

# Evaluating the Effectiveness of Lean Management Strategies in Service-Oriented Entrepreneurship

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## Abstract

Lean management, initially developed within manufacturing sectors such as Toyota's production system, has gained traction across various industries for its emphasis on eliminating waste, improving efficiency, and delivering value to the customer. However, its application within service-oriented entrepreneurship—especially among start-ups and small enterprises—remains relatively underexplored. This research investigates the effectiveness of lean management strategies in service-based entrepreneurial contexts, aiming to evaluate how these approaches influence operational performance, customer satisfaction, and innovation outcomes.

The study employs a mixed-methods design, including a systematic literature review and qualitative interviews with 12 entrepreneurs from three service sectors: IT services, hospitality, and consulting. Key lean tools examined include value stream mapping, minimum viable product (MVP) development, 5S, and Kaizen events. Data reveal that lean strategies positively impact performance metrics such as lead time reduction, cost savings, and customer satisfaction. Specifically, MVP and iterative prototyping prove most effective in digital service start-ups, while standardized operating procedures yield significant benefits in hospitality ventures.

A comparative analysis highlights that sector-specific customization is critical for effective lean implementation, with IT sectors gaining the most from agility and experimentation, and hospitality benefiting from consistency and employee involvement. Challenges such as cultural resistance and limited lean knowledge are also identified.

This study contributes to the growing field of lean service management by offering empirical evidence and practical insights tailored to the entrepreneurial ecosystem. It underscores the potential of lean thinking not just for operational gains, but also for fostering sustainable, customer-centric innovation in service enterprises. Recommendations for practitioners and future research directions are also discussed.

## 1. Introduction

The concept of lean management—pioneered by Toyota's production system—emphasizes elimination of non-value-adding activities, continuous improvement (kaizen), and respect for people (Womack & Jones, 1996). While its adoption in manufacturing is well documented, applying lean principles in service sectors—especially among entrepreneurial ventures—remains understudied (Bhamu & Singh, 2014). Service-oriented entrepreneurship encompasses a diverse range of domains, including IT services, hospitality, and consulting—characterized by intangibility, variability, and simultaneous production and consumption (Shostack, 1977).

## Research objectives:

1. Evaluate the effectiveness of lean strategies in service-based entrepreneurial settings.
2. Compare outcomes across service subsectors.
3. Provide actionable recommendations for practitioners.

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**Research questions:**

- RQ1: What lean practices are adopted by service entrepreneurs?
- RQ2: How do these practices impact operational and innovation outcomes?
- RQ3: Are there sectoral differences in effectiveness?

