question, participants were asked to describe a situation where they faced unexpected challenges during a project. If so, how did lean principles guide their approach to overcome these challenges and contribute to overall project success? Based on the answers to the third question, regarding the theme of "Overcoming Unexpected Challenges with Lean Principles", the coding analysis resulted in: more efficient process, reducing time to market, simplifying, quickly reassess, streamlining communication channels, data integration, minimizing disruptions, which can be seen in Table 4 and Figure 3.

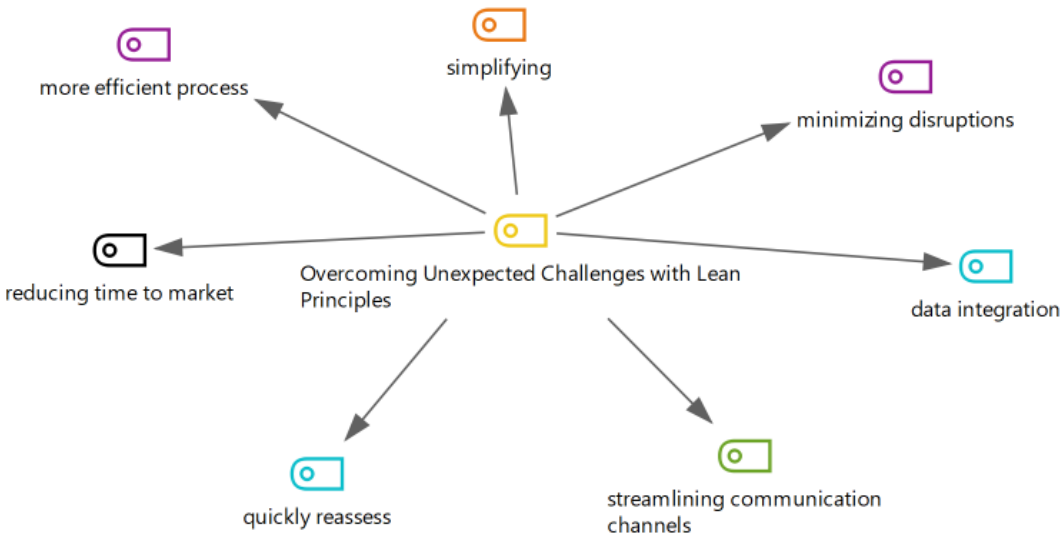

Figure III. Hierarchical code-subcode model for the theme of overcoming unexpected challenges with lean principles

Participant 4 provided the most typical response in this context, which is as follows:

Participant 4: "When a product delivery was delayed, lean principles helped us reassess and optimize our existing inventory, ensuring uninterrupted service. We implemented a just-in-time inventory system as a result, which improved our response to future supply chain challenges."

Table V. Codes for the theme of aligning project plans with strategic vision

Codes	N	%
Long-term objectives	7	19,44
Regular communication	7	19,44
Sustainability	6	16,67
Incorporating flexibility	5	13,89
Market leadership	4	11,11
Innovation	4	11,11
Improving accessibility	3	8,33
TOTAL	36	100,00

The fourth interview question asked participants how they ensured alignment with the company's long-term goals and strategic vision when developing project plans and schedules. Based on their answers, regarding the theme of "Aligning Project Plans with Strategic Vision", the coding analysis resulted in: long-term objectives, regular communication, sustainability, incorporating flexibility, market leadership, innovation, improving accessibility, which are shown in Table 5 and Figure 4.

