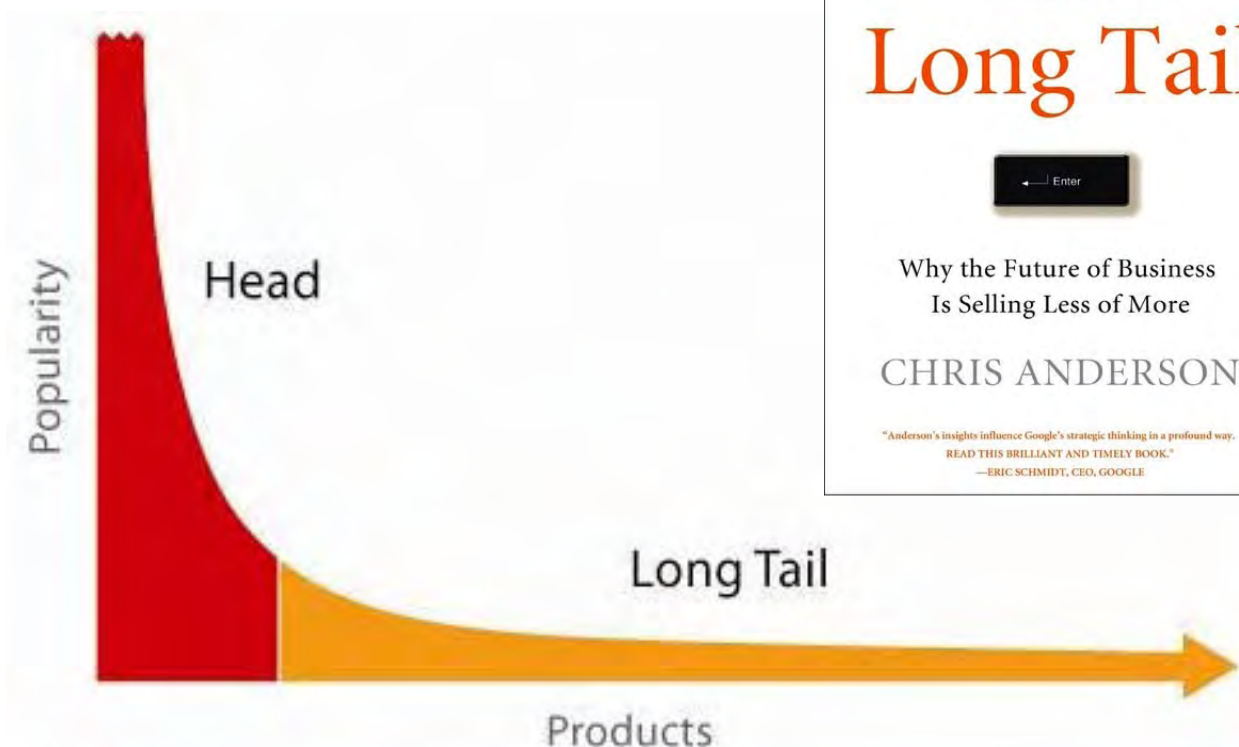


Interaktive Wertschöpfung zwischen Unternehmen und Kunden: **Die Sicht der Managementforschung (insb. TIM)**

Frank T. Piller

Chair, RWTH Technology & Innovation Management Group, Aachen
Co-Director, M.I.T. Smart Customization Group, Cambridge, MA

