

A novel interpretation of Service Management in the perspective of Lean Production

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Abstract

The culture and the operational methods of service management (SM) have become a formidable competitive weapon even for manufacturing firms. The term "service factory" has been proposed for identifying that particular integration of products and services, achieved by the excellent manufacturing firm. On the other hand, Lean Production (LP) emerged as one of the most popular topics in business and manufacturing literature. Since the cardinal work of the International Motor Vehicle Program at MIT several companies have gained superior performances by adopting the Toyota Production System. Lean production is seen as the third step in an historical progression, which took industry from the age of the craftsman through the methods of mass production and into an era that combined the best of both. Starting from the analysis of literature related to both the concept of service management and LP practices, the authors propose a novel interpretation of Service Management in the perspective of Lean Production. In the paper a matrix-based model is developed which highlights the relationships between the main practices that characterize Lean production with four distinctive features of Service Management. The model shows how the traditional characteristics of service factory underlie the functioning of Lean Production firms.

Keywords: Service Management, Service Factory, Lean Production, Lean Practices

Service Factory and Lean Production

Robert Chase has emphasized the importance of combining product and service aspects in a competitive environment. He has proposed the term *service factory* to identify the integration between products and services (Chase and Erikson,1988; Chase and Garvin,1989; Chase,1990; Chase,1991). As stated by Chase,

the Service Factory can be seen as the final stage of an evolutionary process of a manufacturing firm: from *traditional*, to *flexible* and therefore *service factory*. Chase and Erikson (1988) proposed the concept of the *service factory* in which manufacturing personnel and the factory itself share a service mission that extends beyond the basics of reliable, flexible and cost-effective production. In this approach, the company offers those products/services that represent the solution of customer's "problem". Nowadays, the SM assumes a key role in firm's competitive strategies.

On the other hand, Lean Production (LP) has emerged as one of the most popular topics in business and manufacturing literature and is seen as the third step in an historical progression, which took industry from the age of the craftsman through the methods of mass production and into an era that combined the best of both. This philosophy, developed by Toyota in 50s and 60s, is grounded to the concept of "doing more with less" and increasing the value deliverance to the costumers. To implement Lean Production principles, several lean tools and practices have been developed (Shah and Ward, 2003; Doolen and Hacker, 2005; Panizzolo, 1998; Bonavia and Marin, 2006; Karlsson and Åhlström, 1996).

A Model for analysing the relationships between Lean Production and Service Management

Starting from the analysis of literature related to both the concept of Service Factory and Lean Production practices, a matrix-based model (see Figure 1) has been developed which highlights the relationships between the main practices that characterize Lean Production with four distinctive features of Service Management.

The rows of the matrix contains 38 key Lean Production practices. They are grouped into five different areas of intervention: Process & Equipment, Manufacturing Planning and Control, Human Resources, Supplier Relationships, Customer Relationships.

The columns of the matrix comprise some distinctive characteristics of Service Factory. Among the many characteristics of the service firm, as described in the literature (Grönroos, 1994; Bowen *et al.*, 1990; Heskett *et al.*, 1990; Vandermerwe and Rada, 1988; Chase, 1988; Chase, 1991), the authors have selected four as being of particular importance to manufacturing firms: customer involvement in the production process, simultaneous production and consumption, service package and human resources as crucial assets.

The central thesis of this paper is that the characteristics of Service Factory that have just been presented, are not only distinguishing features of the service factory, but can be seen to be a part of the cultural heritage of manufacturing firms that have implemented Lean Production practices. The authors propose the conceptual framework of Figure 1 that shows how the traditional characteristics of service factory underlie the functioning of Lean Production firms.

In the matrix of Figure 1 we have indicated with a "x" if the Lean practice of the i-th row is correlated with the Service Factory characteristic of the j-th column. Due to the lack of space, we cannot describe in

detail the matrix. In the following we provide only some examples of how Lean Production practices support a Service Factory approach.

Service Management Characteristics	CUSTOMER INVOLVEMENT IN THE PRODUCTION	SIMULTANEOUS PRODUCTION AND CONSUMPTION	SERVICE PACKAGE	HUMAN RESOURCES AS FUNDAMENTAL ASSET
Lean Production Practices				
Process & Equipment				
set up reduction		X		
flow lines		X		
rigorous preventive maintenance		X		
error proof' equipment				X
progressive use of new process technologies			X	
process capability		X		
order and cleanliness in the plant	X			X
continuous reduction of cycle time		X	X	
Manufacturing Planning & Control				
levelled production		X		
synchronised scheduling	X	X	X	
mixed model scheduling	X	X	X	
under-capacity scheduling		X	X	
small lot sizing		X		
visual control of the shop floor				X
overlapped production		X		
pull flow control	X			
Human Resources				
multifunctional workers				X
expansion of autonomy and responsibility				X
few levels of management		X		X
worker involvement in continuous quality improvement programmes	X		X	X
work time flexibility		X		
team decision making			X	X
worker training				X
Supplier Relationships				
JIT deliveries		X	X	
open orders	X		X	
quality at the source			X	
early information exchange on production plans	X	X		
supplier involvement in quality improvement programmes	X		X	
reduction of number of sources and distances		X		
long-term contracts	X		X	
total cost supplier evaluation	X		X	
Customer Relationships				
reliable and prompt deliveries		X	X	
commercial actions to stabilize demand	X	X		
capability and competence of sales network			X	X
early information on customer needs	X	X		
flexibility on meeting customer requirements	X		X	
service-enhanced product			X	
customer involvement in quality programmes	X		X	

Figure 1-LP practices and SM characteristics relationship analysis

In Lean Production manufacturing is regulated through a pull logic. Downstream consumption primes upstream production, rendering production and consumption almost simultaneous. The logic that links the upstream and downstream centres is, thus, that of service: in fact, production is based on exactly what, how much and when it is required. In order to guarantee that this will function, full responsibility, and consequently the necessary authority, must be delegated to workers to manage the operations.

As regards, customer involvement in the production process, LP practices as pull flow control, early information on customer needs and open orders are finalized to enhance the level of customer participation. Moreover, it emerges that practices as set up reduction, JIT deliveries and rigorous preventive maintenance strengthen the simultaneous production and consumption. Finally, practices such as multifunctional workers,

expansion of autonomy and competence of sales network are closely related to human resource as a fundamental asset.

References

The list of references is available at:

https://www.dropbox.com/sh/2e55o9957ixh8ip/AABAVlsRcF0dT_o9USxQIjrLa?dl=0