**NETTING IT OUT**

What is smart customization and why is it important to your business? Joe Pine defined Smart Mass Customization in 1993 as: “developing, producing, marketing and delivering affordable goods and services with enough customization that nearly everyone finds exactly what they want.” Smart customization gives customers the ability to select and/or contribute the product or service attributes that matter most to them.

Smart customization is the term that the MIT Design Lab uses to describe the second generation of mass customization offerings. Smart customization is both profitable and sustainable.

It’s profitable because customers are happy to pay more for the customization experience as well as for the outcome of customization.

Smart customization is sustainable because products are built to order and assembled close to the customer, limiting inventory carrying costs and reducing transportation costs.

What follows is my “trip report” from The MIT Smart Customization Seminar that was held November 10-11th, 2008. The seminar was co-chaired by William Mitchell, Joseph Pine, and Frank Piller. Unlike many of the academic meetings that have been held on the topic of mass customization, this was a business best practices event, with practitioners from the U.S., Europe, and Asia providing glimpses of what they have done and what they’ve learned along the way.

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**SMART CUSTOMIZATION GAINS MOMENTUM**

There’s a “new” way to design products and services as well as the businesses that produce them. Your starting point is the conviction that customers want and value products, services, and experiences that are custom-designed for them and/or by them.

Your business case is that customized products, services, and experiences can be produced quickly and cost-effectively and yield a much higher margin than mass-produced and/or custom-designed products and services.

**Different Types of Smart Customization**

There are several kinds of customization that were discussed at the MIT Smart Customization 2008 seminar:

1. Custom-configure products from a set of standard components
2. Custom-tailor using a set of constrained configuration options to meet specific dimensions or tolerances
3. Personalize products to include artwork or other intellectual property the customer contributes
4. Use end-user “manufacturing” solutions to enable customers to produce their own custom-designed products
5. Select previously-made products based on customized requirements
### Five Types of Smart Customization Discussed at the MIT Smart Customization Seminar

<table>
<thead>
<tr>
<th>1. Custom-configure products from a set of standardized components.</th>
<th><strong>BugLabs Open Source PDA Design Modules</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Design standard modules that can be easily mixed and matched. Bug Labs manufactures customer-programmable appliances that can be mixed and matched to yield a custom PDA device. (<a href="http://www.buglabs.net">www.buglabs.net</a>)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Custom-tailor products from a set of constrained configuration options to meet specific dimensions or tolerances.</th>
<th><strong>ProperCloth Lets Men Custom-Tailor Their Shirts</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>ProperCloth is a recent start-up selling men’s shirts that customers design and purchase online. (<a href="http://propercloth.com">http://propercloth.com</a>)</td>
<td></td>
</tr>
</tbody>
</table>
Five Types of Smart Customization Discussed at the MIT Smart Customization Seminar
(continued)

3. Personalize products to include artwork or other intellectual property the customer contributes.

*Mars Candy has been enabling customers to personalize their M&M candy and packaging for 3 years.*

4. Use end-user “manufacturing” solutions to enable customers to produce their own custom-designed products.

*Desktop Factory is a 3D Printer that will be affordable enough ($4,500) for home and/or small business use. You can use it to create prototypes, samples, and one-off custom objects from 3D drawings.*
5. Pseudo-customization:

Select previously-made products based on your own custom parameters from a set of recommendations.

Zafu.com is a jeans-shopping site that enables customers to select the off-the-rack jeans that will best fit their own dimensions.

What I find personally gratifying is how well the smart customization “movement” fits with my own world view of customer-driven innovation. Customer co-design is an essential characteristic of smart customization. To be successful, you have to (re-)design your organization, your products, your infrastructure, and logistics to respond to customers’ changing needs. You need to listen deeply and observe the patterns of how customers design and use their solutions. You need to let customers learn from and build upon one another’s creativity.

**Why Is Smart Customization Gaining Traction?**

After spending two days with 60+ practitioners of smart mass customization from the U.S., Europe, and Asia, I became convinced that there is no longer any question about whether or not smart customization is a viable business strategy in most industries. The practitioners are convincing, successful, and hard to dismiss. There were many proof points and success stories from a wide variety of industries. The professors who led the discussions and provided the conceptual frameworks all conveyed the impression that smart customization is in its adolescence; not its infancy.

The questions that remain aren’t about whether or not to take the plunge; they are more about how to do it. What are the best practices? What works well? How do you design or change your organization’s culture and processes to embrace smart-customization?

**There’s a new genre of middlemen who are creating the “smart” e-platforms for mass-customization.**
THE 4 DRIVERS OF SMART CUSTOMIZATION

Why is “smart” mass customization coming of age now? I distilled four drivers from the presentations and conversations at the MIT Smart Customization 2008 conference:

1. INCREASED CUSTOMER DEMAND FOR CUSTOM PRODUCTS AND EXPERIENCES. Today’s customers increasingly want to put their own spin or brand on the products and services they purchase and use.

2. INTERACTIVE TOOLKITS HAVE COME OF AGE. Interactive design e-toolkits make it easy for customers, retailers, and/or partners to engage in successful iterative design of customized products.

3. MASS-CUSTOMIZED MANUFACTURING COSTS AND TURNAROUND TIMES ARE DROPPING. There are many areas in the developed world in which manufacturing is rapidly moving offshore. This exodus has already happened in shoes, apparel, textiles, consumer products, furniture, high tech, packaging, food, and many other industries. One result of offshoring is that many of the abandoned local manufacturers are retooling in order to cost-effectively produce mass-customized goods.

   Custom Manufacturing Ecosystems Are Springing Up. For example, in Western Europe, there are now dozens of boutique manufacturers who are set up to cost-effectively and quickly produce custom apparel. The designs and fabrics are high quality (often from Italy). The manufacturing quality is very high. The turnaround is hours or days, not weeks. These often-boutique manufacturers have optimized their processes to produce one-off orders by assembling standard components in a build-to-order assembly and finish operation.

   E-Platforms for Mass-Customization. In order to cost-effectively send digital product specifications to a host of manufacturing partners, you need standard formats and interfaces. There’s a new genre of middlemen who are creating the “smart” e-platforms for mass-customization in one or more industries. For example, Bas Possen was one of the speakers at the seminar. For 10 years, Bas has specialized in providing a digital platform for smart customization of apparel.

4. ORGANIZATIONS ARE REDESIGNING THEMSELVES AROUND MASS-CUSTOMIZATION. One of the reasons that mass-customized products can be so cost-effective to produce is that, in order to excel in smart customization, you have to severely curtail the number of distinct components or modules that your company designs and produces.

   Reduce the Number of Components Your Business Designs, Produces, and Supports. The product line rationalization and reduction required for smart customization leads to cost efficiencies and reduction of complexity, while at the same time providing customers with increased customization, personalization, and authenticity. The companies that have gone down this road successfully in a variety of industries—apparel, books, computers, jewelry, manufacturing equipment, power plants, services, transportation, telecommunications—have profited from reducing the range of components they design, produce, and maintain, while increasing the options they are able to offer customers.

   Avoid “Custom” Customizations. These companies no longer accept one-off custom orders, no matter how much customers are willing to pay, because they’ve learned how unprofitable it is to deliver custom solutions that aren’t designed using standard modules. For example, Joe Pine cited the example of American Power Conversion, producers of power management systems for data centers. Joe said that if a sales person wants to accept a “custom” order from a customer, the CEO has to sign off on that order, and he never does, because he knows that no matter how large the mark-up, it will be unprofitable for the firm to produce, install, and maintain a one-off solution.
The Four Drivers of Smart Customization

1. Increased demand for custom products and experiences

Zazzle began as a site you could use to create a custom-designed shirt or postage stamp or calendar. Due to customer demand, the company continues to expand the different types of products you can custom-design. In August, 2008, Zazzle added custom skateboards.