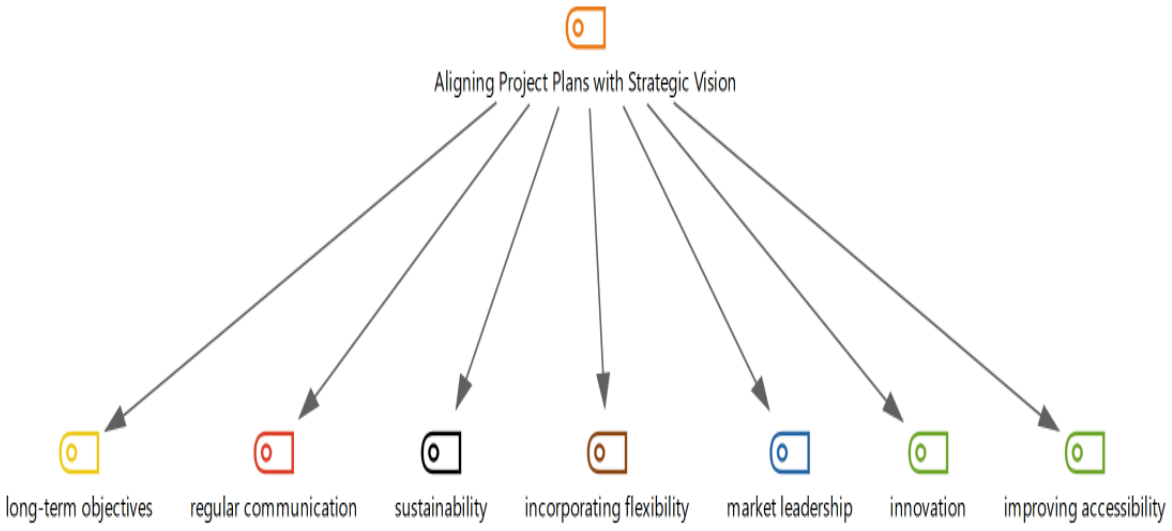

Figure IV. Hierarchical code-subcode model for the theme of aligning project plans with strategic vision

In this respect, participant 3 provided the best example response, which is as follows:

Participant 3: "We align project plans with our company's strategic vision by ensuring each event supports our overarching goals of quality, innovation, and customer satisfaction. Regular reviews with key stakeholders ensure that every event contributes to these long-term objectives."

Table VI. Codes for the theme of effective communication and relationship building

Codes	N	%
Transparency	7	20,00
Clear expectations	5	14,29
Regular update meetings/strong communication	5	14,29
Garnering support	5	14,29
Managing stakeholder expectations	5	14,29
Minimizing resistance	4	11,43
Mutual feedback	4	11,43
TOTAL	35	100,00

The fifth interview question asked participants to share their experience and example, if any, on how has effective communication and relationship building played a role in establishing trust and credibility with team members, stakeholders, and customers. Based on their answers, regarding the theme of "Effective Communication and Relationship Building", the coding analysis resulted in: transparency, clear expectations, regular update meetings/strong communication, garnering support, managing stakeholder expectations, minimizing resistance, mutual feedback, which are shown in Table 6 and Figure 5.

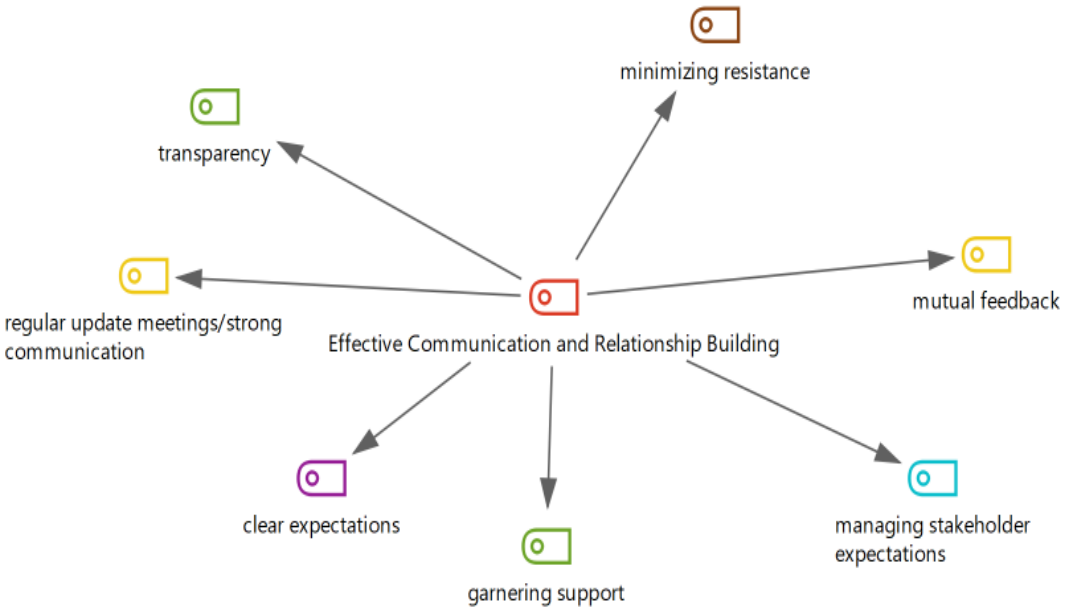

Figure V. Hierarchical code-subcode model for the theme of effective communication and relationship building

In this context, participant 9 provided the most excellent response, which is as follows:

