

Organizational Learning and Lean Management in Service Sector Organizations: A Comprehensive Review

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Abstract: The literature review focuses on Organizational Learning (OL) and Lean management concepts, particularly with respect to service sector organizations. Considering peer-reviewed articles, doctoral theses, edited volumes and institutional reports taken from various sources, the review explains the origins of OL from foundational behavioural theories through contemporary multi-level frameworks, examines core Lean principles and their application to service environments. It also establishes the connection between Lean practice and organizational learning. Investigating findings within India's rapidly growing service economy, the review identifies five prominent research gaps that justify an empirical investigation of the OL and Lean relationship in relation with Indian service organizations.

Keywords: Organizational Learning, Lean Management, Learning Organization, Service Sector, Lean Readiness, Kaizen, Knowledge Management

1. Concept of Organizational Learning

Organizational Learning (OL) is one of the widely researched concepts in management, organizational behaviour and strategic management. The concept of OL has been defined by various researchers from different disciplines such as management, psychology, sociology etc. As each these field is having different perspective, the resulting body of literature becomes both rich as well as fragmented [1].

The origins of OL can be found in the pioneering work done by Cyert and March (1963). In their book "A Behavioural Theory of the Firm", they explained that organizations adapt their behaviour based on past experiences [2]. March and Simon (1958) further explained that organizations develop standard operating procedures and routines based on their past learnings in order to guide their future actions [3].

The conceptualization of OL as a formally theoretical concept is associated with Argyris and Schon (1978). They defined OL as 'the process through which organization members find errors in the organization system and correct them by re-establishing organizational theory of action, norms, strategies and assumptions' [4]. In this conceptualization, they made a clear differentiation between single-loop learning, in which deviations are corrected without challenging the basic assumptions and double-loop learning, in which fundamental governing values/assumptions are challenged and modified.

Fiol and Lyles (1985) defined OL as 'the process of taking actions through acquired knowledge and understanding' [5]. They differentiated between higher-level learning (characterized by complex rule and norm changes) and lower-level learning (characterized by behavioural changes in a fixed structure). Huber (1991) proposed four elements of OL: knowledge acquisition, information distribution, information interpretation and organizational memory [6].

Senge (1990), in his book "The Fifth Discipline", introduced the 'learning organization' concept through five disciplines: personal mastery, mental models, shared vision, team learning and systems thinking [7]. Garvin

(1993) gave a more practical definition which states that 'A learning organization is mastered at creating, acquiring and transferring knowledge and at modifying its behaviour to reflect new knowledge and insights' [8]

Recently, Crossan, Lane and White (1999) proposed a model called 4I framework which included 4 steps Intuiting, Interpreting, Integrating and Institutionalizing. It covers the concept of OL across individual, group and organizational levels and articulates explains the trade-off between exploration and exploitation in it [9]. Moreover, Easterby-Smith and Lyles (2003) contributed significantly by identifying distinct streams including behavioural, cognitive, sociocultural and knowledge-based perspectives [10].

2. Theories and Models of Organizational Learning

The theoretical architecture of organizational learning is based on several foundational models and frameworks. Each one of them offers different views through which OL can be understood, measured and promoted. Some of the important models and theories can be summarized as follows:

Model / Theory	Key Contributors	Core Concepts	Key Processes / Components	Main Insight
Single-Loop & Double-Loop Learning	Chris Argyris; Donald Schön	Error detection and correction at different levels	Single-loop: Fixing errors without changing basic assumptions; Double-loop: Challenge and modify governing values	Highlights depth of organizational learning and transformational change [11]
Five Disciplines Model	Peter Senge	Systems based approach for learning organizations	Personal mastery; Mental models; Shared vision; Team learning; Systems thinking	Integrates individual as well as organizational learning [12,13]
4I Framework	Mary Crossan; Henry Lane; Roderick White	Learning at individual, group and organizational levels	Intuiting; Interpreting; Integrating; Institutionalizing	Highlights feed-forward and feedback learning mechanisms [14]