Skateboards Are Just One Kind of Product You Can Custom Design

Custom Skateboards

Create a Skateboard! Our online design tool allows you to create a professional quality skateboard that ships to you in 24 hours! Zazzle skateboards feature locally sourced North American Maple decks. Our patented printing process ensures a beautiful board with vibrant colors and professional quality standards. Start creating your board today and skate your creation tomorrow!

Here Are Watches that Customers Designed in a Contest

Johann Füller, CEO of Hyve, showed the winners in the Swarovski Enlightened 2008 Watch Design Contest in partnership with Signity.

Hyve designed and facilitated the customer design contest.
The Four Drivers of Smart Customization (continued)

2. Interactive toolkits help customers create products
Tikatok is a site designed to empower kids to write, illustrate, and publish their own books. The interactive toolkit “Sparks” kids’ creativity with story ideas and basic plots.

This illustration depicts Tikatok’s creative tools as well as its product workflow and social networking infrastructure.

3. Fast turnaround times
Typical production and delivery times for today’s mass-customized products.
Delivery times vary based on the distance and the customer’s willingness to pay for express delivery.

| Fast Turnaround Times for Mass-Customized Products |
|---------------------------------|------------------|
| Apparel                         | 24 hours to 5 days |
| Athletic Shoes                  | 5 days            |
| Books                           | 3 to 5 days       |
| Candy                           | 5 days            |
| Computer Systems                | 3 to 16 days      |
| Skateboards                     | Shipped in 24 hours |
| Software/Virtual Appliances     | 5 minutes         |
The Four Drivers of Smart Customization (continued)

4. Organizations are re-designing for mass-customization

American Power Conversion has spent 15 years redesigning its product line to be easy-to-customize and assemble.

American Power Conversion

Based on the customer’s parameters, APC’s configurator offers three starting points for configured solutions:
1. Best price
2. Best value
3. Best performance

System Specifications

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Part Number</th>
<th>Details</th>
<th>Qty.</th>
<th>Part Number</th>
<th>Details</th>
<th>Qty.</th>
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<td>APC Symmetra LX 16kVA Scalable to 16kVA</td>
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<td>H + Rack-mount, 208/240V input, 120V and 120V Output</td>
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<td>APC Symmetra LX Extended Run Rack-mount w/ 9 SYMD9S, 208V</td>
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<td>APC Symmetra LX Extended Run Rack-mount w/ 9 SYMD9S, 208V</td>
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MOVING FROM MASS CUSTOMIZATION TO SMART CUSTOMIZATION

Professor Frank Piller laid the groundwork for the two-day Smart Customization seminar by providing a brief overview of the evolution of mass customization and summarizing the current benefits and issues surrounding mass customization.

“We all know about the Long Tail phenomenon and the increasing number of products and services that are essentially niche products,” Frank explained. “Smart customization answers the question: ‘how can firms extract rents from these very diverse customer needs?’”

Current Trends in Support of Customization

CUSTOMERS EXPECT CUSTOMIZED PRODUCTS AT THE LOW END AND THE HIGH END. Customization is no longer a characteristic that customers expect only when purchasing expensive products, like cars. Manufacturers have discovered that customers now expect to be able to customize even low-end (under $100) products. Frank Piller referenced a 2007 survey of 72 American industrial manufacturers, in which:

- 75 percent of the respondents felt that customization was either very important or critical for products selling for $100 or less
- 69 percent of respondents felt that customization was critical or very important for products selling between $100 and $1,000

The take-away: don’t assume that customization is important only for expensive industrial products. If 75 percent of manufacturers need to customize products that sell for under $100, smart mass-customization is the only way to provide customized products profitably.

The take-away: don’t assume that customization is important only for expensive industrial products. If 75 percent of manufacturers need to customize products that sell for under $100, smart mass-customization is the only way to provide customized products profitably.

CUSTOMERS ARE HAPPY TO PAY MORE FOR CUSTOM PRODUCTS. Frank provided a lot of research to support the thesis that customers will pay a premium for mass-customized products. He cited his own research based on providing etoolkits that enabled customers to custom-design their own watches in 2004. Using an etoolkit from Factory 121.com, a Swiss watch manufacturer empowered prospective customers to design their own customized Swiss watches and to declare what price they would be willing to pay for the watches that they designed. The extra value that customers perceived was 126 percent for a self-designed watch, and even higher (216 percent) for an “ideal” customized watch (e.g., don’t let me design something that is ugly or that I won’t be proud of). The study showed differentiated price premiums ranging from 15 percent to almost 600 percent.
Customers now expect and demand customized products at both the low and the high end.

Frank Piller cited this study: (Wilson/2007 available from Cincom) in which U.S. manufacturers revealed that customization is critical at all price points.

**Customization and high variety is not restricted to expensive products** (study among 72 US manufacturers of complex industrial, electrical, and transportation equipment and systems)

In your company, how important is the ability to customize products to specific customer requirements?

<table>
<thead>
<tr>
<th>Importance</th>
<th>Total</th>
<th>&lt;$100</th>
<th>$100-$1,000</th>
<th>$1,001-$10,000</th>
<th>$10,001-$100,000</th>
<th>&gt;$100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all important</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Somewhat important</td>
<td>8%</td>
<td>8%</td>
<td>6%</td>
<td>7%</td>
<td>17%</td>
<td>0%</td>
</tr>
<tr>
<td>Important</td>
<td>19%</td>
<td>17%</td>
<td>25%</td>
<td>33%</td>
<td>6%</td>
<td>18%</td>
</tr>
<tr>
<td>Very Important</td>
<td>31%</td>
<td>50%</td>
<td>44%</td>
<td>20%</td>
<td>26%</td>
<td>9%</td>
</tr>
<tr>
<td>Critical</td>
<td>42%</td>
<td>25%</td>
<td>25%</td>
<td>40%</td>
<td>50%</td>
<td>73%</td>
</tr>
</tbody>
</table>


Customers are willing to pay more for custom products.

This illustration is provided courtesy of Joseph Flaherty, the founder of Replicator, Inc. from his post, *Customization Science: Bumper Stickers=Road Rage*. 
Frank Piller’s “Design Your Custom Watch” Study in 2004

Customers were provided with a Web-based interactive toolkit that let them custom design a watch and specify the price they were willing to pay.

Customers said they would pay more than double for a self-designed watch; and even more for their perfect watch.5

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**An experiment on the benefit of customization for consumers (expressed in their willingness to pay (WTP)) (Franke / Piller 2004)**

*The basic toolkit allows 648,000,000 design variants … 30 hour / minutes hands 150 faces 60 cases 30 straps 30 seconds-hands… and our calculations show that customers use this huge solution space extensively.*

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**Customers’ Willingness to Pay for Customized Products**

Mass Customization yields an impressive value increment to users

- **Bestselling standards**: 21.5 €, + 126%
- **Self-designed watch (toolkit)**: 48.5 €, + 90%
- **“ideal” watch (perfect toolkit)**: 92.0 €, n = 165
CUSTOMERS ENJOY THE EXPERIENCE OF CO-DESIGNING THEIR OWN PRODUCTS. I saw a lot of heads nodding around the room when Frank Piller talked about how important the experience of customer engagement is to the value that customers place on customized products. His research has shown that customers place value on:

- Product satisfaction
- Fit
- Uniqueness
- Process Satisfaction:
  - “Flow”
  - Pride of authorship
  - Peer recognition
  - Emotional factors

I believe that the consensus among the practitioners in the room was that you shouldn’t underestimate the value of the emotional engagement with the process of creating your own product.

Customers are also more loyal because they receive customized goods and services that are tailor-made specifically for them. They refer others and come back for more of the same. But it’s the experience of customizing and personalizing as well as the results that increase the perceived value.

Common Implementation Issues

If mass customization is so great, why hasn’t it become more commonplace? “There’s a big graveyard of mass-customization products,” Frank remarked, “yet customers loved them.”