> *Participant 9: "A key example of effective communication was during our initiative to integrate technology in classrooms. By engaging teachers, parents, and students through workshops, surveys, and meetings, we built a strong consensus on the approach, establishing trust and ensuring the initiative's success."*

Table VII. Codes for the theme of lean principles in SMEs' future viability and expansion

Codes	N	%
Sustainable growth	9	20,00
Customer satisfaction	6	13,33
Efficiency	6	13,33
Improving processes	5	11,11
Eliminating waste	5	11,11
Adaptability	4	8,89
Higher productivity	4	8,89
Establishing alternative suppliers	3	6,67
Reducing costs	3	6,67
TOTAL	45	100,00

In the sixth interview question, participants were asked how they foresee the integration of lean principles contributing to the future viability and expansion of SMEs. Based on their answers, regarding the theme of "Lean Principles in SMEs' Future Viability and Expansion", the coding analysis resulted in: sustainable growth, customer satisfaction, efficiency, improving processes, eliminating waste, adaptability, higher productivity, establishing alternative suppliers, reducing costs, which are shown in Table 7 and Figure 6.

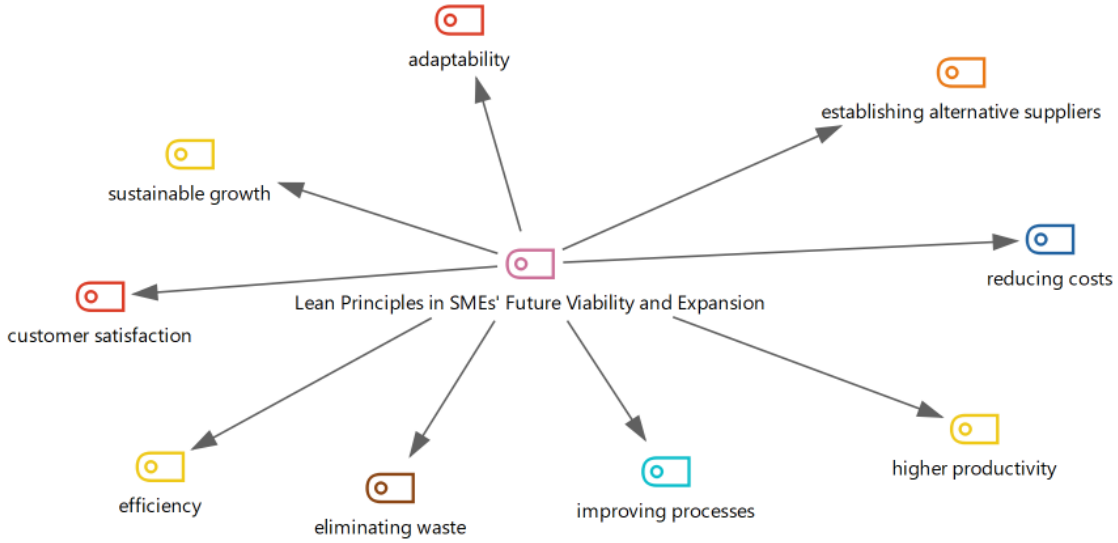

Figure VI. Hierarchical code-subcode model for the theme of lean principles in SMEs' future viability and expansion

In this context, participant 6 provided the exemplary response, which is as follows:

Participant 6: "The integration of lean principles is essential for SMEs to enhance efficiency, reduce costs, and improve customer satisfaction. These practices will be crucial for adapting to market changes, fostering innovation, and ensuring sustainable growth in the competitive fashion industry."

IV.II. Cross-table Analysis

Table 8 lists the most frequently given codes according to the (age, gender) variables taken as demographic variables of the participants within the scope of the study.

Table VIII. Results regarding cross-table

	Female	Male
Lean Project Management and Cost Productivity Increase		
Allocating more resources	5	2
Cost saving	7	4
Reduction in development time	5	3
Integrating Cost Considerations into Project Plan, Execution		
Cost-benefit ratio	3	4
Overcoming Unexpected Challenges with Lean Principles		
Reducing time to market	4	3
More efficient process	4	4
Aligning Project Plans with Strategic Vision		
Long-term objectives	5	2
Regular communication	4	3
Effective Communication and Relationship Building		
Transparency	4	3
Lean Principles in SMEs' Future Viability and Expansion		
Sustainable growth	7	2

The analysis indicates that female participants focus more on resource allocation, cost saving, and reduction in development time during LPM practices than male participants. Male respondents focus more on the cost-benefit ratio and reduction in time to market, indicating they are more focused on process optimization and meeting unexpected challenges. Female respondents also reflect on long-term goals and regular communication, indicating strategic long-term fit and regular communication are important parts of project planning. Transparency is more important for female respondents since it creates trust and builds credibility in the project environment. Sustainable growth is also vital for female respondents and indicates that sustainable growth is one of the most important factors for the future viability and expansion of SMEs.