Experiential Learning Cycle	David Kolb	Learning through experience and reflection	Concrete experience; Reflective observation; Abstract conceptualization; Active experimentation	Connects learning with continuous improvement (PDCA cycle) [15]
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Table 1: Theories and Models of Organizational Learning

3. The Learning Organization: Dimensions and Measurement

There is a considerable differentiation between two concepts i.e. 'organizational learning' (the process) and the 'learning organization' (the goal state). Watkins and Marsick (1993) defined the learning organization as the one that 'learns continuously and transforms itself' [16]. They proposed a seven-dimension model which forms the basis of the widely used 'Dimensions of the Learning Organization Questionnaire' (DLOQ):

DLOQ Dimension	Description
Continuous Learning	Providing avenues for ongoing education and growth for all employees
Inquiry and Dialogue	Encouraging open communication, questioning and feedback
Team Learning	Supporting collective knowledge creation and collaboration
Embedded Systems	Using technology and structures to distribute knowledge
Empowerment	Aligning individual goals with the organizational goals
System Connections	Examining external environments and adapting accordingly
Strategic Leadership	Committing leaders to model and support learning at all levels

Table 2: Seven Dimensions of the Learning Organization (Watkins and Marsick, 1993)

The DLOQ has been validated across different cultural as well as organizational scenarios, including in India (Sharma and Jain, 2016; Baporikar, 2020) and is considered as the most carefully developed psychometric instrument for measuring the dimensions of a learning organization [17].

Garvin, Edmondson and Gino (2008) proposed an alternative 'building blocks' model consisting of a supportive learning environment, concrete learning processes and practices as well as leadership that supports learning. Their Learning Organization Survey (LOS) underlined the concept of psychological safety which says that interpersonal risks at work will not result in negative consequences as a foundational enabler [18].

5. Knowledge Management and Organizational Learning

Knowledge management (KM) and organizational learning (OL) are closely related concepts that together describes how an organization creates, retains, transfers and apply knowledge [19]. According to Davenport and Prusak (1998) Knowledge is a mixture of experience, values, context, and expertise, while OL creates and improves knowledge and KM makes sure the knowledge is institutionalized and disseminated [20].

The SECI Model of knowledge creation was introduced by Nonaka in his book “The Knowledge-Creating Company”. It is considered as an important aspect of KM theory. In the SECI model, there are four types of knowledge creation or conversion processes, namely: socialization (tacit to tacit), externalization (tacit to explicit), combination (explicit to explicit), and internalization (explicit to tacit) [21].

For service sector organizations, tacit knowledge is available to service sector employees in terms of customer needs, relationships and judgment. This tacit knowledge is a vital strategic resource that is extremely difficult to express and transfer [22]. The challenge for service organizations trying to become Lean ready is the development of methods for externalizing and sharing this tacit knowledge while simultaneously enabling internalization of Lean principles [23]. Cohen and Levinthal (1990) defined the concept of 'absorptive capacity' as an organization's ability to identify the value of new information, assimilate it and use it, which directly determines how effectively organizations learn from Lean implementation experiences [24].

6. Organizational Learning in the Service Sector

Although there was a strong association between early work done on OL and manufacturing industries, the service industry presents specific characteristics such as intangibility, heterogeneity, inseparability between production as well as consumption and perishability, which influences how organizational learning occurs in service organizations [25].

In service sector organizations, OL is largely influenced by customer interactions. According to Chase (1978), service organizations run in an environment which is characterized by 'high customer contact,' requiring quick adaptation skills among employees, resulting in OL in the service sector being largely experiential and informal [26]. Much research has been conducted in OL within the banking and finance industry. Bontis, Crossan and Hulland (2002) discovered that the extent of alignment between individual and organizational levels of learning played the greatest role in improving financial performance [27, 28].

With respect to the Indian Scenario, the IT/ITES industry has mostly defined the service industry in Pune. It creates an ideal setting to explore the concept of OL. In knowledge-based service organizations due to the dynamic nature of technology, the ability to learn has emerged as an important competitive strength for sustainability [29]. However, Indian service organizations face structural challenges such as high employee turnover, problems in knowledge retention, hierarchical flow of information and inadequate resources to facilitate effective knowledge acquisition.

