The Value of Lean in the Service Sector: A Critique of Theory & Practice

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Abstract

This paper explores the rationale and value of applying lean principles to service sector organizations. The objective of the paper is twofold. First, it challenges the foundations of lean service and identifies several flaws in this production practice. Second, it aims to critically analyze the value of the customer pull concept in service systems. Thirteen databases and search engines were used to obtain literature, and the search was limited to studies published in English since 2005. More than 700 papers were identified through several loops of keywords adjustment and abstract screening to ensure quality and relevance. The review suggests that benefits of lean service transformation are at least doubtful. The review also indicates that lean service transformation is not able to address service operations challenges appropriately. The reason lies in its origins and specific characteristics. Existing research on lean services have failed to criticize lean principles when applied to the service sector. This review will partially fill this gap in the literature. The paper also highlights several opportunities for further research.

Key Words: lean principles, lean service, critique, customer pull

1. Introduction

Lean is a production practice that aims to minimise waste along entire value streams and create more value for customers. According to lean principles, any use of resources that does not deliver consumer value is a target for change or elimination. This management philosophy has mainly been applied in manufacturing, notably in Toyota, and the Toyota Production System, from where Lean originates. However, lean has also been widely applied in non-manufacturing areas (Womack and Jones, 2003).

Despite all the work conducted in the area of lean, there is no debate over the usefulness and usability of lean service. One of the tensions arises when trying to apply lean principles to intangible products. Some of these tensions are made evident by the examples below:

Radnor and Johnston (2013) argue that the UK government's lean transformation mainly focused on cost reduction without considering customer value. They claim that lean service has been applied - by management - in the wrong way and that a new model is necessary to guide managers to the right starting point. However, they did not question the usefulness of the transformation. It seems that efforts are mainly put in adjusting lean principles to make them fit in non-manufacturing areas without debating about the real value of lean principles when applied to the service sector.

Burgess (2012) concluded, in her quantitative research of four case studies, that '…no firm evidence that lean implementation improves performance at an organizational level…' (Burgess, 2012, p.288).

Nevertheless, she recommended that improvements should be measured on a local level and subjective perspectives should be included to support improvements.

In spite of the inconclusive evidence of the study, the author recommended applying lean. There seems to be an assumption that lean manufacturing approaches work well in services and somehow we do not tend to question this credo. The above pitfall is partially discussed by Seddon and O'Donovan (2010) who argue that lean service must be rethought due to wrong management assumptions to work on costs and workers activities instead of managing systems and values like Deming (2000) proposed. They also pointed that the concept of failure demand needs to be taken into consideration. Failure demand is defined by Seddon and Caulkin (2007, p. 17) as 'demand caused by a failure to do something or do something right for the customer; it is the consequence of poor service design'. Seddon and Caulkin (2007) suggest combining the ideas of Taiichi Ohno with systems thinking instead of command and control management behavior. These considerations may challenge current assumptions regarding the value of lean service. There may be alternative better practices than lean service to improve the outcomes of streamline service organizations.

This paper aims to encourage scholars, consultants and service managers to rethink the value of lean service and work on new ways of streamlining organizations to address the challenges faced by service environments.

2. Arguments for Breaking Free From Lean Service Transformation

In this section we proceed with discussions related to lean principles and their applicability to service organizations.

Argument 1: There is no Lean Service

More than 127,000 results were retrieved from Google Search by typing the word group 'lean service operations'. Articles, consulting agencies, presentations, workshops and many more sources aim at explaining the reader what lean service is and how to lean service operations. Dozens of success stories and white paper refer to cases with practical use of lean approaches in services. These are also reported by service management or operations scholars (Arbos, 2002; Piercy and Rich, 2009; Teehan and Tucker, 2010). Interestingly, 'there is a clear theoretical gap when it comes to defining and profiling the conceptual framework of lean service […] with little empirical support' (Suarez-Barraza, Smith, and Dahlgaard-Park, 2012, p. 368). Furthermore, these authors found that lean service is used in the literature as a conglomerate of different approaches like Total Quality Management (TQM), lean thinking and application of single lean methods or tools. This issue seems to be inherited from lean manufacturing as similar problems occur in this subject's literature (Pettersen, 2009). Hence, it seems that service managers and scholars rigorously followed recommendations by Bowen and Youngdahl (1998) that 'manufacturing logic has and, even should still, transfer to service operations' (Bowen and Youndahl, 1998, p. 207).