He cited Levi’s “Build Your Own Jeans” effort as just one such example. Some of these early efforts fell victim to a number of contingency factors (organizational politics, economic downturn, competitive environment, etc.). Frank summarized the patterns that he noticed in the unsuccessful cases:

- PERPETUAL PILOT. As Frank commented, in the case of Levi’s and a number of other projects, “for 10 years it was a pilot. If something stays a pilot for 10 years in a big organization, there’s something wrong.”

- PEOPLE-INTENSIVE. Many projects used people-power to produce the customized goods, rather than automation. That’s not a scalable or sustainable approach.

- NO RE-ORDERING. Believe it or not, many early mass-customization projects did not make it easy for customers to re-order more of their custom-produced products (e.g., another pair of trousers for a suit). Now we know that one of the big benefits of having custom-produced suits or travel itineraries is that you can order another pair of pants to go with the suit and/or take the same business trip again with new dates.

- NO FEEDBACK GATHERING OR SHARING OF DESIGNS. It didn’t occur to early practitioners of mass-customization that customers might be willing to share their designs with one another and build on each others’ creations. Many mass-customization implementations didn’t have good mechanisms for customers to share their learnings and ideas.

EXAMPLES OF SUCCESSFUL SMART CUSTOMIZATION

Are There Successful and Profitable Smart Customizers?

Absolutely! The presenters at the MIT Smart Customization Seminar referenced a number of well-known (and not so well known) success stories. For example, Joe Pine described the maturity and profitability of American Power Conversion’s smart customization of its data center solutions. Frank Piller pointed to the success of Bauerfreund, manufacturers of compression stockings for men and women.

Among the successful practitioners who presented at the conference were: Adidas, American Power Conversion (presented by their consultants), CustoMax, Mars, Spreadshirt, Tikatok, and Zazzle, among others.

The Smart Customization Seminar also featured a number of recently-funded entrepreneurs whose new businesses are predicated on smart customization. In addition, there were presentations of current research
into future smart customization concepts and examples of successful customer co-design initiatives. **ADIDAS PIONEERED IN PROVIDING CUSTOM FOOTWEAR**

Adidas has been a true long-time pioneer of mass-customization. The company has tried many different approaches over the years and has learned a lot from all of them. At the MIT Smart Customization Seminar in November 2008, Alison Page, Manager of Customization at Adidas, gave a great presentation covering a few of the highlights.

Adidas sprang to fame when, in 1955, the German soccer team beat the favored Hungarian team to win the World Cup. This upset was dubbed “The Miracle of Bern.” The German team was wearing Adidas boots with removable studs. When the rain came, they screwed the studs onto their shoes and won the match against the Hungarians.

**Customizing Sports Performance Shoes: High Tech/High Touch**

Although Adidas had always kept up the tradition of designing customized shoes for top athletes, it wasn’t until the late 1990s that Adidas decided to make customized shoes available to the mass market. **mi adidas**, the mass-customization operation, was piloted in 1999 and launched in 2000 to bring custom footwear to the common person.

The Adidas approach to the custom design of performance shoes relies heavily on well-trained knowledgeable experts—people who understand both fit and performance and can truly add value to the co-design activity. Starting in the late ’90s, Adidas outfitted a number of its retail outlets to provide custom fitting and custom design services. They also brought the custom design skills and technology to major sporting events. I described the approach in my book, *Outside Innovation*, quoting from a case study co-authored by Frank Piller:

“The company provides a service that, until now, was only available to top athletes...Customers’ feet are scanned using a foot scanning system, in order to determine the exact length, width and pressure distribution of each foot.”

This information is entered into a software program at a sales kiosk to determine the best-fitting shoe. The customer is then given prototype shoes in the right fit and style to try on. ‘Once satisfied with fit, the customer designs the color elements and selects material preferences. All of these steps are performed with the help of a sales kiosk leading the customer through the co-design process, supported by a sales clerk. The shoes arrive within three weeks.”

Over the years, Adidas has continuously refined the technology assists that it provides its personnel to custom design performance shoes. In 2006, Adidas opened an Innovation Centre in Paris which includes a pressure sensitive treadmill used to capture runners’ gaits as well as the use of touch screen and handheld technology for customers and trained associates to capture fit and to select and to customize the shoe designs. Here’s a [YouTube link](#) to a video describing the experience.

**Custom Design for Fashion-Conscious Consumers**

Many of Adidas’s customers are more interested in fashion and originality than they are with sports performance. In 2008, Adidas piloted a new in-store design experience for Adidas Originals shoes that is targeted to its most fashion-conscious customers, the trend-setters. This new Adidas experience takes its inspiration from Tattoo parlors. The customer/designer sits in a comfortable “Tattoo chair,” surrounded by examples of artwork and shoe designs. S/he uses an in-store system to design a shoe with a custom and even personalized look. Here’s a [YouTube link](#) to an ad for the Mi Originals boutique within the recently redesigned Zurich Originals Adidas store.

**Designing Your Custom Shoes Online**

Adidas was comparatively late in enabling customers to customize their own shoes using a Web site. Other brands have offered online customization and ordering of athletic shoes for some time: Converse (2005), Reebok (an Adidas sister company) (2005). Today, Adidas offers a state-of-the-art online customization and ordering experience, including the unique ability to order left and right shoes in different sizes.
Streamlining the Supply Chain to Support Mass-Customization

Since 2006, Alison Page has been leading a team focused on streamlining the supply chain for the custom manufacturing operation. As Adidas has perfected and experimented with front-end technology to enhance the custom shoe design experience, Alison and her team were streamlining the custom manufacturing process. “We’re constantly tuning our infrastructure for speed, flexibility, and lot size one; for example, being able to download orders to the factory daily vs. periodically was a major change to our production operation.” Distribution costs are also a challenge, Alison explained. The costs of air freight are high, yet customers want fast delivery. Raw material management is a big challenge. Supporting true mass customization requires internal change management.

Providing a Customized Training Experience

What’s the next step in customization? Customizing transformative experiences. Alison described “miCoach” as an example of “soft customization” rather than “hard customization.” You create a service comprised of products and services. You wrap the custom experience around those products. And you do it in order to help the customer achieve their goals.

**MI COACH.** In March 2008, Adidas launched a program called miCoach that is a joint venture with Samsung. The miCoach gear includes a heart rate monitor, a Samsung phone with specific hardware and software, and a stride sensor that fits on your shoe. It’s combined with a Web site, complete with training programs and the ability to tailor and track your progress towards your fitness goals. Users can create their own custom workouts, track their progress, upload their stats to the Web site, and create and download their own music play lists. “It’s an interactive training system that engages customers to interact with our brand on a daily basis,” Alison exclaimed.

<table>
<thead>
<tr>
<th>In Store Design of Adidas Originals footwear in the mi Originals retail execution</th>
<th>Mi Adidas Originals In Store Design Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>The look and experience is reminiscent of a tattoo parlor. Customers can browse samples while they create their own custom designs for selected shoe styles.</td>
<td><img src="image" alt="Mi Adidas Originals In Store Design Station" /></td>
</tr>
</tbody>
</table>
The mi adidas Web site lets you customize your shoes
You start by selecting one of the most popular current shoes and then create your own custom “look.”

miCoach from Adidas
Combines a Samsung phone with a heart rate monitor and a stride sensor on your shoe.

miCoach Site Helps you Set Goals and Track your progress.

Adidas miCoach

get tips and feedback,
American Power Conversion: Profiting from Smart Customization

Lars Hvam and Niels Henrik Mortenson head up the Centre for Product Modeling at the Technical University of Denmark’s Department of Manufacturing Engineering and Management. At the MIT Smart Customization Seminar, they presented several compelling case studies of smart customization in action among their clients. These are all major B2B manufacturers who have been applying the principles of smart customization and modular design of product lines and business processes for several years.