7. Lean Philosophy: Origins, Principles and Tools

The origins of the concept of Lean management was found back to the Toyota Production System (TPS), created by Taiichi Ohno, Shigeo Shingo and Eiji Toyoda at the Toyota Motor Corporation in post-war Japan in the 1950s and 1960s [30]. TPS highlighted waste elimination, improvement in quality and flexibility to allow production according to demands [31].

The concept of 'Lean production' was introduced to Western management literature by Womack, Jones and Roos (1990) in their landmark book “The Machine That Changed the World”, an influential study that compared

automotive manufacturing scenario around the world [32]. The five fundamental Lean principles were later established by Womack & Jones are:

- (a) Value:** Defined entirely by the customer. Everything else is waste.
- (b) Value Stream:** Identifying all steps in the value stream for each product or service and eliminating those that do not create value.
- (c) Flow:** Ensuring smooth, uninterrupted movement of the product or service toward the customer.
- (d) Pull:** Producing only what the customer needs and when they need it. Ensuring the demand to drive the production.
- (e) Perfection:** Continuously removing waste and achieving a state of perfect value creation.

Lean is supported by a comprehensive set of tools such as Value Stream Mapping (VSM) [33], 5S methodology (Sort, Set in Order, Shine, Standardize, Sustain) [34], Kaizen continuous improvement [35], Kanban workflow management [36], Poka-yoke error-prevention devices [37], Total Productive Maintenance (TPM) [38], the PDCA/Deming cycle [39] and Single Minute Exchange of Die (SMED) [40]. Liker (2004) identified 14 management principles of TPS which consists of four major themes: long-term philosophy, the right process, people development and continuously solving root issues [41].

8. Lean in Service Sector Organizations

The application of Lean to service organizations has got considerable academic attention as well as practical experimentation since the late 1990s. Although Lean was initially developed for manufacturing sector, the fundamental Lean concepts of waste elimination, flow creation and value creation can easily be transferred to the context of services, with minor changes needed to accommodate particular service characteristics [42].

One of the first attempt in investigating the transferability of Lean concepts to the service sector organizations was conducted by Bowen and Youngdahl in 1998. In this work, authors have given more emphasis on the fact that the customer plays a vital role in the production process, output cannot be standardized in services and waste is created by waiting, redoing and adding extra processes [43, 44].

Swank (2003) highlighted an example of successful adoption of Lean in a service company - Jefferson Pilot Financial's life insurance service operation, in which a 26 percent cut in labour cost, 40 percent reduction in time taken to deliver the service and no occurrence of processing errors were reported [45]. In healthcare sector, Toussaint and Berry (2013) explained that the implementation of Lean is more about cultural change rather than process improvement [46]. Evidence on barriers, facilitators and outcomes related to implementation of Lean is available in case of hospitals and primary health care units from UK's National Health Service [47].

With the financial service, de Koning et al. (2006) have discussed Lean Six Sigma implementation in Dutch financial companies to minimize delays in processing of transactions and error rate [48]. Within IT services industry, Lean approach was interpreted in form of 'Lean Software Development' by Poppendieck & Poppendieck (2003) where the concept of wastes in manufacturing environment was translated to fit into knowledge work environments [49]. In India, Narayanamurthy, Gurumurthy and Balagangatharan (2018) have discussed implementation of Lean approach within Indian software industry and its impact on responsiveness, interaction of employees with customers and timely delivery [50].

9. The Linkage between Lean Management and Organizational Learning

The relationship between Lean management and organizational learning can be said to be extremely interdependent. Lean approach is not just a set of just tools and techniques; it is a learning system, which generates, uses and distributes knowledge at all organizational levels [51].

According to Spear and Bowen (1999), TPS is “smart” because of the learning process that has been developed at Toyota, where the work process itself is defined according to what, when, how and why something must be done and thus any implementation of it is an experiment which leads to learning [52]. Liker and Meier (2006) further explained that TPS works as a distributed scientific inquiry process - every deviation from the norm can be considered a learning opportunity and new knowledge is systematically codified and disseminated [53].