IV.III. The Code Matrix Browser Analysis

Code matrix browser analysis helps identify key participants whose contributions were particularly significant in the data set. Figure 7 shows the code matrix browser results.

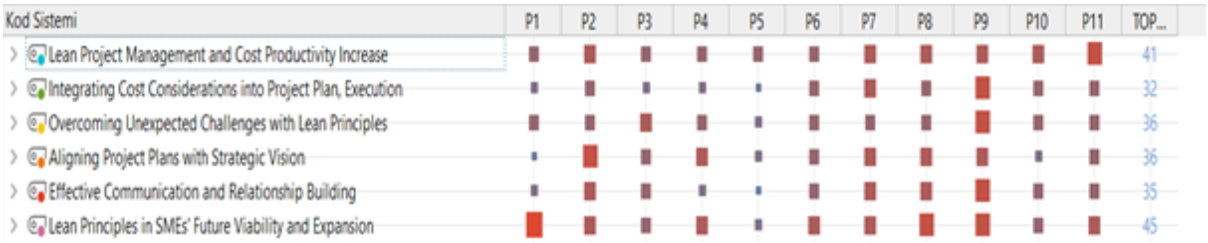

Figure VII. Code matrix scanner related code matrix scanner

The analysis of the Code Matrix Browser shows that participants 8 and 10 made the most substantial contributions to the study. The interviews with these participants had more relevant segments or excerpts that had a code, which means their responses were deeper and richer than those of the other participants. This means that their thoughts and views will most probably provide a better and more accurate reflection of the themes and topics considered in the paper. In all likelihood, these participants gave rich, detailed information that contributed to the richness of the general study.

IV.IV. Code Cloud Analysis

The cloud analysis of the code shows that "cost saving" is the most occurring term from the participants, which can be seen in Figure 8.

Figure VIII. The codes' cloud

V. DISCUSSION

In the first analysis, the finding showed that lean practices can lead a high level of cost efficiency, which is, no doubt, required for the financial health and competitive performance of SMEs. LPM also realign the resources towards value-adding activities, thereby resulting in enhanced productivity and efficient utilization of the resources. Besides, this improves team morale since the impact of their efforts justifies the success of the whole project. Again, based on the value-adding, SMEs are in a well situation to attain a better performance level and more financial health. Those results are consistent with prior studies. For instance, lean implementation within SMEs helps to re-allocate resources to those activities that actually enhance value, subsequently resulting in higher productivity and more effective resource use (Torri et al., 2021). SMEs could use lean management to enhance the performance of the organization and its competitive advantages in the market (Sahoo & Yadav, 2018). In addition, a research has also shown the beneficial effects of lean adoption on the cost-effectiveness, product quality, and delivery time of SMEs (Anuar, 2023).

Based on the second interview question, the participants pointed out the importance of benefit-to-cost evaluation and the necessity for ensuring a value-based SME approach. It could be said that this would ascertain that each investment is projected towards at least one dimension of the project so that investment decisions are prudent and that there is maximum efficiency in the allocation of resources. Also, detailed budgeting and/or forecasting at the upfront planning may enable anticipation of costs and identification of opportunities for costs savings. This approach may facilitate the smooth running of the project and makes it easy for the concerned to make informed decisions throughout the life of the project. Moreover, LPM principles instill the wise use of resources, thus helping to keep costs low and operational efficiency high. The integration of both approaches combines considerations of the cost component in planning and finishing projects to be completed within the project, therefore ensuring that SMEs are cost-efficient. Literature includes valuable results that align with those findings. LPM principles have been found to encourage the judicious use of resources, thus managing costs and improving operational efficiency among SMEs (Nor et al., 2022). Resource allocation is important in SMEs, particularly in the context of challenges in the supply chain, for which modern planning and control methods are needed in order to navigate the complexities and increase the chances for survival (Pérez-Cabañero et al., 2012). Furthermore, the utilization of agile project management practices could provide the SMEs with a more flexible and value-driven approach toward the challenges imposed by new

product development, characteristic of software development practices (Žužek et al., 2021). Implementation of cloud ERP among SMEs can bring some advantages, such as deployment cost reduction, increased scalability, and superior accessibility; therefore, technology adoption can boost operational efficiency and cost-effectiveness (Haddara & Elragal, 2022; Tongsuksai et al., 2023).

