

Book Report: Lean Thinking

The book *Lean Thinking: Banish Waste and Create Wealth in Your Corporation* as written by James P. Womack and Daniel T. Jones addresses changes in the manufacturing industry with a special focus on Toyota Corporation. The book examines how the company's production system has been revolutionized over the years to move from the tradition production methods to a new system known as lean production. Throughout the book, the authors argue that lean production system allow firms to identify value, line-up value creation processes in the leanest way possible and carry out these processes uninterrupted and effectively (Womack & Jones, 2010). According to the authors, lean thinking should be understood as a production process which is aimed at expediting resources for the benefit of the end consumer. Lean production focus on preserving value with less work. This philosophy is derived from Toyota production system (TPS) which is known for its focus on reduction of wastes to improve overall customer value. It aims at increasing efficiency, decreasing waste and using empirical methods to decide what matters rather accepting pre-existing ideas. The authors identify five principles of lean production including value, flow, value stream, pull and perfection. The purpose of this book report is to identify the operations principles identified in the book and give an insight into how these can be applied in the modern manufacturing industry.

According to the authors, a lean production system defines how a well-designed production system should operate, delivering products quickly to the end customer, with minimum waste. A lean production system is a great enabler for any organization that strives to become more lean and efficient. Manufacturing firms that employ a lean production system are capable of leveraging their production journey easily, delivering value-added products to their consumers by responding effectively, predictably and quickly to the needs of their customers. By extension, helps the firms to maintain a lean supply chain and to create a virtuous cycle that eventually translates into improved financial performance. Organizations must know activities that create value and which are wasteful. Lean aims to improve value while eliminating waste. Value in this case refers to something which consumers are ready to pay for. According to the authors, it is the "...capability provided to the customers at the right time at an appropriate price, as defined in each case by the consumer" (Womack & Jones, 2010, p. 311). Lean thinking starts with value which in itself is defined by the ultimate end consumer. Here, the ultimate end consumer is contrasted with other product users (interim consumers) including but not limited to wholesale, suppliers, distributors, marketers or retailers.

In terms of value stream, Toyota Company production system involves understanding the process and clearing any obstacles that do not add value for the end consumer. It entails identifying value stream and eliminating any non- value added activity to reduce waste. According to Womack and Jones (2010), value stream is a set of all the specific activities needed to design, order and supply a specific product. It entails coming up with a concept and launching it, the order and delivery process and turning raw materials into a finished product that has added value for the end consumer. The value stream has three types of activities: adding value activities are aimed at creating value unambiguously; Type one muda (waste) activities are that create no value but which are unavoidable given the available production assets and technologies; and type two waste activities are those which do not create value and which can be avoided immediately. Examples of waste activities are errors which require people in the downstream activities to wait for those in the upstream or mistakes that need rectification.

The principle of flow is understood as the progressive attainment of activities along the value stream thus enabling the product to proceed through all the steps of production, from

concept design to launching, from order to delivery and from raw materials to the finished product. The principle stipulates that this should be achieved with no backflows, scrap or stoppages. In this context, firms should dismiss the classical batch-and-queue style of thinking to embrace a system that helps reduce waste at all steps of production. Flow can be enhanced by ensuring timely change of tools in the manufacturing process, locating sequential steps adjoining each other and right-sizing machines.

The authors define the principle of pull management as a "...system of cascading production and delivery instructions from downstream to upstream..." (p. 309). In this case, the upstream supplier waits for the downstream consumer to give a signal before starting to produce a product. This is in contrast to the traditional way of thinking where products are pushed through the production system the latter which is unresponsive to the needs of the consumers and which lead to a buildup in regard to inventory. The principle demands the firm to make value flow at pull of the customer. The firm should initiate work only when requested by a consumer. It involves providing products and services when requested by the customer. Therefore suppliers in every level must receive their downstream customers demand signal and convert it to something usable to their upstream partners. This is done by adding forecast units to the original demand signal. This minimizes the need to forecast demand, relying on the actual demand for the product. Here, the demand is managed via four steps including demand signal, demand collaboration, sales and operations planning and lean inventory management practices.