These cases are covered in more detail in their recently published book, *Product Customization*.13 One of the most detailed accounts that Lars and Niels presented included highlights from American Power Conversion.

Dramatic Reduction in Lead Times by Moving from Engineering to Configuration

American Power Conversion (APC) is a multibillion dollar provider of complete power management systems for data centers, access providers, business networks, and home/small office. It used to take APC 18 months to design, configure, and deliver the power management infrastructure for a data center for on-site assembly. Today, the company’s 35,000 customers receive (or generate) a quote in less than an hour. The lead time for delivery of a complete infrastructure system for a large data center has been reduced from 400 days to 16 days! Since the systems arrive pre-assembled, on-site installation and integration has also been dramatically reduced.

Customers and technical consultants no longer engineer these complex solutions; they configure them. American Power Conversion’s configuration and ordering systems are used by more than 10,000 sales engineers and dealers worldwide as well as by the majority of APC’s customers.

APC manufactures standard modules in the Far East (power supply, air conditioning, cabling). All of these modules are mass produced. “The manufacturing is planned and executed based on the product and manufacturing specifications generated in the configuration systems,” they explained. Most systems are then pre-assembled in one of APC’s 15 assembly distribution centers around the world.

Key: Streamline Your Processes

Over the past decade, APC has redesigned its entire product lines to be easy to configure and assemble. At the same time, they had to develop new end-to-end processes—processes that impact everyone in the organization as well as all of their partners and suppliers. Now, Niels and Lars reported, APC delivers more systems, much more profitably, with fewer errors. Here’s the current breakdown:

- 80% of all systems are Configured to Order (CTO). The total system delivered is configured directly in the configuration systems.
- 15% of all orders are Integrated to Order (ITO). The total delivery can be pre-configured, but up to 15% of third-party components are not defined in the configuration system.
- 5% of systems are Engineered to Order (ETO). Parts of the delivery will have to be engineered specifically to the individual customer.
- Special Orders require approval from the CEO. These are negligible, because the CEO never approves them!

Key: Streamline the Product Modules You Offer

The key to the successful design of a modular product line that can be easily configured and assembled, according to Lars and Niels, is the way you approach the design and rationalization of your product line. This product modeling process is part of the methodology that they have perfected. As you can imagine, it involves getting all the stakeholders together from sales through manufacturing, logistics, and support to redesign the products lines to be modular. What’s special about the approach that Lars and Niels take is that it’s customer-driven, based on the attributes and characteristics that matter most to customers.

At the seminar, they showed examples of the large wall charts that clients developed to:
• Depict the current product assortment by creating a common overview of the product assortment across sales, engineering, and supply chain.

• Create a “Product Variant Master” to show the variance and commonality of the product assortment.

• Identify the attributes and characteristics that matter most to customers.

• This forms the basis for the identification of the starting point for modularization and configuration and a basis for decisions about what their preferred solutions should be.

• Conduct a “professional dialog” between sales, engineering, and production. Discuss it with everyone. Focus on “how can we reduce complexity.”

• Standardize the product assortment into a set of modules and assembly processes that can be easily configured and delivered.

Reduce Variability; Increase Variety

The magic of this disciplined approach is that it dramatically reduces errors and results in much better quality products. On the flip side, it enables the company to create new solutions quickly and easily, based on customer demand and usage. APC introduces more than 1.000 new products to the market per year.

The Importance of a Product Variant Master

Niels Henrik Mortensen and Lars Hvam described how American Power Conversion created a streamlined modular product line by mapping out the current product assortment and processes and then simplifying them.

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Structured overview of complex product & service assortments

**Purpose**

- Create a common overview of product assortment across sales, engineering, production, and supply chain

**Results**

- A so-called “Product Variant Master” showing variance and commonality of product assortment
- Form the basis for identification of starting point for modularisation and configuration
- A basis for decision on what our preferred solutions are
- Professional dialogue between sales, engineering and production
- Standardize the product assortment

Niels Henrik Mortensen and Lars Hvam, Centre for Product modelling, Dept. of Manufacturing Engineering and Management, Technical University of Denmark, www.productmodels.org
CustoMax®: PLATFORM & E-MARKET FOR CUSTOM-TAILORED APPAREL

Learn by Doing

Bas Possen is a mass customization veteran. He has been designing and selling made-to-order business suits and shirts for men and women since 1969 through his company, Possen Made-to-Fit Fashion.

After growing up in the fashion industry with a background in custom-tailoring, Bas Possen wanted to take advantage of the latest technology. “In 1998, we started with body scanners from Human Solutions. We were the world-first fashion retailer with a 3D body scanner in Amsterdam as well as in a mobile store visiting clients. We were the world’s first, but not the world’s best. For example, during the first year of operation, we scanned 10,000 people, but we had to give money back to 30 percent of them. We realized that we were tapping an unmet need, but the scanning software was immature and the logistical control wasn’t there.”

Bas also experimented with online design and ordering of custom tailored apparel. “We wanted to be an Internet player, but we found we needed to be brick and click. We had no clue about the proper distribution model.”

Turn the Learnings from Made-to-Fit Apparel into a Scalable Ecosystem for Mass Customization

At the same time that he has been continuously improving and growing his Possen Made-to-Fit apparel business, Bas has also been designing and perfecting a platform and an ecosystem to support the players—specialty retailers, ateliers and weavers—in the fashion industry. His CustoMax® Solution is currently used by about 100 European fashion retailers; many of these are small family businesses with 1 to 30 stores. “CustoMax” connects multiple best-of-class retailers of mass-customization products with their manufacturers and their suppliers on one single platform and integrates their product catalogs in a uniform way.”

CustoMax is currently used for the custom-design and manufacture of suits, shirts, dresses, knits, and, most recently, shoes, for men and women.

The Customer Experience

Clients go to the retail stores to be measured (manually or with a body scanner)—the first session takes up to 45 minutes—and to select from a wide assortment of fabrics and styles. Together with the retail consultant or tailor, they co-design the look they want for their suit and/or shirts. Starting with a basic style (these change often, of course, to keep up with fashion), they can select all the options they prefer in cuffs, pockets, lapels, linings, and so on.

The retailer provides accessories, ties, socks, stockings, cufflinks, etc. that are complimentary (some of these are supplied by CustoMax). “A customer goes to a fashion retailer because he likes the feeling. He wants to be able to ask, ‘What do you think? Does it make me look good?’ We’re really talking about transformation; not shopping. A fashion retailer intrinsically works at this level.”

The customized garments are then made-to-order by a CustomMax manufacturer and delivered direct to the client (or picked up at the store) within 5 to 15 days (depending on the product/manufacturer). The prices are competitive with other top-of-the-line off-the-rack business apparel. Since the clients’ dimensions and preferences are now stored electronically, re-ordering is easy, as is the ability to specify simple changes in colors and styles. Clients can view and re-order from their digital closets.

The Retailers’ Experience

Each of the retailers commits to having two trained specialists in each store and to using the CustoMax configuration software which is provided to them free of charge. Bas’s group provides the training and the coaching in how to market the service and how to maintain great client relations. “We consult them in their shops on how to incorporate their made-to-order corner in their shops. We deal with every size retailer, from a single tailor to Brooks Brothers or Harrods. We really focus on retailers—from very small to very big. We show them how to do this successfully. We contact each of our clients weekly, and visit them monthly. We set targets with them. They need a 24x7 support (including weekends),” Bas explained.
The Weavers’ Experience

The fabric suppliers—w eavers and designers—are also typically small businesses, many of them scattered throughout Europe. Bas Possen described the logistical and emotional challenges: “The fashion industry is highly fragmented and highly competitive. There are, for example, Italian family-owned fabric suppliers in the same town that have been shooting each other for centuries. We need to convince both families to let us connect to them. A retailer needs to know real-time (i.e., while consulting his client) that he can have the last 3 meters of this fabric available and to be able to book it. Then it has to get to Hamburg, Boston, Stockholm, or Amsterdam in time.” The fabric suppliers commit to keeping their fabric inventory up-to-date in real time as well as to providing just-in-time supply to the participating manufacturers. The textile suppliers and manufacturers pay a minimum fee for installing the software and integration with their existing ERP system on a one-time project set-up basis. All upgrades are free. A small transaction fee is charged to the fabric suppliers and manufacturers per order that is created on the CustoMax portal by a retailer or consumer.

