Chapter 4

Lean Manufacturing to Lean IT:
An Emerging Quality Assurance Methodology in IT

Deepinder Kaur
IBM India Pvt. Ltd., India

ABSTRACT

Lean methodology is an improvement philosophy, an expansion of Lean manufacturing and lean principles to the management of Service and Information Technology industries. It articulates how waste can be minimal at Software Development Process (SDP) which begins from feasibility study and ends till the product is delivered to the customer. In today's competitive world throughout all the industries emphasis is on product's quality within the time constraints. To gear up with the market demand Lean improvement concepts is introduced in (information technology) IT industry. Lean IT is the translation of lean manufacturing practices applicable to the Software Development life cycle (SDLC). It works like a business model and oriented towards the principles that focuses on the non value added activities. This chapter will present how lean methodologies and principles works in service industries to deliver the best quality products. Although Lean concept is traditionally been used in manufacturing industries; but nowadays it is adapted by Services companies with the aim of improving their processes and enhance customer satisfaction.

INTRODUCTION

Quality product is the demand of today's customer. So to attain the quality of Software products; thousands of service organizations are adapting Lean to achieve higher levels of performance. A lean operating system alters the way a company learns through changes in problem solving, coordination through connections, pathways and consistency.

Lean is all about standardizing work processes to make problem visible and developing your team member's critical thinking ability so that they can solve the various problems and improve development processes. With its focus on standardization, quality improvement, cost reduction, and efficiency, lean's influence continues to grow by providing a realistic and experience-based overview. This chapter will focus on Lean Basics, Lean Principles, and Various Lean Tools and also define how lean is related to Six Sigma.

What Is Lean

Lean is a systematic method, tool based philosophy focuses on eliminating waste so that all activities add value from the customer's perspective. Value here in industry is any action or process that a customer would be willing to pay for. Lean manufacturing emphasis on Just in Time (JIT) production. JIT is assumed to decrease the cost and to highlight problems at different phases. This can be achieved by reducing the resources in the system, so that buffers do not cover up the problems that arise. In the short-term perspective, the reduction of resources implies a direct reduction of cost. The same concepts are ejaculated in service companies to provide the best services within specified time limits.

BACKGROUND

Lean Production

There are many referenced origins regarding the founding concepts behind lean production. Lean thinking concepts were publicized by James Womack and Daniel Jones in their research done during the International Motor Vehicle Program (IMVP) at the Massachusetts Institute of Technology in the late 1980's. (Womack, J., 2004). This research highlighted the production system used by Toyota Motor Company in Japan from the 1960's to 1980's which gave them a competitive edge over their U.S. counterparts, Ford and General Motors. Their research highlighted that the Lean producer, by contrast, combines the advantages of craft and mass production, while avoiding the high cost of the former and the rigidity of the latter.

Figure 1 portrays the progress of quality techniques from Production flow by Henry Ford to Lean Six Sigma successfully implemented throughout the industries. Lean production changed the understanding of organization by bringing together all of the essential ingredients or principles required to implement a complete lean manufacturing process. It initialized new structures for assembly plants to promote teamwork, multi functionality, worker satisfaction, continuous improvement and waste elimination. Lean Production particularly pays attention to customer with flexible processes, which respond to demand variations and create value for the customer. This continued success has over the past two decades formed an enormous demand for greater knowledge about lean thinking. There are literally hundreds of books and papers, thousands of media articles exploring the subject, and numerous other resources available to this growing audience. As lean thinking continues to spread to every country in the world, leaders are also adapting the tools and principles beyond manufacturing, to logistics and distribution, services, retail, healthcare, construction, maintenance, and even government. Indeed, lean consciousness and methods are only beginning to take root among senior managers and leaders in all sectors today.

LEAN PRINCIPLES

Lean Thinking provides a way to specify value, line up value-creating actions in the best sequence, conduct these activities without interruption whenever someone requests them and perform them more and more effectively.

Related Content

Some Key Topics to be Considered in Software Process Improvement
Gonzalo Cuevas, Jose A. Calvo-Manzanoand Iván García (2014). *Agile Estimation Techniques and Innovative Approaches to Software Process Improvement (pp. 119-142).*
www.irma-international.org/chapter/some-key-topics-to-be-considered-in-software-process-improvement/100275

A Light Weight Temper Resistance Client File in an External Memory for Remote User Authentication and Access Control
Bello Alhaji Buhari, Afolayan Ayodedele Obiniyi, Sahalu B. Junaiduand Armand F. Donfack Kana (2023). *International Journal of Systems and Software Security and Protection (pp. 1-21).*
www.irma-international.org/article/a-light-weight-temper-resistance-client-file-in-an-external-memory-for-remote-user-authentication-and-access-control/318342

Service-Oriented Software Engineering: A Guidance Framework for Service Engineering Methods
Youcef Baghdadi (2015). *International Journal of Systems and Service-Oriented Engineering (pp. 1-19).*
www.irma-international.org/article/service-oriented-software-engineering/126635

Identifying the Opinion Orientation of Online Product Reviews at Feature Level: A Pruning Approach
Nilanshi Chauhanand Pardeep Singh (2017). *International Journal of Information System Modeling and Design (pp. 92-111).*
www.irma-international.org/article/identifying-the-opinion-orientation-of-online-product-reviews-at-feature-level/199005

Creating Applications for Real-Time Collaboration with XMPP and Android on Mobile Devices
Daniel Schuster, István Koren, Thomas Springer, Dirk Hering, Benjamin Söllner, Markus Endlerand Alexander Schill (2012). *Handbook of Research on Mobile Software Engineering: Design, Implementation, and Emergent Applications (pp. 824-844).*
www.irma-international.org/chapter/creating-applications-real-time-collaboration/66501