Lean and OL's structural similarity is clear from the fact that the PDCA cycle which is at the heart of Kaizen, is structurally identical to Kolb's (1984) experiential learning cycle, establishing a direct theoretical bridge between Lean practice and learning theory [54]. According to Hines, Holweg and Rich (2004), Lean must be considered at two levels: the operational level (process efficiencies) and the strategic level (fundamental organizational learning and capability development), with Lean implementations that fail to develop organizational learning capability ultimately unsustainable [55, 56].

According to Bessant and Francis (1999), Kaizen has been found to ensure that companies gradually develop more advanced capacity for improving themselves - starting from the realization of problems until continuous improvement. This shows that Lean maturity is inseparable from organizational learning maturity [57]. Bhasin and Burcher (2006) found that approximately 80% of Lean implementations fail to achieve sustainability, which is due to the lack of learning activities within the organization. In other words, lessons learned from one project are not used in other projects [58, 59].

10. Barriers and Enablers for Lean Adoption in Service Organizations

10.1 Organizational Culture and Change Resistance

Organizational culture is mentioned as the primary barrier to Lean implementation in an organization. Kotter (1996) claims that most of the organizational change efforts fail due to insufficient focus on organizational culture. Organizational culture resistance in the service Lean environment appears in form of doubt towards applying manufacturing practices within services, job loss anxiety, avoidance of problem revelation and preference for heroic actions instead of process optimization [60]. Cultural transformation usually takes five to ten years to complete (Womack and Jones, 1996).

10.2 Leadership Commitment and Management Practices

The importance of leadership commitment cannot be overlooked when it comes to transforming an organization into a Lean one (Liker, 2004; Mann, 2005). Lean requires a fundamental change in leadership role - from ‘decision-makers’ to ‘teachers, coaches and system architects’ who creates environment for learning and improvement [61]. Mann (2005) identified ‘Lean management’ as a set of leadership behaviours including daily accountability processes, leader standard work, visual controls and leadership discipline. In Indian service organizations, dominant ‘command and control’ management culture is a significant barrier to the bottom-up approach that Lean demands [62].

10.3 Employee Engagement and Psychological Safety

Lean management requires all employees to act as improvement agents - which Ohno (1988) referred to as “the wisdom of the shop floor” and this demands psychological safety, which means feeling safe in pointing out issues, proposing solutions and admitting errors without fear of reprisal [63]. Psychological safety is a critical determinant

of team learning behaviour, as demonstrated by Edmondson (1999). In service firms with high-performance pressures and a top-down culture driven by key performance indicators (KPIs), psychological safety is very difficult to achieve [64].

10.4 Measurement and Visibility of Waste in Services

In manufacturing, waste is physically visible in terms of inventory, machine downtime, defective parts etc. [65]. In services, waste is mostly invisible which can be in terms of wasted time, unnecessary information processing, lot of approvals, rework of documents or transactions [66]. This invisibility makes waste far harder to identify and quantify in relation to service sector. Developing an effective visual management system for service environments is an unnoticed key to successful Lean implementation in services [67].

10.5 Enablers of Sustainable Lean Implementation

The literature identifies several key facilitators of sustainable Lean management:

- Commitment of the top management team, involving Gemba walk and active participation in problem solving [68]
- Talent development in terms of training for use of Lean techniques and building up in-house Lean capabilities, minimizing the need for consultant support
- Strategic alignment that involves aligning Lean with organizational strategies and customer value proposition [69]
- Systematic knowledge management through documentation of KAIZEN and A3 report preparation, avoiding knowledge leakage [70]

11. The Indian Service Sector: Contextual and Economic Background

The service industry of India has undergone dramatic change over the past few decades, making it the leading industry for contributing towards India's GDP. As per data available with Reserve Bank of India (2023), the service industry accounted for around 54% of India's GDP during 2022-23, with IT / ITES, BFSI and healthcare/education as the major sub-sectors [71, 72].