The Manufacturers’ Experience

The manufacturing ateliers are typically small European lean manufacturing and/or tailoring operations, most of which are staffed by craftspeople who have been producing custom garments for decades. The difference that the CustoMax software brings to them are the digitized patterns and dimensions—each style is pre-designed with a set of easy-to-assemble options.

Results: Great Fit, Great Clothes

The results are quite stunning. Not only do clients get clothes delivered fast at competitive prices that fit beautifully, made out of superb fabrics, but clients also typically experiment with often surprising combinations—men’s suit jackets with colorful linings, women’s three-piece suits with contrasting silk vests and blouses.

Results: Increased Revenues and Profits for Retailers

For most of CustoMax retail customers, mass-customization is now at least 10 percent of their business and growing. Bas offers an example of the typical retailer’s experience with CustoMax. “One of my customers is a husband and wife team who run their own fashion retail store. They bring in about 1 million Euros revenues per year. They were able to custom design and deliver about 30 to 40 suits per year, for a few clients. We looked at their store, we told them to switch suppliers, we’ll help you with your in-store presentation, and we’ll show you how to promote the capability. In their first event, they had 80 people making appointments on one weekend. They generated 100,000 Euros in additional revenue in a single weekend!”

MIT’s Smart Customization Initiative

MIT has created the term “smart customization” for its current industry/academic research initiative being spearheaded by the MIT Design Lab. This is an inter-disciplinary effort (design, architecture, engineering, management research). It is also an MIT/Industry collaborative venture. Many companies are engaged both in funding and in participating in the cutting edge research.

We have seized upon the term “smart customization” to characterize the second generation of mass customization – with an emphasis on environmental sustainability as well as “smart” business design.

"The MIT Mass Customization Interest Group http://design.mit.edu/smartcustomization/index.htm is an MIT-Industry collaboration devoted to improving the ability of companies to efficiently customize products and services in various industries and for diverse customer groups. Its faculty consists of William J. Mitchell, Marvin Minsky, Frank T. Piller, Joseph B. Pine, Ryan Chin, and Betty Lou McClanahan, as well as other members from throughout MIT."
CustoMax provides a total mass customization ecosystem for apparel retailers

Retailers use the configuration software to capture customers’ measurements and apparel specifications.

Custom manufacturing is outsourced.

Customers and Retailers select Fabrics from samples in the store

Fabrics are selected from participating suppliers.
CustoMax
Retailers Co-
Design Apparel
Options with
Customers in the
Store

There are many
details from which
customers can
choose with the
help of the
retailer's fashion
advisor.

Discover the suit options

You will get an impression of which options are possible at Posson.com. Click on the arrows to see the next option.

When you are satisfied with the option, move to the next picture.

After completing the options, you will be able to make an appointment and the info will be sent to our shop manager. We will then have an idea of your wishes concerning suits. Of course you can change your options during your visit.

Single-Breasted
1 Fastening Button
(1st fastening point
is in the waistline)
Downwards-Pointing
Lapel
Straight-Hem
Finishing

CustoMax works
with each
Retailer to design
a section of their
store for
customer co-design

As a response to market demand,
first moving retailers proof to be on the right side ...
MARS DIRECT: PERSONALIZING CANDY & EXPRESSIONS

Personalized Expressions

Dan Michael, the R&D Director of Mars Direct, told “the story of how and why a personalized chocolate business was started and grown within a mass market snack food company.” He briefly described the evolution of Mars Direct which currently sells, manufactures, and delivers personalized M&Ms and Dove Chocolates. “We’re not a candy company; we’re a personalized expressions company,” Dan emphasized. “We make special moments more magical. The giver makes meaningful moments more magical through personalization.” Personalized M&Ms are used at birthdays, weddings, company bashes and sporting events. “My Dove” chocolate bars, with specially printed messages on the foil wrap, have been used to propose marriage as well as to celebrate events.

My M&Ms. I have personal experience with My M&Ms®. I’ve ordered them for my grandkids’ birthdays. They’re always a big hit. I learned about them from an online ad at myrecipes.com. It’s quick and easy to go to the mymms.com site and use the online tools to select your colors, type in your message(s), and select your packaging. As of June, 2008, you can also upload an image or a logo and have it printed (in black) on a colored M&M.

One of the things the My M&M team has learned is that customers not only want to personalize their candy to tell a story or to commemorate an event. They also want to customize the packaging they select. Depending on the event, customers may choose to have the personalized candy delivered in bulk (so they can pour it into bowls), or wrapped in cellophane bags, or delivered in boxes or tins. Dan reports that the most popular options are currently the 7 ounce cellophane wrapped bundles and the bulk delivery.

My Dove. The customization of M&Ms packaging gave the Mars Direct team the idea to use custom packaging as the personalization mechanism for other snacks—ones that don’t lend themselves to printing on the candy. The personalized expressions that customers create for My Dove candy bars are printed on the foil paper used to wrap the candy.

When you visit the Mydovechocolate.com site, you’ll discover a wealth of seductive personalization and customization options. You can select the type font, create multiple messages, and select the color of foil wrapping. You can select among a wide variety of gift boxes, with different types of chocolates and different packaging options, e.g., ribbon colors, and so on.

What’s in It for Mars?

The revenues from the Mars Direct business are small compared to the billions of dollars Mars makes each year from its brands (which now include Snickers, M&Ms, Wrigley gum, and even Pedigree Pet food, among others.). Yet the personalized expressions business adds value and cachet to the brands it surrounds. “We can show that our innovation drives interest in our brands.”

“We launched our MARS Direct business because senior management felt we would only grow so much (3 percent on average) pushing snacks thru existing channels,” Dan stated. We needed to ‘premiumize’ our products.”

How Is Mars Direct Doing?

Mars Direct is a separate, small, self-contained business unit, Dan explained. It measures its results in revenues, profits, customer experience, and brand awareness. For example, within 12 months, 26 percent of my M&Ms was repeat business. Dan’s team finds the Net Promoter score to be a really useful measure of customer experience. “Our score is 55 and climbing.” Dan can see a direct correlation between the quality of printing and the scores received: “The higher the print quality, the higher the Net Promoter scores. Our dedicated Mars Direct team is patient for growth, and impatient for profits,” Dan reports.

How Did Mars Direct Evolve?

My M&Ms was launched in 2005 after five years of R&D and experimentation. In the early 2000s in the R&D lab, “we began asking ourselves ‘wouldn’t it be neat, if we could print personalized messages on M&Ms?’ We started talking to people and got buy-in to look into it. We ring-fenced the resources.” They were allowed to do some serious testing. They went to Staples and tore printers apart. They part-nered openly with many different suppliers and they
came up with prototypes that were used to sell the vision.

By 2003, the R&D team had gained high-level sponsorship. They moved to the next steps: get permission to proceed with a pilot and get “air cover.” They needed a safe haven to test the value proposition. They got management to sign an Innovation Charter. “It’s a document wherein the management team declares and affirms their full support and commitment to the success of the innovation project. It’s kind of like a ‘Get out of Jail Card,’” Dan explained.

Between 2003 and 2005, they gave themselves a 90-day challenge to get a print shop production module up and running. “We put our first custom printing machine in the back of a factory. We wanted to get product into peoples’ hands and get feedback, so we piloted with employees,” Dan explained. The preliminary “consumer” launch was to the company’s own associates. “We have a lot of associates—over 5,000 at seven different plants. So we made it available to them. Originally, they could specify custom messages to be printed only on white candy.”

