

Team4 APS1028 – Integration of Agile Manufacturing in New Product Development

Executive Summary

This report aims to integrate the relevant concepts of Agile Manufacturing in New Product Development (NPD) in order to improve the efficiency of the traditional NPD cycle. NPD is the entire process of transforming a market opportunity into a product available for sale. A typical process includes identifying a need for a new product, conceptualizing a design based on customers' requirements, building a roadmap for the product, delivering a minimum viable product, and releasing the final product to the market. The sole purpose of NPD is to take a market opportunity and transform that into a product available for sale.

The concept of Agile Manufacturing, which initially originated from manufacturing shop floor practices and is focused towards adapting quickly to turbulent environments, can be integrated into NPD by using a method called "Scrum" where cross-functional teams sprint to meaningful deliverables with periodic review instead of taking the traditional waterfall approach. The concept of Agile Product Development has been heavily utilized in the software industry where the team sprints to a working iteration of the product, and the step is iterated until the final product is designed. For more complex products where each sprint in a scrum cannot realistically include a working prototype or iteration of the product under development, companies may opt for an Agile/Stage-Gate Hybrid approach while simultaneously keeping customers involved in the process by empowering them to design and/or select the final product.

It was found that the benefits of Agile are not as clear for tangible or mechanical products. Scrum has been found to be a useful technique with certain customizations, but the Agile/Stage-Gate Hybrid approach may generally be more suitable for most NPD companies developing tangible products where each sprint represents the completion of a meaningful and pre-defined deliverable within the NPD process while keeping the traditional stage-gate method as means of strategic management of the project. Moreover, empowering customers may also be challenging for lesser-known brands or new start-ups. It has been recommended for an organization developing new products to select cross-functional teams where the Product Owner represents the customer, and the Scrum Master tracks and manages the progress. External customers can be employed during the stage where CAD models are designed through iterative process similar to software development, while the remaining stages are completed using a combination of the Stage-Gate and Agile methodologies.