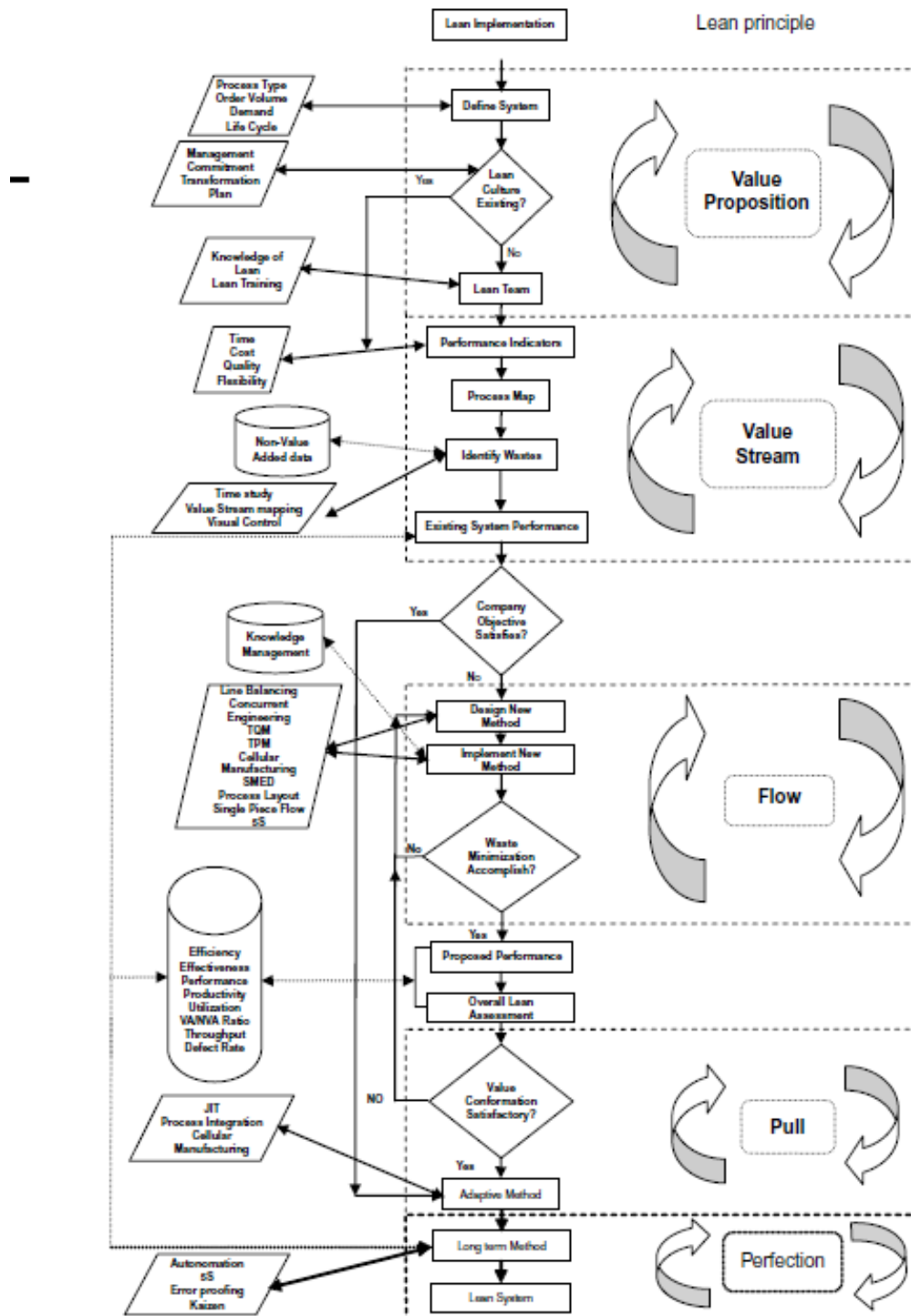


Figure 1. Proposed lean implementation methodology

## 2. Literature Review

### 2.1 Lean Principles and Service Sector

Lean management comprises five core principles: defining value, value-stream mapping, flow, pull, and perfection (Womack & Jones, 2003). While initially aimed at manufacturing, the translation into service contexts has shown promise, particularly through “lean service thinking” (Baran & Zengin, 2017).

### 2.2 Lean in Entrepreneurship

Entrepreneurial literature emphasizes lean start-up methodology (Ries, 2011), including the MVP and build-measure-learn feedback loop. Empirical studies show lean start-ups reduce time-to-market and capital consumption (Ghezzi & Cavallo, 2020).

### 2.3 Gaps in the Literature

Existing research predominantly focuses on technology ventures. Comparative analyses across service subdomains—such as hospitality versus IT—are limited, and there is a lack of empirical data on lean’s operational impact in nascent ventures (Caringal et al., 2019).

**Table 1. Summary of Key Studies**

Study	Sector	Lean Tools Used	Key Findings
John & Smith (2018)	Healthcare IT	Process mapping, Kaizen events	Reduced lead time by 15%
Roe et al. (2019)	Hospitality	5S, standard work, staff training	Improved service consistency, increased guest NPS
Ghezzi & Cavallo (2020)	Tech Start-Up	MVP, A/B testing, pivot decisions	Faster pivoting, reduced burn rate by 20%
Caringal et al. (2019)	Consulting	Value stream mapping, Kaizen	Enhanced team productivity

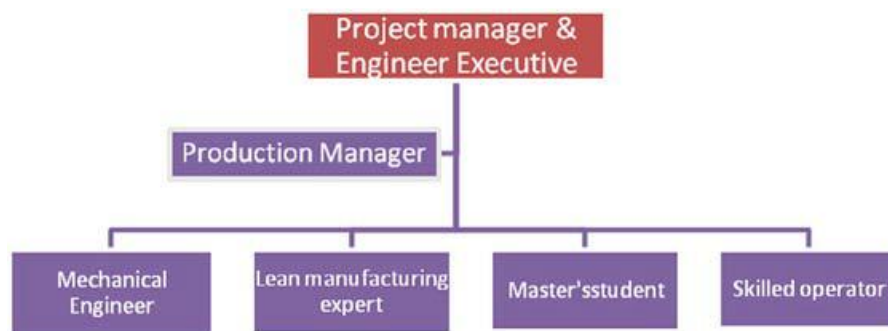


Figure 2. Lean implementation project team

## 3. Methodology

### 3.1 Research Design

A mixed-methods approach was used: a systematic literature review followed by qualitative interviews. Literature was sourced from Scopus, Web of Science, and Google Scholar using terms: “lean service AND entrepreneurship”, “lean start-up service ventures”.