When ideas, frameworks, models are adapted; shortcomings as well as benefits are transferred. These benefits are what the success stories tell us. But as there seems to be no lean service framework we have to ask if it is really the lean transformation, the application of single lean tools and methods or something else that creates observed performance improvements. To answer this fundamental question we have to return to lean's roots. At this stage we may summarize that it is at least questionable if something like lean service really exists.

Argument 2: Lean Effects in Services Are Misinterpreted or Invalid

There are similar approaches to lean such as TQM and six sigma (Andersson, Eriksson, and Torstensson, 2006). All of them come from the same origin, the Toyota Production System (TPS). Ohno (1988) argued that the major reason for developing this system was extremely low demand, in Japan, during the postwar period. The fundamental change of these approaches was the idea that instead of 'pushing, their products onto the market […] customers, or users, […] pull the goods they need, in the amount and at the time they need them' (Ohno, 1988, p4). It was at the time a new radically different concept. This pull concept seemed to be a kind of North Star for Toyota and all further activities were derived from it. One of the aims of demand-pull was to minimize inventory and eliminate non-value-adding work at all levels of operations and hierarchies (Womack, Jones and Roos, 1990). Though Ohno (1988) strongly advised against codifying the methods Toyota invented and implemented - through its journey of becoming an example of high quality and efficient organization - various scholars (Womack and Jones (1996); Bowen and Youngdahl (1998); Swank (2003); Marr and Neely (2004);Spear (2005);Etherington (2008) and Upton (2011) recommended to do so. Their argument was that codified lean methods 'create wealth for your organization' (Womack and Jones, 2003).

However, when these organizations are scrutinized, 'it cannot be said (Spear, 2005), that the […] organisations which were studied work like Toyota'(Suárez-Barraza et al., 2012, p. 369). However, even if they are not lean in the Toyota way, there is still profound evidence provided that operations in the case studies actually improved. So, what should be wrong with it?

The problem is that service scholars report about improvements in performance that they seem to be unable to grasp and explain in a sufficient manner. This lack of evidence about the positive effects of lean transformation on service organizations has been discussed by Burgess (2012). What really caused these effects if not lean transformation? The answer could be that the attention on particular problems and the willing of management to understand the underlying reasons and mechanisms led to actions that helped to improve the business. For instance, Ohno (1988) sent his managers to the shop floor for several weeks to study and understand production processes. Hence, their further actions were based on profound knowledge and enabled significant improvements. Therefore, we may consider that it is not the knowledge about lean methods, tools or even transformation processes that help organizations to improve their performance. It is the knowledge about daily business reality that counts and enables managers to take actions that really improve their performance (Seddon and O'Donovan, 2010). This is often described as lean methods application to service. However, this has nothing to do with pull concepts or waste reduction. We may simply call it operations knowledge.

Argument 3: The Characteristics of Services Have Not Been Properly Considered

A framework aimed at improving the efficiency of service organizations must consider the key five characteristics of services: intangibility; perishability; inseparability; variability and lack of ownership (Gronroos, 1978; Parasuraman, Zeithaml, and Berry, 1988; Vargo and Lusch, 2004). It is a fallacy to assume that a model developed for the manufacturing sector can be applied and work in services. Here lies one of the problems of lean service (Johnston, 1999; Seddon and O'Donovan, 2010). If something in the codified lean concept does not fit into service operations, it is subtly turned into something completely different but still labeled as lean. This is evident when looking at the 7 types of waste in manufacturing and services described below by Bicheno and Holweg (2009).