By 2005, they were ready to roll out the original “My M&Ms” Web site and custom printing operation. “We had a ribbon cutting ceremony in the little back room we used in the production facility.” It was a small shared cross-functional team with its own “dedicated” production facility and its own Web site at MMs.com. The custom product generated lots of demand. It was clearly a win!

In 2006, the small My M&Ms team became its own empowered, autonomous business unit, called Mars Direct. Its strategy includes:

1. Be an engine for innovation in products, packaging, and partnerships in order to increase the value of the global brands
2. Build consumer loyalty and repeat business through direct-to-consumer initiatives
3. Counter commoditization of any Mars brand through personalization and smart customization

By 2007, Mars Direct found that B2B partnering opportunities were so strong that they built out a B2B offering. Other brands wanted to be able to offer customized M&Ms to their customers and partners. Many want to have a “store within a store” to make it easy for customers to order and/or to personalize their custom products. Partners have included the NFL, Disney, and Martha Stewart, among others. MarsDirect also partners with not for profits for fund-raisers. For example, you can order My-Dove chocolates with a Susan G. Komen breast cancer cure packaging option. Proceeds from the sale go to the charity.

By June 2008, Mars Direct was able to launch custom printing of faces from photographs.

Building a Smart Customization Business within a Mass Market Manufacturer

Dan Michaels summed up the differences between the traditional Mars culture and the culture of Mars direct as being completely antithetical to one another. “We have a completely opposite business model and culture, Dan explained, yet “we’re the best of the big and best of the small. We meet with the President of Mars Snack Food every two months and with his senior staff. We get a lot of support from them. When we get into a crunch or a crisis, they are there for us.”

Dan goes on: “We have an innovate/test/learn culture. Things move much more quickly. Mars Direct associates have to live with a lot of ambiguity. When in doubt, test! We know what we don’t know.”

Next Steps for Mars Direct

Dan Michaels made it clear that theirs is definitely a learn-by-doing model. “We get tons of customer feedback and suggestions, and we have so much data from our Web site, it can be overwhelming at times.”

One of the most interesting pilots planned for the coming years is testing in-store personalization. Mars Direct is offering the ability to design and order customized expressions at three retail outlets in the U.S. The next step is to test custom printing in a store.
Create Your Personalized M&Ms
For each order, you select from among 22 colors and create the verbiage you’d like. Add imagery, including photos.

My Dove lets you Create Messages that appear inside each Candy Wrapper
You can select your typeface and create up to four separate 3-line messages.
This has become a popular way for guys to propose marriage!
SPREADSHIRT: MAKING IT EASY TO BE YOUR OWN BRAND

Like sneakers, custom-designed and printed T-shirts are a huge category in mass-customized products. Spreadshirt is one of the most mature companies in this space. It was founded in Leipzig in 2002 by Lukasz Gadowski and Matthias Spiess, and quickly became a European market leader in personalized clothing. The original idea wasn’t a direct-to-consumer play, but an online shop partner that would empower small retailers to create and sell their own branded goods. With the combination of a well-designed Web infrastructure and custom manufacturing expertise, the firm grew from a prototype to a multimillion Euro global company.

Refocus on Shirts and My Brand

Jana Eggers is now the CEO of this company, which has offices in Leipzig and Boston. “We’re a creative, personalized apparel company. We have millions of direct customers and over 300,000 shop partners.”

Jana told the story of the refocusing of Spreadshirt. “About a year ago, we refocused. We were producing a lot of custom merchandise: puzzles, clocks, lanyards, mugs, and, of course shirts. We went through a transition from “you think it, we’ll print it” to a laser focus on making it about them—the customers and the products that carry the most emotional impact for them.”

They did a lot of soul searching and research. “We asked our employees first; then we went to our customers.” They asked customers: “What made it “your own label?” Jana explained. What they discovered is that wearable apparel packed a lot more impact than any other customizable object. And that telling a story or making a statement about yourself is the key emotional driver. Jana said that the phrase that really summed up the customer research for her was: “I wear my shirt every time it’s clean.” This was the big epiphany. “Shirts are very personal to them. People comment on them. They wear them proudly. We also learned that the process of creation is a really important part of the perceived value of the experience. Many customers commented that they wanted to spend more time in creating their customized shirts; not less.”

Fast Turnaround and Scalability

Spreadshirt has two factories in Europe and one in the U.S. Most customized apparel is delivered within 24 to 48 hours. The company’s maturity as a mass-customizer gives it a leg up when dealing with large brands with mass audiences. Jana told the story of partnering with CNN. CNN wanted to offer the opportunity for customers to select a headline and get it printed on a CNN T-Shirt. “We were able to give CNN updates every 15 minutes on what shirts they were selling,” Jana commented.

Support Partners & Brands

More than 50 percent of Spreadshirt’s business is with established brands. Brands like Coca Cola, Warner Brothers, many content sites, and lots of community sites and entrepreneurs want to be able to offer their own branded apparel. Spreadshirt offers a cost-effective way for them to provide high quality with fast turnaround and no inventory.

Jana Eggers cited a number of different kinds of “shop partners” who routinely use Spreadshirt:

- Large brands like CNN, Coca-Cola, or Warner Brothers offer unique promotions
- E-commerce sites like Otto or Plus offer unique, personalized items
- Content sites like the Guardian, Boing Boing, or cartoonists Katz & Goldt offer brand extensions
- Community sites like ChuckNorrisFacts or Craftster.org offer “fanwear”
- Entrepreneurs like Nekkid Tees or Amorphia Apparel build their own apparel label

Commemorate Events

Many of these branded offerings take advantage of the customization capabilities. For example, Spreadshirt provides an easy-to-use fan site. “We do things like Tour shirts for Spice Girls. Fans pick their color, type of shirt, select and position the pre-approved art work. It makes them feel special.”

Whether the event is a rock concert, a family picnic, a company milestone, or a personal accom-
plishment, people apparently feel that “if it’s not on a T-shirt, it didn’t happen.”

**Strut My Stuff**

The other 50 percent of Spreadshirt’s business comes direct from consumers. Here are some interesting findings that Jana presented about her “direct-to-consumer” customers:

- 80% want to create personalized clothing
- 75% did not know where they could do so
- #1 priority: high-quality, long-lasting printing

- #1 concern: having enough time to create
- 30% purchase as gifts
- 25% purchase to express ideas
- 20% purchase for an event
- 75% wear it “regularly” or “every time it is clean”

Spreadshirt currently provides shirts, including sweatshirts—Jana modeled a lovely bamboo “hoody” at the Smart Customization Seminar—as well as sneakers.

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### CNN Partners with Spreadshirt

**CNN Shirt**

$1,000,000,000,000 deficits for years?

**Share**

**Other Shirts**

- Featured: Obama, McCain and other political shirts

<table>
<thead>
<tr>
<th>Color</th>
<th>Style</th>
<th>Size</th>
<th>Your Shirt</th>
</tr>
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<tbody>
<tr>
<td><img src="image1" alt="Color Options" /></td>
<td><img src="image2" alt="Style Options" /></td>
<td><img src="image3" alt="Size Options" /></td>
<td><img src="image4" alt="Your Shirt Options" /></td>
</tr>
</tbody>
</table>

- $1,000,000,000,000 deficits for years?
- *Women’s shirts fit snugly. Size up for a looser fit*
- Standard shipping rates apply. $15.00

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Make a Statement

CNN partnered with Spreadshirt to enable customers to make T-Shirts out of CNN headlines.
Commemorate Events
Spreadshirt’s customers use shirts to mark important events in their lives!

If It’s Not on a T-Shirt, It Didn’t Happen

TIKATOK: SMART CUSTOMIZATION OF KIDS’ BOOKS

Sharon Kan, CEO and co-founder of Lexington, MA-based Tikatok, described her company as “the first online creativity platform for kids.” Tikatok helps kids write, illustrate, publish, and print their own books.