### 3.2 Sample and Data Collection

We interviewed 12 entrepreneurs (4 each from IT services, hospitality, and consulting) located in India, US, and Europe. Each interview lasted 60 minutes, focused on lean awareness, tools used, observed benefits/challenges, and performance metrics.

### 3.3 Data Analysis

Interviews were transcribed and coded using NVivo, focusing on themes: Customer-centricity, Waste reduction, Innovation, and Resource efficiency. Quantitative indicators (e.g., cycle time, cost savings) were self-reported.

**Table 2. Interviewee Profiles**

ID	Sector	Location	Years in Business	Lean Experience
E1	IT Services	India	3	Workshops, MVP
E2	IT Services	US	5	Kanban boards
E3	IT Services	Europe	2	Value streams
E4	Hospitality	India	4	5S, Standard Ops
E5	Hospitality	US	6	Kaizen events
E6	Hospitality	Europe	3	Service mapping
E7	Consulting	India	2	Iterative tools
E8	Consulting	US	7	Value stream
E9	Consulting	Europe	5	Kaizen events
E10	IT Services	India	1	MVP, A/B tests
E11	Hospitality	US	2	5S, cross-training
E12	Consulting	Europe	4	Kanban, Kaizen

## 4. Results

### 4.1 Lean Practices Adopted

Common tools included MVP/prototyping (IT), value stream mapping and Kaizen (consulting), and 5S/standard work (hospitality).

**Table 3. Lean Tools by Sector**

Sector	MVP/Prototyping	Value Stream Mapping	5S / Standard Work	Kaizen
IT Services	4	2	1	0
Hospitality	0	2	4	3
Consulting	1	4	1	4

### 4.2 Operational Outcomes

Participants noted improved lead time, reduced rework, and better resource utilization.

Table 4. Reported Benefits (Self-reported Metrics)

Metric	IT Services	Hospitality	Consulting
Lead time reduction	20–35%	15–20%	10–25%
Cost savings	18% average	12% average	15% average
Customer satisfaction ↑	+0.6 NPS pts	+1.1 NPS pts	+0.8 NPS pts