The opening up of the Indian economy in 1991 brought about a rapid growth in the IT industry, thus making India the largest exporter of IT services. NASSCOM (2023) has stated that IT-BPM industry made a revenue of about USD 245 billion in 2023, which mainly received from exporting their products/services [73]. Major IT hubs including Bengaluru, Hyderabad, Chennai, Mumbai and Pune host global delivery centres alongwith rapidly growing Indian IT enterprises [74].

Pune district, situated on the Deccan Plateau of Maharashtra, has established itself as a major IT and ITES hub over the past two decades [75]. According to the Pune Metropolitan Region Development Authority, there are more than 1,500 IT/ITES firms operating out of Pune, employing more than half a million professionals in technology [76]. Major firms include Infosys, Wipro, Tech Mahindra, Cognizant, Capgemini and KPIT Technologies etc.

Beyond IT, Pune continues to support itself on diverse services sectors including banking, a growing healthcare ecosystem (Deenanath Mangeshkar Hospital, Jehangir Hospital, Ruby Hall Clinic), a significant education sector (Savitribai Phule Pune University, Symbiosis International University, Bharati Vidyapeeth), retail, logistics and an expanding hospitality industry [77]. This trend towards development of service sectors has led to intense competition, rapidly changing expectations of customers and high employee turnover - making organizational learning and lean readiness absolutely necessary [78].

12. Organizational Learning Research in the Indian Context

Studies conducted on organizational learning in India are relatively recent as compared to other countries and have increased significantly during the past two decades. Rao (2004) investigated organizational learning among Bangalore and Hyderabad-based software firms and found that post-project evaluations and knowledge repositories were common; however, inter-team knowledge exchange was affected due to organizational structure and poor incentive programs [79].

Baporikar (2014, 2020) explored the concepts of KM and OL in Indian organizations, identifying cultural barriers including high power distance, in-group collectivism and uncertainty avoidance, suggested explicit OL policies, KM infrastructural investments and the development of psychologically safe environments for knowledge sharing [80].

According to Sharma and Jain (2016), the DLOQ was employed in Indian manufacturing and service enterprises where ‘promoting inquiry and dialogue’ and ‘encouraging collaboration’ emerged significantly weaker than those in the West, suggesting that hierarchy-based communication and function-based division are considerable obstacles [81]. According to Akhilesh & Srinivasan (2018), communities of practice and informal mentoring have been the most successful mechanisms OL systems in Bengaluru IT firms, whereas formal training programs had little sustainable effect [82].

Research specifically focused on OL in Pune-based organizations remains limited. According to Deshpande and Joshi (2015), the cultural attributes needed for OL were lacking in Pune IT companies although they invested in technology-enabled KM systems [83]. Similarly, Kulkarni & Naik (2019) showed that adopting Lean processes considerably increases OL ability in Pune manufacturing firms; this result has yet to be confirmed in service companies, constituting a promising research direction [84].

13. Measurement of Organizational Learning and Lean Readiness

13.1 Measuring Organizational Learning

According to Marsick and Watkins (2003), the Dimensions of the Learning Organization Questionnaire (DLOQ) is the best validated tool for OL measurement at the organizational level, consisting of seven dimensions across three levels – individual, team and organization [85]. This model has proven its reliability in different cultures such as South Korea (Yang, 2003), Turkey (Lim, 2003) and India (Sharma and Jain, 2016).

Organizational Learning Capability (OLC) scale proposed by Chiva, Alegre and Lapidra (2007) examines five OL antecedent dimensions, including experimentation, risk-taking, external environment interaction, dialogue and participatory decision-making [86]. Another scale for the assessment of OL capability developed by Jerez-Gomez, Cespedes-Lorente and Valle-Cabrera (2005) includes four dimensions: managerial commitment, systems thinking, openness as well as experimentation and knowledge transfer and integration [87].