Table 1: Types of Waste in Manufacturing and Services

7 types of waste in manufacturing	7 types of waste in services
Overproduction of goods not demanded by customers	**Duplication** like re-entering data, repeating details on forms and similar
Time on hand (waiting) for the next process step, machine, or similar	**Delay** in terms of customers waiting for service delivery
Transportation of goods that is not necessary to create value	**Lost opportunity to retain or win customers** by ignoring them, unfriendliness or similar
Processing itself like unnecessary (quality) inspections within the process	**Unclear communication** with customers or internally leading to clarification circles
Stock on hand (inventory) that are simply waiting for further / future needs	**Incorrect inventory** being out of stock and hence not able to deliver
Movement of workers that is unnecessary is it does not add value to the product	**Movement** in terms of handing over orders, queuing customers several times and similar
Making defective products that cannot be sold or have to be reworked	**Error in the service transaction** including product damages in product-service bundle

Adapted from Bicheno and Holweg (2009)

Interestingly, some types of waste - such as inventory – are interpreted in opposite ways for the manufacturing and service sector respectively. In manufacturing, any unneeded stock is classified as waste while in service the waste is being out of stock. Why this opposite point of view? Is service striving for more inventories to cover demand? Would this be in line with lean principles? As services cannot be stored like goods, it is essential when offering a product-service bundle to be able to deliver spares to field engineers. If an organization fails to deliver both resources in time, the service cannot be provided and a waste of capacity occurs. Hence, waste of being out of stock is comprehensible, but again, is this really lean?

These kind of inconsistencies at a theoretical level create challenges to those organizations that aim at implementing lean (Pettersen, 2009). Lean services fail to address the challenges of the service sector because it is a concept originally developed for another sector. Lean services seem to fail in acknowledging the differences between services and manufacturing organizations.

Argument 4: From Push to Pull Has no Relevance in Services

As already discussed, TPS brings new ways of thinking to the manufacturing sector. One of its core ideas is that goods should be pulled through the supply chain. If applied correctly, TPS has the potential to create financial benefits and increase productivity by reducing or even eliminating all work-in-process (WIP) inventory (Ohno, 1988; Brophy, 2013).

The idea of moving from push to pull has proved beneficial to manufacturing companies in different industries (Womack et al., 1990). But how relevant is this concept when analyzing the service sector? In order to answer this question, we need to refer back to some of the characteristics of service such as perishability, inseparability and heterogeneity. It is clear when considering these characteristics that pull processes are key in a services business. Interestingly, service management never labeled it 'pull'.

Service organizations cannot produce and store products to be sold at a later stage, though they would definitely appreciate having this option. Therefore, it is a matter of capacity management and how to deal with variety in volume and type of demand (Johnston and Clark, 2008). This implies that many service managers have already applied some of the principles of 'pull'. If we now tell service managers to work in a pull concept what would they do? It would be like trying to reinvent the wheel. It is important to notice that services in general are pulled and the challenge faced by this sector is how to 'push' some portion of their capacity into markets in order to be more efficient without trading off quality.

Summarizing, pull has already been adopted by service organizations. The difficulty lies in pushing services into markets in order to increase efficiency in terms of utilization and in-time delivery. The fundamentals of lean developed to address the issues faced by the manufacture sector do not contemplate some of the challenges faced by the service organizations. Therefore, it is questionable whether lean should be transferred from manufacturing to services.

Argument 5: Lean service thinking ends in organizational boundaries

The authors believe that the research conducted by Seddon and O'Donovan (2010), on lean services and their approaches to overcome barriers, would have benefited from widening their perspective beyond organizational boundaries. Their focus is set, as in most lean guides (e.g. Brophy (2013)), on the internal service system. Customers are encouraged to express what they want and to provide quality feedback from this system. According to Seddon and O'Donovan (2010) the organization is trained to address the predictable and unpredictable value demand as efficient as possible.

The above approach with a focus only on the internal organization has led to create inefficiencies. If the discourse on lean recognizes these inefficiencies it would be advisable to also explore inefficiencies in the external environment. Perhaps the mindset that 'customer is king' (Harris, 1991) should be critically analyzed in a service context. This is not to say that customers' wishes should not be considered in the process. On the contrary, we suggest that 'lean service' may consider training customers in order to support efficient and reliable value creation. This is not a novel concept. The idea of co-creation has been extensively discussed by service marketing scholars (Vargo, Maglio, and Akaka, 2008).

Lean origins in TPS assume that customer input is correct. It is seen as a kind of constant in an equation. It is never questioned by lean operations theory, neither in manufacturing nor in service. This could be another flaw of the theory while applying it to service organizations. As customer co-creation is a fundamental truth and pre-condition in service operations reality, it would be negligent not to consider it.