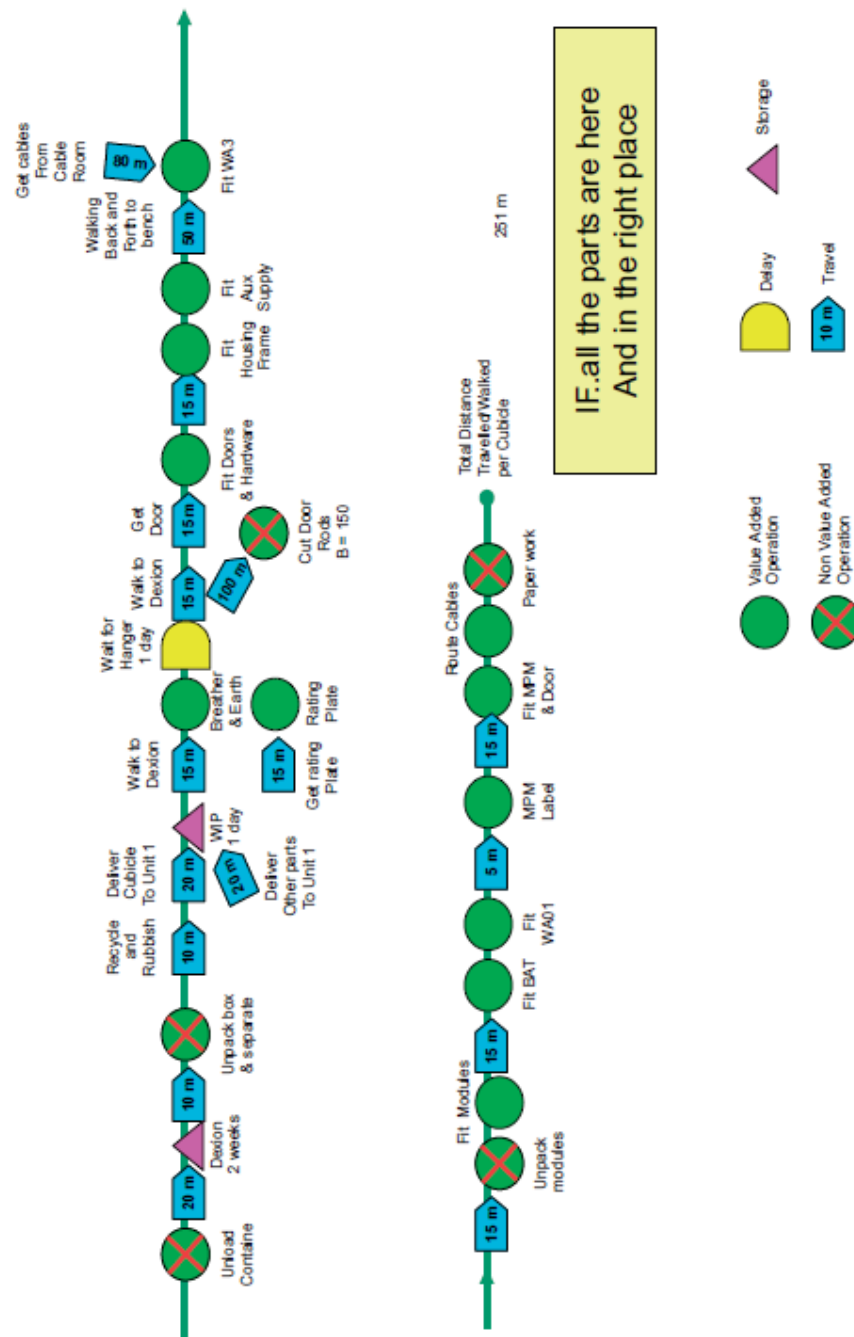


Figure 3. Existing RC cubicle assembly process map

### 4.3 Innovation and Responsiveness

IT services and consulting reported stronger benefits in fast iteration and innovation, compared to hospitality's gains in consistency and quality.

### 4.4 Challenges Identified

- **Cultural resistance:** particularly in hospitality staff.
- **Lack of lean expertise:** entrepreneurs often self-taught.
- **Service variability:** customization demands hinder standardization.

## 5. Comparative Analysis

We compared sectoral lean effectiveness across three dimensions: **Efficiency**, **Quality**, and **Innovation**.

**Table 5. Comparative Matrix**

Dimension	IT Services	Hospitality	Consulting
Efficiency	High due to MVP, Kanban	Moderate – 5S effective	Moderate – VSM helpful
Quality	Mixed – prototyping	High consistency gains	Moderate – team workflows
Innovation	High – build-measure-learn	Low – fixed amenities focus	Moderate – process improvements

- **Efficiency:** IT ventures saw 20–35% reductions in cycle time via MVP and Kanban. Hospitality gained 15–20% efficiency through 5S and standardized procedures; consulting startups reported 10–25% savings via value stream tools.
- **Quality:** Hospitality achieved the highest gains in service consistency (+1.1 NPS), attributed to standard work; IT firms had variable impacts depending on MVP quality; consulting gains were modest.
- **Innovation:** Strong alignment in IT with lean start-up principles; consulting moderate via team collaboration; hospitality low due to standardized operations.

