

## 3 Mass Customization of Services

### 3.1 Service Customization

The “decades of the middle”, with a more educated and discerning population, have led to a higher level of expectation for personalized services. Allied to that, service providers themselves need to differentiate their offering in some way to sustain market share and profitability. An increasingly common method of service differentiation these days is to introduce options and choices (often associated with premium charges) that give the customer some customization and control over service content and availability.

Increasingly, an extremely cost-efficient way of deploying a service to many customers is transforming it into software, that is, automating it and bundling it in some way within the product package. The customer must still be the focus, whether the service is manual or automated; therefore, the product package and the service parts of the package have to *treat different customers differently*. We’re not putting service automation in question; rather, we’re stressing that any new or enhanced service must be *at least as customized* as the previous one – manual or semi-manual – to make sense in the context of Mass Customization, for both simple and complex services.

### 3.2 The Relationship Between Services and Software

Software is a pervasive component of both customized products and customized services. Many tangible products today include control systems, micro-chips etc. At the same time, the trend in most services is increased automation where software becomes the vehicle that provides and most often, even defines the service. The soft, “non-tangible” parts of a total product package – i.e. services and software – have many common characteristics, particularly the aspects of components and configuration. The boundary between “services” and “IT-products” is increasingly fuzzy; today, many services can be provided (deployed) either physically or via software – that is, with or without a human in the loop.

Recent R&D into “smart houses”<sup>1</sup> and “home robotics”<sup>2</sup> also indicates that this boundary might disappear in the future as service providers “go digital” – although the service provided remains similar. In fact, one of the driving forces of Japan’s early research into knowledge technologies and robotics was the need for service automation due to the needs of an aging population, both in Japan and in other developed countries<sup>3</sup>.

Service automation requires that a service provider analyzes the needs of key target groups or individual customers and then customizes the service deployment accordingly. Last but not least, we also introduce examples of using computers in Mass Customization of *complex* services (or of the services-part of a complex product package).

With both software and services, one can’t go out and touch it or kick it. In many ways, this intangibility is perceived as a bit hazy by many people with a background from traditional manufacturing industry. On the other hand, the intangible nature of services simplifies the process of configuration because there are very few production constraints such as spatial (components in a limited space), visual (style and color), mechanical (movement or vibrations) or acoustical (noise). Essentially, *fewer kinds of interdependencies* exist between components in complex software and services than in complex manufacturing, electronics or pharmaceuticals. The subsequent reduction in constraints (that restrict the variation possibilities) is very dramatic in software and services when compared to manufactured products. However, marketing constraints or business policies –usually artificially restricting variance with respect to a market sector or to a customer, based on a pricing policy– is a common practice across all software, service and manufacturing industries.

Fewer kinds of interdependencies is the good news; the bad news is that typical service or software customers require *functional* rather than *physical* configuration (the difference will be explained more fully in chapter 6). Rather than just choosing some interesting optional components, software and service customers are inclined to ask for customized and adaptable functionality for the total product. Here, the major issues that require customization are not only *what* the product package will do for the customer (functions, service levels and details, quality, availability, security), but *where* (location and ease

<sup>1</sup> Among many others, by companies such as Microsoft, Ericsson, Electrolux.

<sup>2</sup> Both by MIT Labs or British universities and by several enterprises such as Sony, Fujitsu or Honda.

<sup>3</sup> Very early on, R&D manager Tohru Moto Oka raised the visibility of this issue during the Japanese 5-Gen Computer project in the past.