

## The Connection between Lean Thinking, Lean Management, Lean Enterprises, and Lean Performance Index

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### 1. Introduction

Initially, enterprises pursued the goal of being “lean” in order to cut waste, that is, to reduce the waste of up and down stream customers – time and cost – and thus reducing enterprise waste with no bonus values. In management, lean thinking includes “five principles”: value, value stream mapping, flow, pull, and continual improvement (Womack and Jones, 1996). The ultimate goal of lean thinking is to create customer value through the reduction of waste.

However, the above five principles are not described from the perspective of lean consumption. Consumption is when the inner state of customers combines with their exterior behavior with the goal of satisfying needs or interests – this includes evaluation, acquisition, use, and handling, etc. and are the underlying reasons that consumers expend their time and effort. Enterprises pursue lean management from the perspective of enterprise function under the assumption that they may easily fulfill the desired value of consumers (Standard and Davis, 2000). In reality however, consumers mostly struggle in the process of consumption as enterprises waste the time and money of consumers.

Our research attempts to redefine the five principles from the perspective of consumer value creation in the service industry while at the same time investigating the relationship between the five principles and lean consumption from the consumer

perspective. There has been much research in lean thinking from the service industry perspective (Barraza et al., 2009), but there has not been much research from the lean consumption perspective; thus besides investigating lean consumption through the five principles, our research also attempts to connect lean thinking with lean management and lean enterprise with lean performance index in order to portray the overall management of lean thinking.

### 2. Literature Review

Lean thinking or lean production (Womack et al. 1990; Womack and Jones, 1996) was first introduced into the field of operations management and later on used as a technology tool of lean production by the Toyota Production System (TPS) to reduce *muda* (waste), with the main goal of creating low-cost improvements (Dahlgaard and Dahlgaard-Park, 2006). The use of the five principles was emphasized in the transformation of enterprise culture, team collaboration, bottom to top communication, statistical process control, work organization and process improvement (Bicheno, 2004).

Aside from in the manufacturing industry, lean thinking now focuses on consumer-centered quality improvement, and much research has been done in the area, which includes research in operation cycle time reduction, cost reduction, improvement of delivery performance and customer satisfaction (Barraza et al., 2009). Recently

the five principles have also been used in the service industry, including cases of success in retail, aviation, and medical management (Bowen and Youngdahi, 1998).

In literature review, lean thinking is often emphasized as improved through cost and work management (Seddon and O'Donovan, 2010). Based on process visualization, such an input – transformation – output process is very suitable to service industries such as manufacturers (Piercy and Rich, 2009). When enterprises examine their output performance from the customer perspective, lean service is used by enterprises

to pursue higher quality (Seddon and O'Donovan, 2010).

### 3. Research Methods

Our study introduces the five principles of lean thinking by Womack and Jones (1996) to structure lean management with general management in three dimensions: decision-making, management, and implementation, as shown in *Figure1*. We link lean management with the development of lean enterprises and lean performance index to discuss lean enterprise and the achievement of lean management.

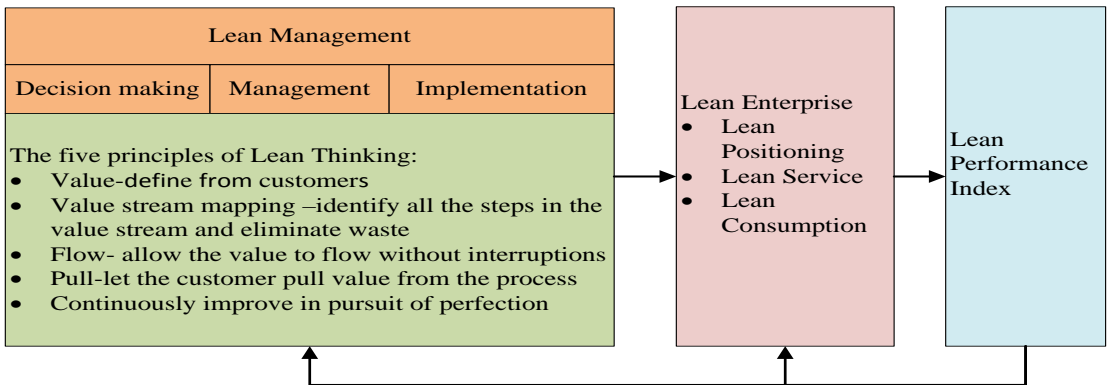


Figure 1 Structure of Research

### 4. Research Steps

Our research is investigation-oriented, where research is focused on the key goals and strategies of enterprise operation, thus our research is carried out through interviews. We interview five people in total: two top level managers of lean enterprises, two consultants who are familiar with the lean method, and one scholar who researches lean management. Since lean thinking has been used in the past for process improvement through the five principles, the goal of our research is to reach an agreed conclusion through discussion, modification, and categorization in

brainstorming meetings, which include:

- a 、 The relationship between the five principles and lean consumption
- b 、 The relationship between lean management and lean enterprise
- c 、 The relationship between lean management, lean enterprise, and lean performance index

### 5. Research Results

#### 5.1 The Relationship between the Five Principles and Lean Consumption

Customers define value from the perspective of satisfying their own needs. Lean consumption is when customers satisfy