Tikatok is a great example of smart customization in action. Each child’s book is custom-created and printed on demand. The mass-customization platform and ecosystem are designed to enable children to produce high-quality picture books that they and others can buy. The books sell for about $15 to $20 (depending on the number of pages) for soft cover or hard cover. Tikatok can produce these individual or short run books at a 40 percent margin. The published kids’ books are available for viewing and for sale on the Tikatok.com site.

Audience: Kids under 13
The sweet spot for Tikatok seems to be kids between the ages of 7 to 9. 46 percent of registered kids fall into that age range. 33 percent are older (10-12). And 21 percent are younger (4-6). Kids from all 50 states in the U.S. have found and are using Tikatok. 25 percent of site visits are from international countries. Books have been created in nine different languages.

Toolkit: The Tikatok Creativity Platform
One of the early challenges Sharon’s team faced was how to support kids’ natural creativity. “If you give them a blank page, they’ll just talk about what happened yesterday.”

STORY GENERATION ENGINE. The Tikatok team developed a patent pending process that unleashes creativity in children and helps them create great stories. It’s called the StorySparks System™. Sharon mentioned that their next generation StorySparks platform will be co-created with their kids’ advisory board, with the kids leading the way!

You begin the story-writing process by picking a topic to write about, and StorySparks offers a set of imaginative suggestions for basic plots. Then you’re prompted to create the main characters, and off you go. At any point, you can simply create your own story from scratch, or you can get more ideas by selecting settings, types of characters, and/or genres. The first generation StorySparks System is an interesting type of innovation toolkit. Like most such toolkits, it provides structure for successful design.
PRIVACY PROTECTION. Sharon posed this question: “How do you enable self expression and collaboration while protecting kids’ privacy?”

Tikatok obtains parents’ permission for kids to be allowed to use the site. Kids’ names and ages are hidden. Only nicknames are used. The child’s name and profile information only appear on copies of the books that are purchased by their parents. A parent can also decide whether you want your child’s books and illustrations (under their nickname) to be viewable by anyone, or only by a private group (family members or school chums).

WHO OWNS THE INTELLECTUAL PROPERTY? Tikatok does. In order to protect kids’ privacy, Tikatok copyrights all of the works created and published on its site as “Copyright © 2008 by Tikatok, Inc. All rights reserved.”

When you accept the terms of agreement to use the site, this is clearly spelled out. However, when and if kids want to reclaim the copyright to their creations, they can do so simply by submitting a request.

Focus on the Cost Effective Production of One-Off Creations

When most people approach the idea of creating a business or a business unit to create mass-customized products, they tend to focus first on the front end of the process: How will customers customize their products? One of Sharon’s previous ventures was Demantra, a global provider of demand-driven management and planning solutions that she sold to Oracle in 2006. So, as an experienced supply chain maven, she knew that she needed to get the supply chain right from the outset.

GET THE SUPPLY CHAIN RIGHT. “I thought that a single copy has to be cheap. So I had to automate the process so that everything could come in the same batch. We developed a print-on-demand printing process that can be completely automated,” Sharon explained.

Each book is unique, and each is printed on demand. The books are usually shipped within 2 days.

Marketing Strategy: Appeal to Kids and Parents thru Libraries and Camps

Tikatok’s business model was always designed to be “children creating, parents buying,” Sharon Kan explained. Tikatok spread the word through word of mouth, PR, and a few targeted marketing programs. Over 40 public libraries ran Tikatok story writing programs. Many summer camps added Tikatok to their camp’s activities.

Teachers Took Over!

But what really made Tikatok start to take off is that teachers discovered the site and began using it for their classes. “Teachers found us, registered their classes, and sold our value to the parents,” Sharon explained. Teachers became the natural sales channel for Tikatok.

By September 2008, Tikatok had partnered with Teachers’ First, an organization of U.S. teachers with a membership of 10,000. They also created a Teachers’ portion of the Web site to help teachers use the tool effectively and share tips and tricks with one another.

PULLED FROM CONSUMER MARKETING TO EDUCATIONAL MARKETING. Sharon Kan describes her reaction to this customer-driven shift in go-to-market strategy: “They found us! Once we got teachers, this is where we get the bulk of our sales. I didn’t want to be in the education market, now I want to be the next Scholastic!” The Tikatok team is delighted that teachers have become their de facto distribution channel.
Personal Publishing for Kids!

Children are empowered to write and illustrate their own books.

Most books are produced and shipped within 2 days.
Tikatok’s online platform helps kids through each step in the creative process.

Kids Create and Illustrate Their Books Online

Tikatok encourages kids to share their illustrations with one another to re-use.

Tikatok’s Online Community

Tikatok Community Gallery

Artwork shared by members for you to use in your Tikatok books!
HOW ZAZZLE’S INFRASTRUCTURE ENABLED KEDS TO OFFER CUSTOM SNEAKERS RAPIDLY

Bobby Beaver, the co-founder of Zazzle and Wendy Yang, Sr. VP of product marketing at Keds, co-presented an interesting case study at the MIT Smart Customization Seminar.

Zazzle: An Ecosystem for Mass Customization

Zazzle was launched in 2005 by Bobby and Jeff Beaver right out of college. It has quickly become one of the largest providers of mass-customized consumer products in the world. Using proprietary printing and embellishment technology and just-in-time assembly and manufacturing, Zazzle produces one-of-a-kind products, ranging from apparel to posters to skateboards and shoes. Essentially, anything you can print, you can “Zazzle.” Most of the products that you find at Zazzle are pre-manufactured (mugs, shirts, shoes) and then custom-printed and assembled at the firm’s San Jose production facility, and shipped within 24 hours.

CREATE YOUR OWN CUSTOM PRODUCT. Consumers use Zazzle to create customized apparel and other items for themselves and for friends. But many consumers, and quite a few retailers and brands, also sell their designs through Zazzle. If you create a design you like, you can easily re-sell it through Zazzle, receiving a commission on each sale, and making your designs available to millions of consumers.

LET OTHERS PERSONALIZE YOUR DESIGNS. One of the unique and brilliant aspects to the Zazzle approach is the ability to create a design that consumers can personalize without destroying the designer’s or the brand owner’s original intent.

CREATE AND AMPLIFY YOUR BRAND. Retailers, musicians, artists, and many niche brands rely on Zazzle as their just-in-time one-stop provider that enables them to offer customized and customizable products to their customers and fans with no investment in inventory, Web site infrastructure or supply chain logistics.

BIG BRANDS LOVE ZAZZLE, TOO. Zazzle has been particularly successful in partnering with big brands to provide quick turnaround, consumer-customizable merchandise. In fact, Zazzle claims to have the largest library of customizable digital images from world-class brands. “Zazzle enables content owners to unlock their entire libraries of content, making it available for purchase and customization by consumers. Through Zazzle's innovative on-demand retail and technology platform, users can instantly create, customize to fit their personal style, purchase, and sell a near infinite array of products online.”

Zazzle provides its brand partners and retail partners with an easy-to-set up “store within a store.” That’s what Keds did when they co-created the Keds Studio using the Zazzle platform. You can enter the Keds Studio from Keds.com or from Zazzle.com.

Keds: Innovating the Customization of Footwear

By using the Zazzle platform as its customization engine, Keds was able to offer consumers the ability to put their own designs on their sneakers. Other footwear customization approaches let customers select colors and even add logos. But many Keds’ customers had been drawing pictures on their plain white sneakers for years. So Keds wanted to offer its customers the ability to use their own graphics and art, Wendy Yang explained.