www.mass-customization.de



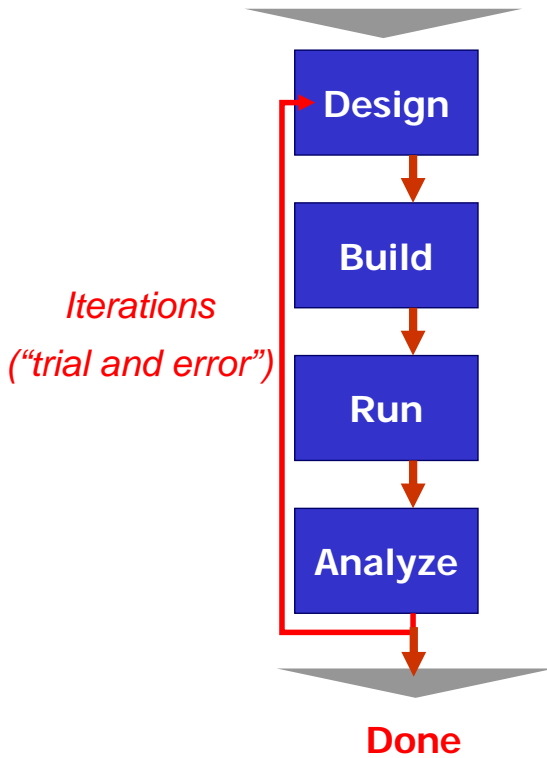
- **The challenge to access need information in "long tail markets"**
- **Long tail strategy #1: Mass Customization**
- **Long tail strategy #2: Collective Customer Commitment**
- **Long tail strategy #3: Lead User Method**
- **A competence based view on co-creating with customers**
- **Conclusion and what's next**

A critical task in NPD is to define a new product concept amidst customer & technology uncertainty

- Product definition critical to new product success (Cooper 1993; Krishnan & Bhattacharya 2002), but challenged by **customer and technology uncertainty**
- **Conventional approach:** Manufacturer tries to understand causal network with detailed information either acquired via **market research** or assumed via **professional knowledge** (Balachandra & Friar 1997; Urban & Hauser 1993; Poolton & Barclay 1998; Redmond 1995).
- Despite all of today's methodological knowledge in market research, many companies still fail to gather this required input in an efficient and effective way (Tollin 2002; Burke 1996), **NPD flop rates continue to rise** (Henkel & von Hippel 2005)
- **Systematic problem rooted in stickiness of information** and inherent difficulties of customers to articulate needs (von Hippel 1994, 1998; Szulanski, 2003, Krishnan & Bhattacharya 2002)

