

Chapter 2.34

Integrated QFD and Knowledge Management System for the Development of Common Product Platform

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ABSTRACT

This paper provides a framework to implement quality function deployment (QFD) with knowledge management (KM) in the form of an integrated quality and knowledge management system (IQKS). This inter-organizational information system enables the sharing of information among customers, manufacturers and suppliers in the new product development process. It links up various strategically independent and autonomous business entities together in a common product platform (CPP). Up to now little has been published academically on sharing vital information

involving the give-away of a firm's bargaining position about customers, product specification and process requirement. The common product platform facilitates an innovative organization to persuade like-minds in coming together and opening up useful and relevant information to all parties interested in creating a new level of competitive advantage in assessing the dynamics of market realities. They share knowledge and learn to support new organizational capabilities to leverage information technology that incorporate market knowledge, design knowledge, process knowledge and production knowledge.

INTRODUCTION

In the new economy, customers, manufacturers and suppliers dispersed across various geographical locations use information technology to talk to each other to coordinate engineering design and the flow of materials through different manufacturing operations. Hence, a product can have a choice to be made in various processes across organizations, at different geographical locations and utilizing different logistics for delivery. This enables the entire operational process to be linked up across organizations for customization by the participating firms. A new level of competitive advantage may be achieved when the operational processes of different firms can be adapted with the dynamic market environment.

Such advantage can be crucial to the development of new products. A product is manufactured through subassemblies and parts that can be put together. Each subassembly is represented by bills-of-materials (BOM). They can be deployed in a common product platform (inter-organizational information system) by partnering firms linked together with an information technology network. The coordination, marketing, design, engineering and production control can be more effective.

This chapter is divided into four sections. The first section addresses the view on contract manufacturing. It suggests how a manufacturing organization can leverage IT to compete in the information age. In the second section, relevant literature is reviewed on the area of extended enterprise. It portrays that knowledge has become an important consideration in developing extended enterprise architecture. For the third section, a conceptual framework of extended enterprise architecture is derived from observation on contract manufacturing. It reflects the necessary components and the linkage of quality function deployment (QFD) and knowledge management system (KMS) to form a framework for developing an integrated inter-organization information

system. A case study is used to illustrate how the conceptual framework can be operationalized in the form of a common product platform making use of the bill-of-material (BOM) modules.

LITERATURE REVIEW

Contract Manufacturing

Contract manufacturing is more than a firm subcontracting out its manufacturing process and is about a strategy on positioning the firm in the future of providing a service of value. The firm operating with a contract manufacturing strategy is adopting a management paradigm that has far-reaching implications in terms of ownership, management succession planning and resources deployment.

Contract manufacturing is a phenomenon occurring in various manufacturing industries. It extensively aligns partners for collaboration in serving the customers. The firm in focus will only keep those processes that it is strong in and outsource the rest of the processes to suppliers or competitors. Without a good understanding of its implication on the nature of business and investments in appropriate technology, knowledge and research, manufacturing firms are likely to miss business opportunities in the ventures that create wealth and create customers for growth and profits.

Currently, views on contract manufacturing are diversified. In here we summarize a few points that are purported to be the key enablers of contract manufacturing. They are:

1. Changed view of international production strategy from “stand alone” operations to “deep integration” of operations with partners in a supply chain.
2. The increasing separation between the supply side and demand side of business: e.g.,

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