

Introduction, with Focus on the Customer

“In this new frontier, a wealth of variety and customization is available to consumers and businesses through the flexibility and responsiveness of companies practicing this new system of management.”

(B. J. Pine, 1993 in Mass Customization)

Considering that a decade or so has passed since the breakthrough of Dr. Pine’s trend-setting book, the recent leap towards component-based products and Mass Customization is still only the beginning. From your personal experience, you can probably identify examples of *potential* mass customizers where at the moment a considerable amount of time, effort and goodwill is still being wasted on products that are *not customized enough* to *your* individual patterns of use. In practice, some businesses are still applying the one-size-fits-all business logic of 1890 rather than thinking afresh, thinking out-of-the-box. For example, children’s clothing in winter climates is mostly about insulation and durability, in particular on knees and backs; nonetheless, we haven’t yet seen a modular nylon winter suit, or a ski *suit for children*, equipped with easy-to-replace parts. Think how cost-effective and time-saving *that* kind of garment would be for parents (or junior-skiing clubs).

During the winter season, those same parents in the same climates use the electric pre-heater in their car engine each day to protect both the cylinders and the environment from cold starts. Surprisingly, the socket for the incoming 230-Volt cable connection is usually placed at the bottom of the nose, below the cooler grill (causing a great deal of frustration and cursing on cold dark mornings). In the future, we can expect cars to be configured on the Web by the customer, including all additional options *and* preferred spatial locations, enabling the customer to choose between fashion and usability. Cars are a well known example of complex, high-profile, costly, durable goods where a much higher degree of customization is likely, given the trend towards customer-focused design and production. Many component-based customization initiatives are already being taken in the automotive industry; as pointed out by Business Week (Brady et al., 2000) quoting Lear Corp

executives, in the future, an individualistic customer can order his or her ‘dashboard in translucent orange’ (i.e. figuratively as well as literally). However, there are many other industries where the same principles of customization and Configure-to-Order should apply. In a recent article (Kratochvíl and Carson, 2003), we have shown that Configure-to-Order is both a cost-saving investment and a market-share investment at the same time.

Another example is on-line *food retail*. In many respects, food is still treated as a one-size-fits-all commodity. At the moment, very few shops support a detailed customer preference profile regarding allergy, special diet, a particular country’s or continent’s cuisine, vegan, lacto-vegetarian, Asian-vegetarian etc. – all this still involves a lot of time-consuming searching and ingredient browsing, among off-the-shelf goods that have been readymade in a one-size-fits-all manner. Yet, the burden of keeping track of the food product facts, ingredient changes and consumer constraints as well as the task of inferring suitable products and alternatives can be shouldered reliably, cheaply and quickly by computer systems. In addition, in countries with a standardized nationwide health-care system, all dietary constraints of vital importance could potentially be instantly transferred, with your permission, into your consumer profile whenever your doctor clicks a diagnosis code on his or her PC screen. In a couple of decades, we expect that most Western consumers will be ordering their favorite, individually configured formulas of cola, breakfast cereal, bread and functional food, on-line – with a maximum of desirable ingredients and free from those you don’t want. The data stating your precise mix of preferred ingredients can be forwarded to robot programs controlling the just-in-time production and supply of those goods¹. Rather than science-fiction, this is a simple extrapolation down-market, from today’s state-of-the-art high-tech manufacturing where a skilled customer can already communicate on the Internet to the industrial robots that are automating just-in-time customization at the supplier’s site².

¹ From this point of view, the European Commission’s tough position on detailed declaration of ingredients (including GMOs and additives) is not only customer empowerment. Detailed, accurate, reliable data about each ingredient are also a vital prerequisite for automation and Mass Customization in the future. The success of systematic, ‘picky’ retailers such as Iceland in the UK demonstrates clearly that there is a market potential today for safe or allergy-proof food backed up by reliable data.

² Internet-driven industrial robotics was pioneered by Swiss-Swedish automation vendor ABB already around year 2000. The desired robot-software components were generated just-in-time, from detailed parameters transmitted by a customer via the Internet (‘didn’t find a key component on our extensive component list? Our robots will make it for you – just tell them’) ...