In the third interview question, participants stressed the need to design and adapt appropriate processes for SMEs to counteract unforeseen challenges. Waste reduction and customized workflow, through lean principles, might enable SMEs to minimize the time to market and respond to unforeseen challenges. There is also the fact that the situation implies the need to simplify and re-assess the problem immediately. Lean principles imply the division of a larger process into smaller segments that are manageable; thereby, unforeseen problems are identified and solved quickly. Resilient response to unforeseen challenges is based on improved communication. The open channel of communication between employees eliminates noise and increases the speed of solving a problem. The above-strategies will empower the SME to respond correctly to challenges, henceforth the success of a project and efficiency in operation. Literature addresses areas for improvement, which resonates with the need for SMEs to continuously refine their processes to overcome unexpected difficulties (Psomas et al., 2018). A study underlines the advantages of simplifying internal procedure and enhancing performance management through Enterprise Resource Planning. SMEs must have in place simplified internal procedures to achieve better efficacy and agility to adapt to the unforeseen challenge (Federici, 2009). Effective communication within the supply chain is vital for SMEs to overcome obstacles and ensure smooth operations, especially when faced with unexpected challenges that require quick responses (Setyaningsih & Kelle, 2021).

The fourth analysis revealed that project plans should secure or align long-term organizational objectives. Organizing continuous corporate communication between stakeholders may ensure that such alignment is effectively achieved. The project plans should be sustainable to secure the mentioned long-term objectives and overall resilience. This flexibility of the project plans will ensure that the goals are attainable and that there is continuous alignment of the plans with strategic goals. Market leadership can be derived from innovative projects that align with the strategic view. Accessible project plans can also make management of the project more adaptive to and responsive to stakeholders' needs and allow easier modifications and strategies to be flexed with new information or market conditions. Such strategies ensure that project plans are well aligned with the long-term success and

sustainability of the company. These findings are in line with prior studies. For example, the dimension of open innovation and sourcing for ideas—working and collaborating with others outside an entity— corresponds well to the idea of designing effective processes to find solutions. This allows SMEs to tap into expertise from outside in the process of making ways of working streamlined and optimal (Bianchi et al., 2010). On the other hand, a study proposed the role that leadership and strategic management can play in the implementation of LPM projects within SMEs (Belhadi et al., 2019). Moreover, the implementation of lean in SMEs has been indicated as the cause of enhancing lean and green performance, and the two ideas tie in quite well, underlining that one cannot run an effective operation without being responsible for the environment (Thanki & Thakkar, 2019). Another study shows that lean practices positively influence cost-effectiveness, product quality, and delivery time, which stands out as a benefit due to the efficient process (Mangngenre, 2023).

The fifth analysis highlighted the importance of transparency in communication. Clearly stated expectations may also lead to effective interactions and few misunderstandings. Communication and participation need to be maintained through regular updates and good communication systems. The right stakeholders, well-chosen, may offer their support and commit to the project/organization. Harmony needs to be created among the stakeholders' perception, their viewpoints, and the project's objectives by communicating realistic expectations. A well-managed change through communication is able to mitigate apprehensions and concerns about change. Sharing mutual feedback mechanisms can be achieved in long-term partnerships that are created through continuous improvement. All these strategies build trust and credibility, which are important aspects of project implementation and organizational success. A study illustrates that insufficient communication across organizational levels and lack of distribution of lean benefits hinder application of lean principles (Yadav et al., 2019). Establishing clear and efficient communication among all employees involved in the production process allows for timely problem-solving of unexpected difficulties for SMEs (Ajibade et al., 2019). Top management involvement and effective communication are the most important factors for the successful implementation of quality improvement programs in SMEs (Dora et al., 2013). Lean thinking, such as workplace improvements with the use of safety and training, postulates the seriousness of forthright and honest communication to promote a culture of sustainability and innovation within SMEs (De et al., 2020).