13.2 Measuring Lean Readiness

Lean readiness assessment is described as “a systematic appraisal of the capability, willingness and context within which the organization can successfully implement Lean” [88]. The LAT model of Wan and Chen (2009) considers five variables in determining readiness for Lean adoption, namely, management and organizational culture, processes and technology, personnel, customers and suppliers [89]. The LEA model, proposed by Doolen & Hacker (2005), provides a thorough evaluation of Lean practice adoption in manufacturing environments [90].

For service environments, Malmbrandt and Ahlstrom (2013) developed a specific tool incorporating twelve dimensions including leadership support, customer focus, process orientation, flow optimization, pull systems,

standardization, visual management, continuous improvement culture, employee involvement and waste identification - providing a useful foundation for adaptation to Indian service sector contexts [91].

Psychometric instruments for both OL and Lean readiness should have high reliability (Cronbach Alpha > 0.70), validity (content, construct and criterion) and cross-cultural applicability [92]. For the current study, existing scales need modification for use in the Pune service sector through pilot testing.

14. Research Gaps Identified from the Literature Review

Based on the comprehensive literature reviewed, five substantive research gaps are identified:



Fig.1: Research Gaps

Gap 1: Beyond Manufacturing — OL and Lean as Organizational Philosophies

Previous studies on Lean management philosophy and OL tend to view both approaches as collections of practices aimed at manufacturing industries only. Little attention has been paid while exploring Lean and OL as management philosophies for all organizational structures – especially when talking about the services sector. As for the conceptual aspects of both approaches, they are under-studied in the context of non-manufacturing companies.

Gap 2: OL as a Continuous Improvement Tool Linked to Lean and Performance

While OL is widely discussed as a concept, it has rarely been considered as a continuous improvement tool operating along with Lean management to enhance overall organizational performance. Lean tools like Kaizen and PDCA motivates learning and improvement, but no study has formally measured the relationship between OL, Lean practices and performance outcomes in an integrated model.

Gap 3: Lean as Optimum Resource Utilization, Not Just Waste Elimination

Traditional Lean thinking focuses on identifying and eliminating waste. However, in knowledge-based and service industries, not all non-productive activities are wasteful — many support learning, creativity and innovation. Research is lacking that reframes Lean as a philosophy of optimum resource utilization, seeking the best deployment of people, knowledge and time rather than simply elimination steps.

Gap 4: Aligning OL and Lean with Sustainable Organizational Development

Existing research studies Lean management and OL independently, without connecting them to the long-term for the sustainable development of organizations. Assessment tools for Lean readiness and OL capability exist separately, but no tool integrates both within a sustainability-focused framework applicable to service organizations.

Gap 5: Building a Culture of Continuous Improvement, Employee Involvement and Knowledge Sharing

A useful culture for Lean and OL collaboration requires that the people within the organization experience psychological safety to contribute their ideas and learn from their mistakes. Studies indicate that such cultures do not exist in practice; however, there are limited studies which investigate the impact of such cultures in hindering the implementation of Lean and OL in organizations, especially in the IT/ITES industry in India.

15. Summary

In the process of conducting this literature review, there has been an attempt at presenting a critical review of literature within the domain of Organizational Learning and Lean philosophy. Specifically, the development of ideas of OL has been constituted from its intellectual foundations set out by Argyris and Schon (1978) all the way down to Senge (1990), Nonaka (1991), Crossan et al. (1999) and Marsick & Watkins (2003).

An extensive study of the Lean literature was carried out from its early roots in the Toyota Production System, to the formal allocation of the principles of Lean by Womack and Jones (1990, 1996) and its later use in health care, finance, information technology and other service industries. The key link between Lean and organizational learning was demonstrated by the studies of Spear and Bowen (1999), Hines et al. (2004) and Bessant and Francis (1999).

Service sector context in India, was considered against the backdrop of the economic and demographic environment. The literature related to OL in Indian organizations was extensively analysed and substantial research gaps concerning the relationship between OL and Lean were observed. Five primary research gaps were determined and articulated as the justification for this study.

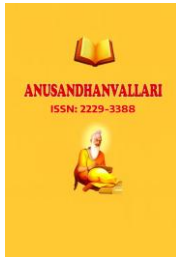
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