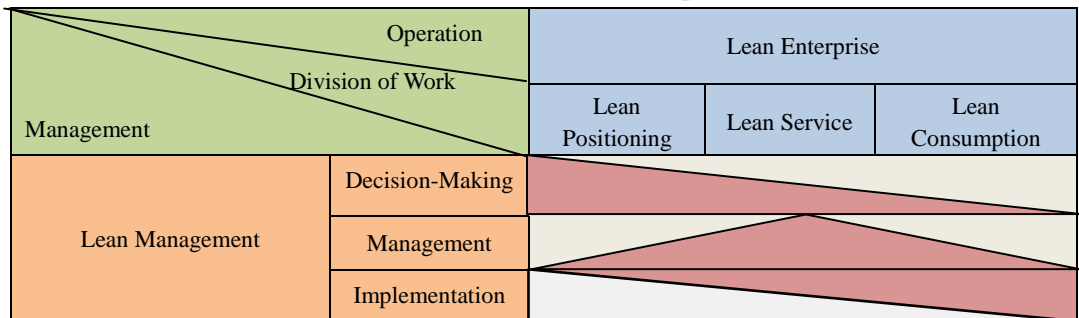
their needs with the lowest cost. Moreover, from the perspective of the enterprise, lean positioning is when the enterprise’s service or product allows customers to make lean consumption. Effort is focused on lowering waste from the base level, continuous improvement to achieve customer value.

5.2 The Relationship between Lean Management and Lean Enterprise

To consumers, the outcome of lean positioning by lean enterprises is lean consumption. In order to ensure the achievement of customer value, the design of services must focus on lean consumption in

the process of actualizing lean thinking value flow.

Three areas are considered lean thinking in the development of lean enterprises, but discussion from the management perspective is also very important. This article divides lean management into the decision division, management division, and execution division: The decision division is involved in lean positioning; the management division ensures lean service value flow; the execution division focuses on realizing lean consumption. This study further combines lean management and lean enterprise, as seen in *Figure 2*.



Remark : The red part shows the ratio of work division

Figure 2 Linkage of lean enterprise and lean management

5.3 The Relationship between Lean Management, Lean Enterprise, and Lean Performance Index

The effectiveness of lean management must be measured from an objective, quantifiable performance indicator. Thus the Key Performance Indicators (KPI), which help organizations manage and optimize lean system performance, is a very important tool, critical in to achieving overall corporate objectives. The organization's mission, vision, and strategic goals play crucial roles, thus our research includes KPI into the connection between lean enterprise and lean management. Generally, the establishment of KPI uses the SMART principles, as follows:

- a 、 S(Specific): goal-oriented, specific
- b 、 M(Measurable): quantifiable, measurable
- c 、 A(Attainable): concrete, achievable
- d 、 R (Realistic): concrete, pragmatic
- e 、 T(Time-limited): time-sensitive, immediate

When used in lean consumption, KPI follows the same principles. But currently to enterprises, focus should be toward reducing waste, especially consumer money, time, effort, and energy, in pursuit of cost, quality, efficiency, and efficacy, as in *Figure 3*.

6. Conclusion

Our research discusses the relationship between the five principles and lean consumption from the consumer perspective,

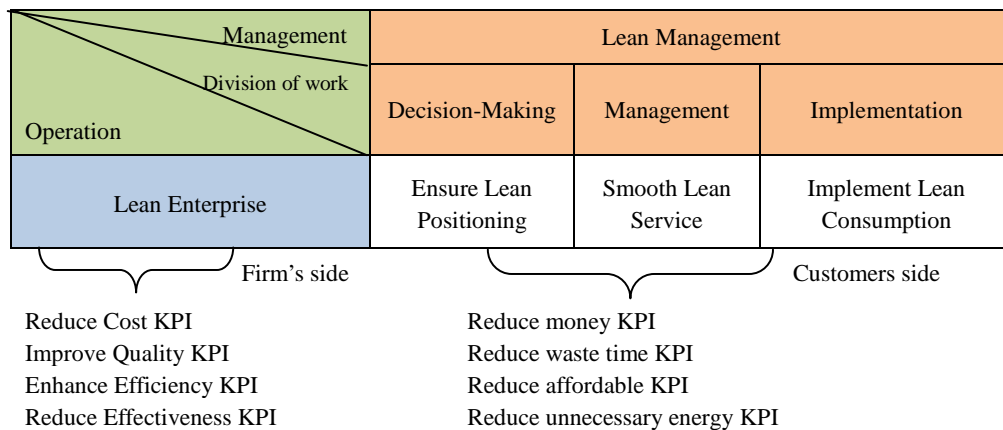


Figure 3 Lean Enterprise, Lean Management and link to KPI

addressing the relationships between lean management, lean enterprise, and lean performance index. Our results show that lean thinking used in overall management not only reduces valueless and wasteful operation, but also further increases operations with value in value flow, at the same time improving the efficiency of operations with value.

Moreover, our research also further develops the decision, management, and execution sides of lean management, connecting it with the three dimensions of lean positioning of lean enterprises, lean service, and lean consumption, and at the same time drawing connections between lean management, lean enterprise, and lean performance index. Finally, our research discusses a case study to show through a practical example that lean-consumption focused lean service is an area in the service industry that is worthy of further developing.

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