



IT and the mass customization of services: the challenge of implementation

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Abstract

This research explores challenges to the implementation of mass customization in a services context. It uses a case study approach to examine the factors which drive a firm to adopt mass customization, how applicable this strategy is amongst other alternatives, and what difficulties and constraints exist in attempting to implement this service approach. Theory prescribes the need for mass customization when the firm is in a dynamically changing environment. This research tests such theory on the specific case of an organization that provides information technology services. The findings show that early gains are possible, despite the difficult challenges of requiring a fully integrated information technology infrastructure and needing to transform business processes to handle unpredictability. A framework is presented to assist firms in prioritising implementation requirements. © 2000 Elsevier Science Ltd. All rights reserved.

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1. Introduction

This century has seen mass production working wonders, efficiently producing products and services at low prices. However, as customers become more sophisticated, standardized mass-produced products often lose their appeal (Anon, 1998). One means of addressing this problem is the adoption of *mass customization*. The mass customization approach is a “lens” through which firms may view the world, and build upon previous lenses (Hart & Taylor, 1996). It attempts to give customers what they want, when and where they want it, and at a cost comparable to that of mass produced goods (Anon, 1998).

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2. Theories of mass customization

The term *mass customization* was coined by Stan Davis (1987) who predicted that the more a company was able to deliver customized goods on a mass basis, relative to their competition, the greater would be their competitive advantage, a view supported by Pitt, Bertham and Watson (1999), and Duray and Milligan (1999). Pine, Victor and Boynton (1993a) describe the synergy of mass customization and continuous improvement as a “new” competitive strategy to challenge “old” strategies such as mass production. Hart and Taylor (1996) offer an operational definition: “Mass customization is the use of flexible processes and organizational structures to produce varied and often individually customised products and services at the price of standardised, mass produced alternatives”.

The concepts of flexibility, timeliness and variety are essential to the notion of mass customization. It is determining what the customer really needs and attempting to respond quickly with an offering which costs the customer relatively little more than standardized, mass produced alternatives (Duray & Milligan, 1999). So mass customization is a firm’s ability to meet customer requirements en masse, yet at a low cost, which rivals mass production capabilities. How can the organization achieve this?

The key word is flexibility, both in processes and organisational structures (Pine & Gilmore, 1998). This distinguishes mass customization from mass production. Such flexibility demands new skills in organisational learning, business processes, and procedures. Haeckel and Nolan (1993) prescribe a three part model dealing with the problems of unpredictability and customer variation. In this “sense and respond” model they suggest that information, capabilities, and leadership are the key elements. Information on the marketplace needs to be sensed and acted upon, and for this they suggest “managing by wire” (an analogy taken from the air pilot’s use of technology to codify information and events in such a way as facilitates appropriate and rapid response). They state that the degree to which a firm can “manage-by-wire” will depend on the size and complexity of the business. This is also known as the “corporate IQ”, which is the ability of the institution to access, share, and extract meaning from all the signals and information in the environment. To truly manage-by-wire, the IT infrastructure must be designed according to an enterprise model, “a high-level map of a business that guides the writing of a computer code and the execution of nonautomated activities” (Haeckel & Nolan, 1993).

However, they caution that for the enterprise model to be complete, it must incorporate “the notions of commitment and human accountability in business processes” and must also “deal with unstructured work and ad hoc processes” (Haeckel & Nolan, 1993). Leadership in this context needs to follow a distinct governance mechanism that not only stresses principles but also true accountability. Governance, as opposed to management, is the word selected because the old “command and control” management style needs now to give way to employee empowerment and process management (context and co-ordination), which needs to be governed instead of managed or dictated (Haeckel, 1995).

Pine, Victor and Boynton (1993b) suggest that organizations can operate at four stages of what they term the “product-process change matrix”. These stages are: (1) invention (coping with dynamic product change through craftsmen-like customization); (2) mass production; (3) continuous improvement; and (4) mass customization. They characterize the synergy between mass production and invention as the bases for the old competitive reality, with roots in the nineteenth

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