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Lean Thinking

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Abstract: The significance of the agile manifesto and the agile principles can be identified by the business value proposition to the customer. By continuously delivering through iterative and incremental cycles of creating value for the end-user, it provides organizations a critical look on their activities. An inevitable question crops up for companies wishing to deploy Agile: How do we eliminate Muda – 'Waste'? Meaning production of items which are not needed, movement of resources as well as goods and resources without any purpose and doing processes which are redundant. This paper provides an analysis in which the best value is specified at the same time, arranging those activities without interruption when requested and perform them effectively. Hence we term it as 'Lean Thinking' – which is to do more and more with less and less –less equipment, less time, less effort. This review will concentrate on collaborative approaches to make work more satisfying through immediate feedback and convert Waste into Value.

Keywords: Muda, Flow, Value Stream, Pull, Lean Thinking.

INTRODUCTION

With its origins from the automobile industry, the concept of lean approach has made its significant impact from the heavy manufacturing industry to various industries such as banking, construction, infrastructure, finance, and health care. According to Gershenfeld, Business thinkers and leaders from various sectors and verticals considered the lean approach as one of the most pivotal success factors in establishing high quality product and continuous production flow for Toyota, and producing high quality as well as customized laptop computers in high volume for Dell. Managing projects of various sizes and levels of complexity is a necessary component of doing business in the modern era regardless of the vertical industry. Lean thinking hence must start with a conscious effort to precisely define value in terms of service to the customers. The value stream is the set of all particular activities to bring a specific product from the raw material stage to the finished product for the benefit of the customer.

At a macro level, the lean approach has got its firm foundations on the philosophy of continuously improving process performance by eliminating waste and build towards a culture of customer oriented business.

These characteristics may apply to many businesses because of the speed at which technology evolves and competition intensifies the pressure to deliver projects on time, on budget, and to the quality standards expected.

OBJECTIVES OF THE STUDY:

The main objectives of the present review are as follows:

- To provide an overview of the concept of Lean Thinking.
- To make understand the key principles of Lean Thinking.
- Aligning the organization thought process to have happy customers and better team morale.

SCOPE OF THE STUDY:

This paper describes and promotes that the lean approach is the most significant priority for organizations looking to continuously improve and have holistic view to understand and differentiate the value add activities on a project from the and non-value adding activities especially from the lens of the customer. This would mean ruthlessly remove those activities that are perceived as non-value adding and then setting up a value stream analysis of the proposed system. Taking reference from Womack and Jones in order to internalize the lean principles, the necessary transformations in organization culture, adoption of practices, processes, and management are required. A comprehensive set of tools related to tactical engineering and also various management techniques, policies, methods, and practices that are in sync with the lean philosophy are united in an integrated and coordinated system with the goal of eliminating waste as the top most priority and thus maximizing the flow of value added activities towards building a stable and usable product in line with actual customer expectations and needs.

An Approach to Lean Thinking

The present approach is based on the key benefits of applying lean thinking for better business value propositions.

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Figure1: Five Key Principles of Lean Thinking.

The Five key principles of lean thinking (LT) were formulated to have an insight to the changing dynamic challenges that occur in the modern business and also different perceptions in business culture and management thought process. The key principles in LT are:

1) Define value from the customer perspective
2) Identify the value streams
3) Make the value flow
4) Implement pull based production and
5) Strive for perfection continuously.

The major goal of these principles (Figure 1) is to establish a good value stream by steadfast and continuous efforts to identify and ruthlessly eliminate activities that are considered waste (Muda) and focus truly on activities that create value.

Lean Thinking Principles Explained

Principle # 1 – Define Value from the perspective of the Customer

This principle gives an in-depth observation to the organization to evaluate on who are their real clients and what do those customers perceive as value.

The probable value questions to be considered:

- What do the customers really need?
- How the customers see a benefit from the product being built?
- How much can the customers pay for the product?

As a specific observation, Lean teams can estimate how much customers are willing to pay based on related set points and then set the operating costs to be reasonable. The ultimate goal is to eliminate all waste in every aspect of the process. If any aspect of the process where we find that the value is not added or in extreme cases if the cost exceeds value it must be addressed early on using lean management principles.

Thus Defining value is the method by which we identify the form, feature, or function that a customer is committed to invest and buy in the circumstance if they perform the required task on its own or without investing considerable cost or time.

Principle # 2 – Map the Value Streams

The second principle of Lean Thinking is to identify the value stream. This is different to the much known and popular traditional supply. So essentially, we are referring to only the specific activities that are involved in adding value to the building of a particular product in an organization. Womack and Jones defined value stream as the set of all specific actions required to bring a specific product through the three critical management tasks of a business unit.

• Problem-solving task: This involves the process of working through and finding appropriate solutions for issues ranging from a concept until the launch of a product.
• Information management task: This task engages with the organization and coordination of information related to the order taking process until the delivery of a product successfully to a customer.
• Physical transformation task: This task engages directly with the physical acquisition of raw materials and transforming those raw materials into finished products and deliver it in the hands of customers.

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Kanban is one of the most popular ways to map value streams. Tasks are broken down and are posted in a "just-in-time" fashion. Hence each task is taken one at a time and only done when it is absolutely necessary to complete.