3. Fields for Further Research

The above discussion indicates that lean principles, grounded on TPS, need to be rethought before applying them to services as a lean service system. Some of the ideas of TPS were developed to meet the challenges faced by manufacturers in a low demand environment. It is wrong to assume that concepts developed in a different context will work in a service environment.

There are ideas developed by scholars (Ohno, 1988) that may help service organizations to achieve the objectives that lean fulfill for manufacturing firms. This is not to say that lean has no room within the service industry. In fact, some of the ideas developed by lean may help the services to improve quality and cost efficiency. However, these concepts and methods have to be integrated to a framework that addresses the challenges of service environment. And most importantly, it should be free from manufacturing dogmas. Below, some potential areas for future research are evaluated against the background of lean service.

An alternative method to TPS should be developed to fit the characteristics of service organizations. In doing this, the roots of service management must inform the development of the system (Johnston, 1999, 2005). Such a system should focus on customer value, consider service characteristics, eliminate waste and consider the pull-push approaches. A good example to inform the development of a new framework would be the failure demand concept discussed by Seddon (2005). It addresses a major type of waste in service organizations and is quickly adaptable in practice. It also contemplates one of the important characteristics of services such as heterogeneity enabling service providers to deal with variety.

Other service characteristics may be addressed in different ways. Perishability, for example, could be addressed by postponement, a concept that has been used in several supply chains (Choi, Narasimhan, and Kim, 2012; Xiong, Juga, and Pekkarinen, 2012; Yang and Burns, 2003). It may also be addressed through pushing services into the market and increasing the WIP of planned activities waiting for activation when capacity is available. These activities must be agreed with customers as they are part of service creation.

Inseparability could be seen as a key factor of services. In order to improve value demand, quality and efficiency the concept of co-creation should be linked to service operations management. How could we integrate customers in a way that is beneficial to both, providers and users? There seems to be a huge lever as lean theory up to now mostly disregarded this aspect.

The intangibility as well as non-ownership characteristics of services provide opportunities for further research. Though intangibility could raise disadvantages, tangibility often is a limiting factor in distribution (Vargo and Lusch, 2004). Further research is necessary to reveal its effects on an improved service operations or system thinking framework.

This review indicates that the application of lean tools to services can sometimes generate specific positive effects. There are examples where value stream mapping has revealed areas for improvement (Arbós, 2002), Kaizen practices has helped to eliminate waste (Piercy and Rich, 2009), and a change in call center agents behavior created superior quality (Etherington, 2008). Future research should seek to improve and validate these methods. In order to do this, scholars and managers must be clear about what they want to achieve and what method will help them to fulfill their objectives. It could always be beneficial to apply already proven models and practices (Harré, 2008). However, we need to understand the principles that underpin a model, for what purpose it was invented and how this fits to the given situation in service environment.

Key performance indicators (KPI) often indicate things that managers were taught to be relevant, e.g. like utilization of call center agents. However, in practice these figures might be irrelevant as several studies revealed(Seddon and Caulkin, 2007; Teehan and Tucker, 2010). Hence, there is a need for a practical guide that would enable managers to learn about their organization.

4. Conclusions

The findings of the literature review indicate that there is a lack of debate and understanding about the real value of lean principles when applied to service organizations. There seems to be a strong belief that a principle derived from the manufacturing industry works in a service context (Bowen and Youngdahl, 1998). Because of this assumption, not many have challenged this dominant discourse to the point of even ignoring contradictory findings (Burgess, 2012; Radnor and Johnston, 2013). This paper has critically analyzed the value of lean service. Hopefully, it will help the readers to free their brains from this lean service “pollution”.

A closer look upon lean, respectively TPS, history revealed fundamental differences between manufacturing and service environment. The answers Toyota found for their problems through the development of lean do not provide an answer to many of the challenges faced by service organizations. The principles do not necessary work because service is different in push and pull practice, in the inability of storing capacity, in the creation process and especially in the variety of demand.

In order to find a better way to streamline service organizations, scholars should find answers for service specific problems and characteristics. We should prevent ourselves from confusing service managers by confronting them with manufacturing practices that do not reflect their reality.

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