

2 Selling Customized While Producing Industrialized

Component-based products – configured – to fit the needs of individual customers, is the most powerful technique of Mass Customization; this is usually called Configure-to-Order (CtO). The power of CtO is particularly relevant in the heterogeneous field of *complex* offerings¹.

We provide examples of CtO techniques that we have found in surprisingly different sectors of industry; for readers who have been told that “Mass Customization is solely for carmakers”, we promise some surprises both in this chapter and in the next. Towards the end of this chapter, we also touch upon timing the corporate transition – how imperative is it for any particular organization to become a mass customizer to survive and thrive in their chosen markets. Some reading instructions and additional information contained in extensive footnotes are provided to allow the individual reader some customization of this chapter by cherry-picking and expanding on particularly relevant points².

2.1 Modularization Related to Product Upgrades and Life-cycle

Mass Customization *upfront* for the original product and coping with *changing requirements over time* later on are closely interrelated. In addition to bids and orders for original equipment, *upgrades and reconfiguration* are equally important for long term *share of customer*, as mentioned in the previous chapter. With long-lived complex products, reconfiguring the product – or replacing (swap-out / swap-in) some of its self-contained components – can create *additional benefits similar to* those achieved by *the original con-*

¹ Every market actually consists of many individual, *heterogeneous customers*. Along with that, it's difficult in practice to precisely delimit a single “market for complex system products”; clearly, this category is a market consisting of several *extremely heterogeneous markets* and many industry sectors. Nonetheless, there are both practical and conceptual problems as well as solutions that are common across these markets and industry sectors.

² Points concerning the market impact of Mass Customization apply to both CtO and many other common customization techniques.

figuration. Coping with changing requirements is similar to coping with heterogeneous requirements; in both situations, we add new variants yet try to minimize redesign in order to improve the standard process parameters (i.e. lead-time, cost, and quality/reliability).

Most of this book's points on CtO and configured products are equally relevant for *reconfiguration* although in practice, the *costs of deploying configuration changes will differ between industry sectors* (from relatively high in manufacturing for instance, to low in telecom switching or services, to extremely low in a pure software product).

Traditionally, the life cycle cost of *complex or high-tech products* has tended to grow unmanageably at an accelerating (exponential) pace after a couple of upgrade *versions*. In many cases, an additional "Version 5" bar on the bar chart (Figure 2-1) would go off the scale that could ever be represented on a page.

Component-based offerings that are configured to order will help, on the contrary, to keep the project costs of any new version *predictable, manageable*, and preferably *constant*.

Michael A. Jackson stresses the benefits of a *correct specification upfront* (Jackson, 2001): "To say that different consequences, and different software, will be wanted next year doesn't justify getting it wrong this year". In our opinion, his path of reasoning can be extended bidirectionally, to infer that getting it right in the first version doesn't justify getting it wrong in version 1.1 – clearly, a certain degree of built-in robustness and "*design for change*" is *part of getting it right* in the original version. Therefore, some examples of built-in, immediate, automatic adaptation to a changing environment will also be provided, especially in the next chapter.

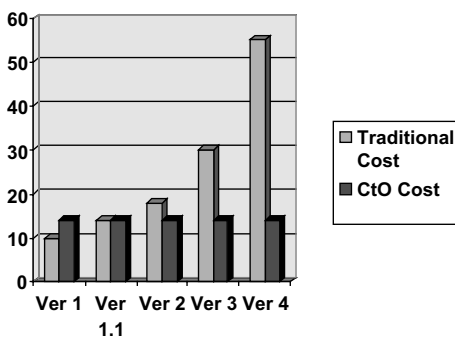


Figure 2-1: Life cycle cost of *complex or high-tech products*. This cost has tended to grow unmanageably after a couple of upgrade *versions*. Component-based offerings that are configured to order will help to keep the cost *predictable, manageable*, and preferably *constant*.