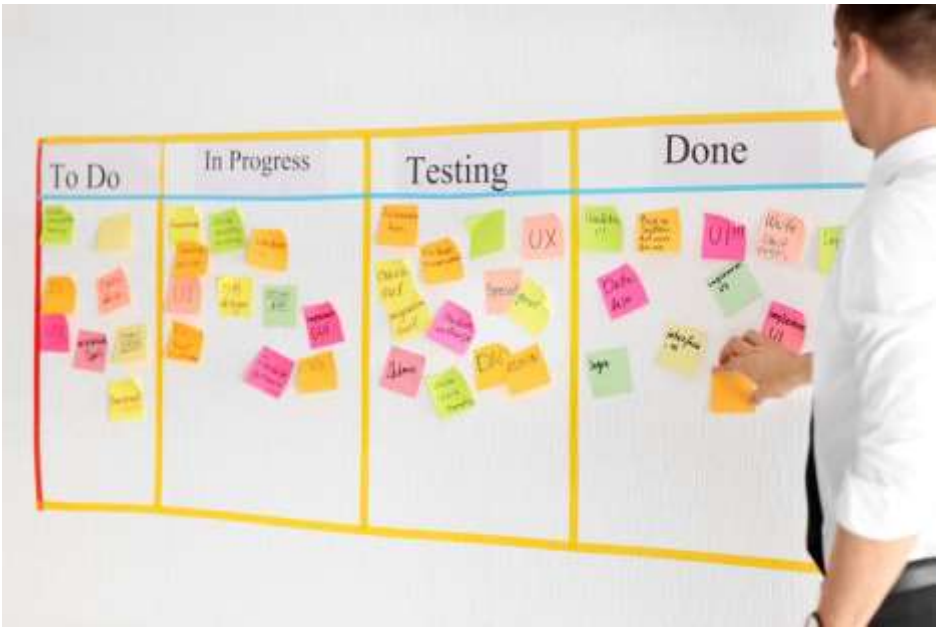

Figure 2: Kanban Board.

Principle # 3 – Make the Value Flow

By application of the second principle - mapping the value stream, we can easily identify things which are waste. Any tasks that are done too early, too late or too often creates waste. Here we focus on the introduction of flow in the remaining value-added processes after eliminating the obvious wastes in a value stream. In order to further reduce the production costs, senior leadership tends to focus on improving workstation efficiencies such as improving machine utilization rates rather than product value flow where the actual attention is needed.

Hence by analyzing the map and removing waste, we can check for potential bottlenecks and delays to create the optimal flow of activities.

Ideally, every step should flow into the other, beginning at the factory (or organization) and arriving smoothly as an end product to the customer.

The fundamental concept of the term flow is "to make parts ideally one piece at a time from raw materials to finished goods and to move them one by one to the next workstation with no waiting time in between".

The process of transforming from a traditional manufacturing to a flow based production is a challenge by itself. Hence Radical transformation and continual improvement are essential to establish a smooth flow in the operation.

Principle # 4 – Implement pull based production

The use of the pull approach requires most precise market operations research and equally efficient distribution of information within the organization. The prerequisite is all the processes should be streamlined.

After an enterprise is conversant with the first three principles, the pull principle is the next important aspect of Lean Thinking in ensuring that the customers are in receipt of the product or service when they want it. Womack and Jones defined it as the "no one upstream should produce a good or service until the customer downstream asks for it". This is in stark contrast with the traditional push approach in manufacturing and other related industries. According to a popular research scientist, manufacturers will be able to control the production rate to the actual customer demands and produce only products that are sold and not produce to stock.

To make a pull based production system to work successfully we should invest in engaging with the customers on a continual basis.

Principle # 5 – Strive for perfection continuously

At the base level, lean management is all about continuous improvement of the 3P's (Product, Process, People). The principle fundamentally

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indicates that organizations need to continuously implement and find their way through the above 4 principles until all the non-value-added activities and wastes (Muda) are removed from the process of the value stream.

Lean management requires a careful and thoughtful approach to every action. Efficient optimization is to be a necessary part of the organization culture itself. Through this principle, the culture of continuously looking for opportunities to improve productivity, quality control, operational efficiency, reduce costs and improve product quality is embedded in an enterprise. Every employee of the organization must be striving relentlessly towards removing waste, adding value and delivering quality. According to a scientist, we should focus on continuous improvement even though we encounter initial failures as improvements in business operations always exist and a complete perfection state can never really be reached.

CONCLUSION

The Lean Thinking principles are a manifestation of the mindset to comprehensively demonstrate the benefits of value generation by retaining focus on the key stakeholders and their business system by efficient and effective application. The basis of these 5 Lean Thinking principles are to guide the leadership group in establishing a thriving lean based enterprise and create a continuous culture with the goal towards total waste elimination by collaboration.

Current systems have similar limits, as well as corresponding chances for improvement. These shortcomings stem from "not comprehending the particular demands this class of core work workforce," as per a notable researcher in the field. The goal is to turn these flaws into research opportunities generating value. The level of innovation and automation driven by the lean thinking in manufacturing industry eventually has envisaged and given confidence to leadership and management personnel from other industries to consider and implement the 5 key principles in their organization.

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