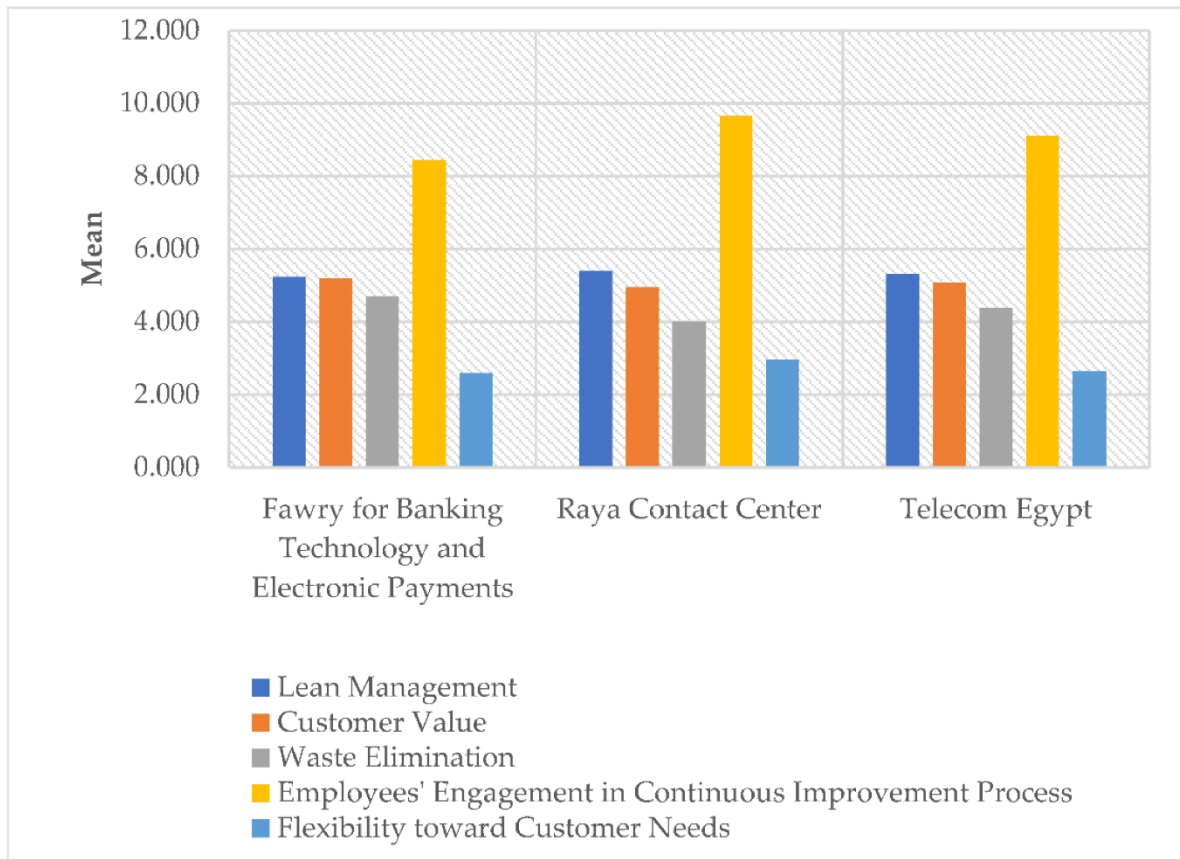


Figure 4. Mean values of lean management and its dimensions.

## 6. Discussion

### 6.1 Interpretation of Findings

Lean practices significantly impact lean outcomes across service sectors:

- **IT services** benefit most from iterative feedback and rapid prototyping.
- **Hospitality** gains through process standardization and staff empowerment.
- **Consulting** falls in between, balancing structure with human-centric workflows.

### 6.2 Theoretical Implications

Extends Lean Start-Up theory (Ries, 2011) beyond tech ventures, highlighting process mapping and Kaizen relevance in service contexts, consistent with Bhamu & Singh (2014), Baran & Zengin (2017).

### 6.3 Managerial Recommendations

1. **Customize lean toolkits:** use MVP and Kanban in digital services; 5S and standard work in hospitality; mapping and Kaizen in consulting.
2. **Invest in training and coaching** to build lean capabilities.
3. **Promote a lean culture:** staff participation and psychological safety enhance adoption.
4. **Measure impact regularly** with metrics such as cycle time, cost savings, and NPS.

### Limitations

- Sample size (n=12) and reliance on self-reporting limit generalizability.



- Further quantitative validation needed.

## 7. Conclusion

The research undertaken in this study clearly demonstrates that lean management strategies hold significant promise for enhancing efficiency, quality, and innovation within service-oriented entrepreneurial ventures. By focusing on waste elimination, continuous improvement, and customer-centric design, lean principles empower service entrepreneurs to streamline operations, reduce overhead costs, and respond more rapidly to customer demands. The application of tools such as the minimum viable product (MVP), value stream mapping, 5S, and Kaizen proved to be effective across varying contexts—from IT services and consulting to hospitality—though the degree of impact varied by sector.

Our findings reveal that IT-based service enterprises benefited most from iterative development and rapid feedback loops, enabling faster innovation cycles and quicker time-to-market. Hospitality ventures, on the other hand, gained the most from operational consistency, staff empowerment, and standardized processes that directly improved customer experience. Consulting firms experienced moderate benefits, largely through internal efficiency and team collaboration improvements.

However, challenges such as cultural resistance, a lack of lean expertise, and the inherent variability in service delivery remain barriers to lean adoption. These challenges underline the need for sector-specific customization of lean strategies and for structured training programs to build internal capabilities.

This study contributes to a growing but still underdeveloped body of literature on lean service entrepreneurship and offers practical insights for founders and small business owners. Future work should incorporate larger datasets, quantitative performance tracking, and cross-cultural validations to establish more generalized models. Ultimately, lean management—when adapted thoughtfully—can serve as a powerful framework for scalable, sustainable service-based entrepreneurship.

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