USE CUSTOMERS’ DESIGNS TO REVITALIZE THE BRAND. Keds has been around since 1916, Wendy said. “We have a great aging baby boomer consumer who knows and loves the brand. We’re also challenged with attracting millennial consumers. There are more millenials with tattoos than there are millenials with blue eyes! To appeal to them, we need to be making products faster in general as well as cooler and hipper. So we looked to Zazzle for the opportunity that personalization offers. It gives our customer the ability to express herself using the language she speaks and allows our brand to re-invigorate itself.”

“In addition, Zazzle's platform will enable Keds Studio consumers, now ‘turned designers,’ as well as professional and amateur designers to sell their unique designs in the Zazzle "marketplace." Zazzle's
"Name Your Royalty" system enables these consumers to set the price of their shoe designs above the original price and earn the entire mark-up in profit.

HUGE SUCCESS! Keds Studio launched on July 30, 2008. Within 48 hours, customers had designed over 13,000 shoes. By the way, these customers’ designs are rendered in 3D in real time, so they can rotate their shoes and see all aspects of the design before they commit to purchase them. As of early November, 2008, there were over 100,000 customer-created designs, and customers were submitting over 650 new designs every day! One woman took a photo of her feet and it looks like she’s barefoot. The biggest sellers have been the many Obama designs.

Zazzle Produces Photo Sculptures, Mugs, Shirts, Bags, Key chains, etc.

Photo Sculptures are a great way to make Personas come to life.

Zazzle Lets You Custom Create a Wide Variety of Products

Photo sculpture, Photo cutout, Cut out, Cutouts

Bring your favorite photos and memories to life

Zazzle custom photo sculptures enable you to turn your favorite photo or portrait into a special keepsake. Your image is cut out from durable acrylic to create a one-of-a-kind gift. Can come as a sculpture with stand, magnet, pin, ornament, or keychain.

<table>
<thead>
<tr>
<th>Photo Sculptures starting at $15.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
</tr>
<tr>
<td>2-9</td>
</tr>
<tr>
<td>10-49</td>
</tr>
<tr>
<td>50-99</td>
</tr>
<tr>
<td>100-249</td>
</tr>
<tr>
<td>250+</td>
</tr>
</tbody>
</table>

No minimum orders. No setup fees. The most options. Ships in 24 hours.

Product Details
Obama sneakers are among the most popular Keds' custom products.

Keds Partnered with Zazzle

Barack Obama Warhol Pop Art Keds shoe by cuttavex

President Barack Obama

Women's Champion Lace Up (starting at $64.30)
The original Champion sneaker provides the perfect blank canvas to design your true expression. Style and comfort make the Champion canvas sneaker an undeniable wardrobe essential for every woman. Choose your size:

1. Colors & prints
   - Change all color
2. Trims & details
   - Laces
     - Bright White
   - Eyelets
     - Bright White
   - Stitching
     - Bright White
   - Linings
     - Navy
   - Midsoles
     - Bright White
   - Upper Binding
     - Bright White
   - Top Binding
     - Bright White
   - Tongue Binding
     - Bright White
   - Insole Binding
     - Sport Red

Add spare laces
None

Qty: 1 pair

$64.30
Add to cart

Upload your own images and designs

One Keds' customer decided to personalize her sneakers with pictures of her feet.

Customers Can Create (and Sell) Their Own Designs

FEETISHISM Keds Shoe by hanallu

Women's Champion Mini Slip On (starting at $60.00)
The Champion mini slip on sneaker provides the perfect blank canvas to design your true expression. Style and comfort make the Champion canvas sneaker an undeniable wardrobe essential for every woman. Choose your size:

1. Colors & prints
   - Change all color
2. Trims & details
   - Stitching
     - Jet Black
   - Midsoles
     - Jet Black
   - Gore
     - Jet Black
   - Linings
     - Bright White
   - Upper Binding
     - Jet Black
   - Top Binding
     - Jet Black
   - Insole Binding
     - Jet Black

Qty: 1 pair

$60.00
Add to cart

Customize:
Change the design, add your own ideas!
COMMON PATTERNS & LESSONS LEARNED

When I step back and think about the patterns that emerged from these various examples, there are a few things that seem obvious:

• **Use personalization to counter commoditization.** Mars and Keds have been quite successful in attracting avid repeat customers. The personalization experience makes their brands really special in the eyes of many consumers. It adds the “wow!” factor.

• **Mass-customization requires a lot of work on the back-end.** Providing sexy interactive e-tools is only a small part of the total equation. Much of the heavy lifting requires the (re-)design of your supply processes and your ecosystem.

• **Take the opportunity to streamline and modularize your product line.** All of the practitioners talked about the combinatorial magic of simplifying the number of core modules, yet giving customers the opportunity to mix and match in almost infinite ways. For example, most of the shoe manufacturers have discovered, as Keds did, that customers prefer to start with one or two well-loved styles and then add their personal touch.

• **Printing is a powerful way to personalize any product.** Did you notice how many of these examples involved personalization through printing?

• **A comprehensive mass-customization platform is truly an ecosystem.** When you consider all the capabilities that mass-customization platforms like Zazzle and CustoMax provide, you realize that a well-designed mass-customization solution is truly an ecosystem of customers, retailers, designers, suppliers, and other partners. Such an ecosystem includes incredible functionality, from just-in-time inventory management to 3D visualization and intellectual property rights management to customizable storefronts for all participants.

• **Consider leveraging one of the existing mass-customization ecosystems.** You don’t have to go it alone. Get your feet wet using Zazzle or Spreadshirt or CustoMax or any of the myriad of mass customization ecosystems that are already available. Not only do they offer one-stop shopping; they have also lived through the multi-year learning curve!

• **Your customers may become your designers, your marketers and your sales reps.** Notice that in many of these examples, customers not only created the custom products, but they also wanted to sell them!

• **Focus on making your partners successful.** You want to design your approach so that end-customers can do their own customization and personalization, but did you notice how many of these examples focused on retailers and other partners (e.g. Tikatok’s school teachers) as their distribution and marketing partners?

• **Plan for End-User Manufacturing Systems.** Although these case studies don’t illustrate this point, at the Smart Customization Seminar we did discuss a number of cases in which customers are “manufacturing” their own custom products using the latest generation of 3D printing technology. For example, ardent gamers who have access to 3D printers at work often use them to manufacture their own 3D replicas of the characters they’ve created in their virtual world. Hobbyists and designers are turning to 3D printers to provide both prototypes and, in some cases, final products of their designs.

• **Co-design your mass-customization strategy with your customers and partners.** As I listened to all the examples, I realized that our Customer Scenario® Mapping approach would be a great way to co-design your smart customization strategy with your end-customers, your partners, and all the stakeholders in your organization. It’s a fast way to jumpstart your smart customization initiative.


Nikolaus Franke, Frank Piller, 2004


Ibid


Mi Adidas Innovation Centre in Paris: http://www.youtube.com/watch?v=gQBFaVFbI9w

Adidas Originals Store Reopening Zurich http://il.youtube.com/watch?v=R0GSpdQJemI


ABOUT THE AUTHOR

With 30 years of experience consulting to customer-centric executives in technology-aggressive businesses across many industries, PATRICIA B. SEYBOLD is a visionary thought leader with the unique ability to spot the impact that technology enablement and customer behavior will have on business trends very early. She assesses and predicts how new and evolving technologies will impact customers. She forecasts the ways in which both business and consumer customers will make new demands on companies in many different industries.

Seybold provides customer-centric executives within Fortune 1000 companies with strategic insights, technology guidance, and best practices. Her hands-on experience, her discovery and chronicling of best practices, her deep understanding of information technology, her large, loyal client base, and her ongoing case study research enhances the thought leadership she provides.

Seybold uses a coaching, mentoring, and learn-by-doing consultative approach to help clients achieve their goals as they transform their corporate cultures to be more customer-centric. She helps her clients’ teams redesign their businesses from the outside in by inviting their customers to invent new streamlined ways of accomplishing their desired outcomes, using their own real-world scenarios.