The final principle as outlined by Womack and Jones (2010) is that of perfection and this is defined as complete elimination of waste in a way that all activities in the value chain lead to value creation. This principle suggests that the process of lean production is a cyclic one given that there will always be some activities which will be labeled as waste in the value stream. In this context, elimination of waste can be argued to be a desired end-state as opposed to being an achievable goal. The firm must continuously refine the process to improve efficiency, cycle time, cost and quality.

Having discussed the five principles of lean thinking, the authors moves forward to discuss five case studies involving companies that has been able to turn around after applying the concepts of lean thinking. These companies include Wire mold which is involved in pallet stretch wrapping, Porsche, Pratt and Whitney jet engines and a radiator and boiler manufacturing firm (Womack & Jones, 2010). In each of the five case studies, the authors examines the different types of lean thinking and the level of success in implementing and reaping benefits from the implementation of lean production system. The authors then conclude by providing firms with an action plan that could be used as a guide to lean transformation. They also give a brief discussion incorporating multiple companies into a trust-based lean enterprise plus a quick insight of how apply lean thinking may be applied in classical non-manufacturing economic sectors.

Womack and Jones (2010) are of the opinion that lean production ensures elimination of wastes that exist within the production process and the chain supply. In their concluding remarks, they argue that lean thinking helps firms to put the entire value stream relentlessly in the foreground and to rethink every aspect of the production process in a bid to specify value correctly and to make it flow continuously along the stream and in line with demand pull to ensure perfection (Womack & Jones, 2010). While the authors have given priceless information and contributed significantly to existing knowledge, they have arguably left numerous details related to how to overcome institutional barriers in adopting lean thinking within a firm.

Certainly, the five case studies provided by the authors somehow cover these issues but it can be argued that the five cases are clear cut and not necessarily representative of what most

firms undergo. Additional information regarding issues such as improving or creating leadership commitment to lean transformation, ways of overcoming legal and policy barriers to implementing lean thinking, dealing effectively with social and cultural systems when implementing lean thinking, reinventing business systems to operate in harmony with lean thinking and determining proper performance metrics and incentives should also be considered when implementing lean concepts. Notably however is the fact that the omission of this information may have been intentional on the part of the authors. Evidently, the Womack and Jones provide useful information and knowledge which is congruent with other concepts of manufacturing management and which can be used to complement lean thinking. For example, the six-sigma approach is aimed at bringing production processes under control in a bid to minimize defects. Like in the case of lean thinking, the approach offers ways of eliminating waste in the value chain and improving flow. On its part, the total quality management (TQM) approach is aimed at helping in decision management and problem solving which by extension helps to promote the lean goal of ensuring flow in the value chain.

In their book, Womack and Jones offer important lessons for firms and aspiring managers. In this context, lean thinking is one of the newest schools of thought available to manufacturing companies and which comes with immeasurable benefits. Traditional manufacturing started with craft production where one person would be responsible for the production of an entire single product. With technological advancement, this shifted to industrial production characterized by mass production. Many organizations today have stuck with the mass production model which stresses the importance of economies of scale. The upgrade to lean thinking as has been witnessed in some firms has enabled such companies to respond to consumer needs more rapidly and effectively. The ability of the consumer to pull demand is the central premise upon which lean thinking is built. By allowing the customer to initiate demand, firms can now be able to produce products designed to meet the specific needs of the customer thereby eliminating waste. The success of many companies today is hinged on the application of lean principles. These firms are now able to eliminate non-value adding activities including overproduction, delay, transportation, over processing, excess motion, excess inventory and rejects. Largely, lean thinking is aimed at making production processes simple enough to comprehend, undertake and manage. It emphasize on the need of getting the right thing to the right place at the right time and in the right quality in a bid to achieve perfection in the value stream flow while at the same time minimizing waste. It is also aimed at enhancing and promoting a lean supply chain. Chain supply management must make use of the lean production to reduce wastes, and sustain continuous enhancement of products. The processes of the chain supply management are effectively managed by the lean production. Chain supply management looks forward to move products through production process faster, satisfy customers' demands, schedule the chain supply of production and forecast on the demand of the customers.