The last coding analysis demonstrated that participants, basically, emphasized the need for sustainability of growth in business for long-term survival. Efficiency, waste elimination, and customer satisfaction can also be achieved using lean principles. Moreover, efficiency, cost reductions, and productivity are linked to the processes of improvement emphasized by lean principles. Furthermore, adaptability can ensure SMEs to remain relevant and they can catch up with new opportunities. In addition, efficiency and continuous improvement will result in higher productivity, ensuring more output from less resources. An alternative supplier may also be acquired so as to sustain the productivity and mitigate risk. Hence, cost reduction is expected, as they are able to optimize the processes and eliminate waste, thereby reinvesting in growth initiatives. In brief, these strategies allow SMEs to remain viable, competitive, and capable of expanding in the future by leveraging lean management principles. These findings are in consistent with a research evidence that brings about clear and tangible improvements in operational performance in SMEs while implementing lean practices; this includes a decrease in accidents, machine downtime, and inventory levels. The evidence, therefore, points to the fact that LPM has a favorable effect on SMEs (Ali et al., 2020). Another research proves the successful lean manufacturing progress model and the implementation of SMEs, wherein 10 improvement projects achieved huge milestones within six months. Among them are the reduction of lead time, efficiency metrics like welding per hour and packaging per hour, and the improvement of working process efficiency and raw material storage (Huang et al., 2022).

Furthermore, cross-table analysis revealed nuanced gender-based differences in perspectives and priorities during Lean Project Management (LPM) practices. Such differences provide valuable insights into how diverse approaches can enhance the effectiveness of LPM. Lastly, code cloud analysis gave a clear view that cost-saving measures are of critical importance and relevance with respect to LPM within SMEs. Participants continuously agreed that one of the most important benefits or objectives of implementing lean principles in project management is the reduction of costs. This goes to indicate that cost efficiency and financial optimization are key drivers of success and sustainability with respect to SMEs leveraging LPM practices.

VI. CONCLUSION

The aim of this study is to assess the multifaceted benefits of LPM in SMEs through responding the two main research questions: what are the benefits of LPM for SMEs in terms of cost reduction, improved productivity, and project success? How does the concept of LPM affect the long-term sustainability and growth of SMEs regarding their overall business strategy? The research was conducted using a qualitative approach through semi-structured interviews with 11 participants representing SMEs operating in different industries. The data were analyzed and interpreted using MAXQDA 2020.

Analysis has yielded valuable insights, providing some key benefits of LPM for SMEs. First of all, cost-effectiveness by avoiding irrelevant features that lead to tremendous cost savings and low project development time, increased productivity, and better team morale are direct results of a focus on value-added activities. Secondly, upfront project planning and execution take place by incorporating cost perspectives, detailed budgeting, forecasting, and value-driven approaches for efficient resource allocation and operational efficiency. Lean thinking also helps SMEs make informed decisions and maintain cost control. Third, the lean principles give efficient process design to SMEs; the principles cut across the time to market of products and quicken the communication channels. Quick reassessment and problem-solving strategies manage unexpected difficulties appropriately, ensuring the success of the project. Fourth, regular communication, and flexibility are necessary for ensuring that the plans for a project are in line with the long-term objectives of the company. LPM guarantees sustainable growth, market leadership, and innovation, all fitting into the strategic view of an SME. Fifth, the major principles involving the stakeholder are transparency, regular updating, and mutual feedback to gain trust and credibility with the team, stakeholders, and customers. Project results will be successful if there is effective communication and relationship-building with the stakeholders and their support in managing their expectations. Lastly, the principles of lean make growth and customer satisfaction sustainable by making the value delivery process efficient, eliminating waste, and being adaptive. All these factors support SME viability and expansion over the long term.

Limitations

The study has several limitations that should be noted. The study was conducted by interviewing only 11 participants, and this might not offer a comprehensive view that is characteristic of the diverse range of industries and contexts found in the SME sector. A

larger and more diversified sample will be needed in future research. By deriving qualitative data from semi-structured interviews, it could limit the generalization of the results. Quantitative studies could help in the validation of the found statistics. Triangulating results among participants with other data sources can increase the robustness of the results.

Practical Insights

The findings suggest several practical lessons for SMEs considering the adoption of LPM. They are recommended to focus on eliminating non-value-added activities and to concentrate on features and processes that only contribute directly to the success of the project and customer satisfaction. Cost considerations should be integrated through detailed planning and forecasting, which will allow SMEs to prudently manage resources and maintain control over project costs. The development of flexible project plans responsive to the changing contexts and at the same time addressing the potential unpredicted and challenging conditions is of utmost importance in the achievement of strategic goals and assuring success of the projects. Creation of transparent and regular communication channels between all stakeholders will build trust, manage expectations, and foster a collaborative project environment. It is necessary for an SME to inculcate a culture of continual improvement, ensuring that all procedures are reviewed and fine-tuned, if necessary, to improve efficiency, productivity, and competitiveness.

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