New product development is problem solving based upon directed trial-and-error

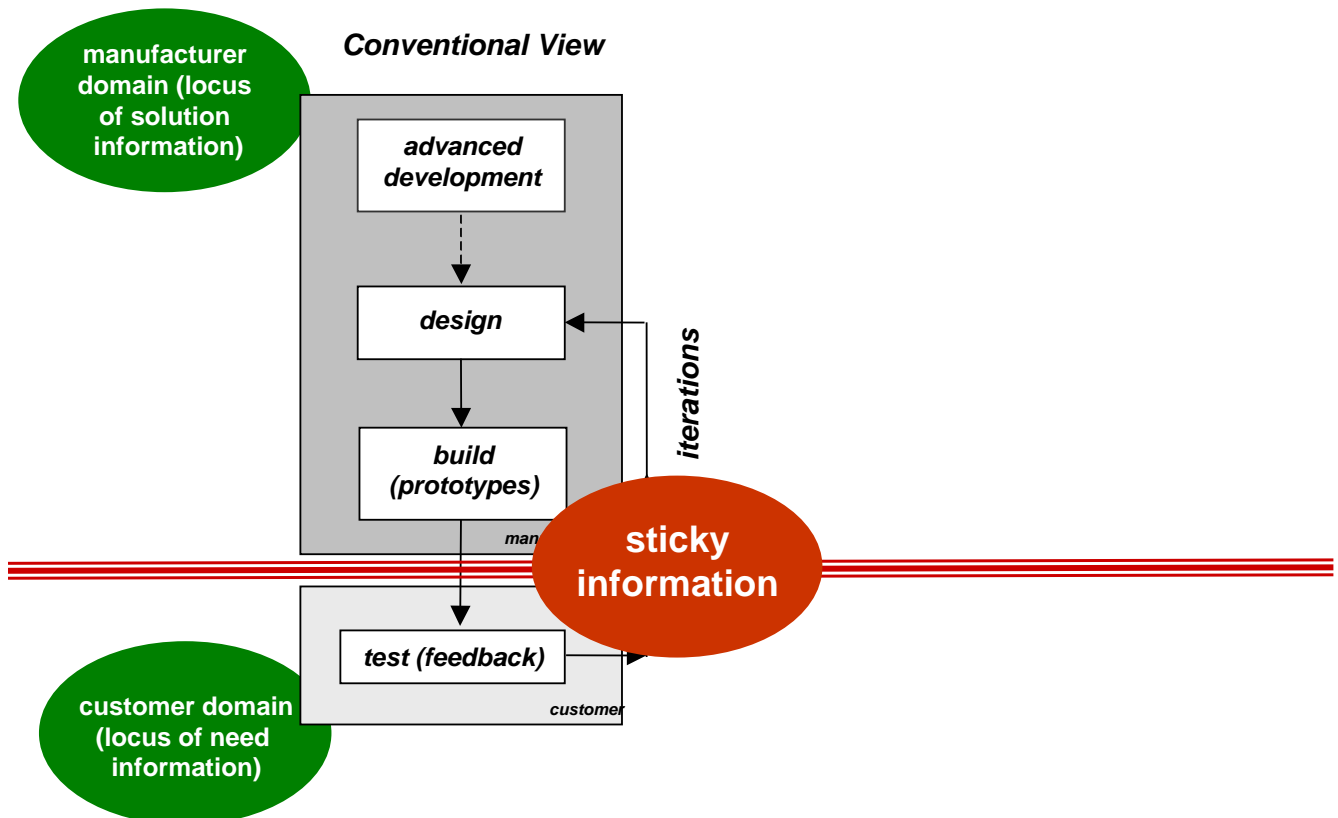
Initial Specification: Task / problem definition (need information)



- Development of a first solution idea which the developer expects to be suitable • **I will design a rocket**
- Development of a thought experiment, simulation, or prototype • **I will build it**
- Test of the design under real or simulated conditions • **I will flight test it**
- Analysis of results versus initial idea; evaluation of performance gap, search for errors • **It crashed: I will analyze what went wrong so I can redesign**

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A fundamental problem of product development is to identify what customers (really) want



based on Thomke / von Hippel 2002

Sticky information

“The stickiness of a given unit of knowledge or information is defined as the **incremental expenditure required to transfer that unit from one place to another**, in a form that can be accessed by the recipient. When this expenditure is low, information stickiness is low; when it is high, stickiness is high. By implication, sticky information is harder to move.” (von Hippel 1994)

Some reasons:

- Information needed by developers may be **tacit**
 - Can you tell your child how to ride a bike?
- A **lot** of information is often needed by developers
 - “You didn’t tell me you were going to use the product *that way!*”

The Hollywood movie "Big" reminds us of this challenge. Only when the user is the product creator, successful products will arrive.



- In the movie, **Tom Hanks is playing a small boy, Josh Baskin, who wants to grow up.**
- Josh Baskin goes to a wish/fortune-telling machine and wishes that he were "big". The next morning, he sees a face in the mirror he does not recognize. Overnight, he has become a 30-year-old man.
- After some trouble caused by the actions of a 11-year-old behaving like a child, but looking 30, Josh gets a lowly data-entry job at the **MacMillan Toy Company** in New York.
- In a memorable scene, he meets the company's owner, checking out the products at a toy store, and impresses him with his childlike enthusiasm.
- This earns Josh a **promotion to a dream job for a kid: testing toys all day long and getting paid for it.** With his insight into what to sell to children, he quickly rises up the corporate ranks.
- **He is product creator and user in the same person, hence not "lost in translation"** (i.e., facing problem of transferring sticky information).

Three modes of customer participation in NPD

(Piller 2004; Fredberg & Piller 2009, building on Dahan and Hauser 2002)

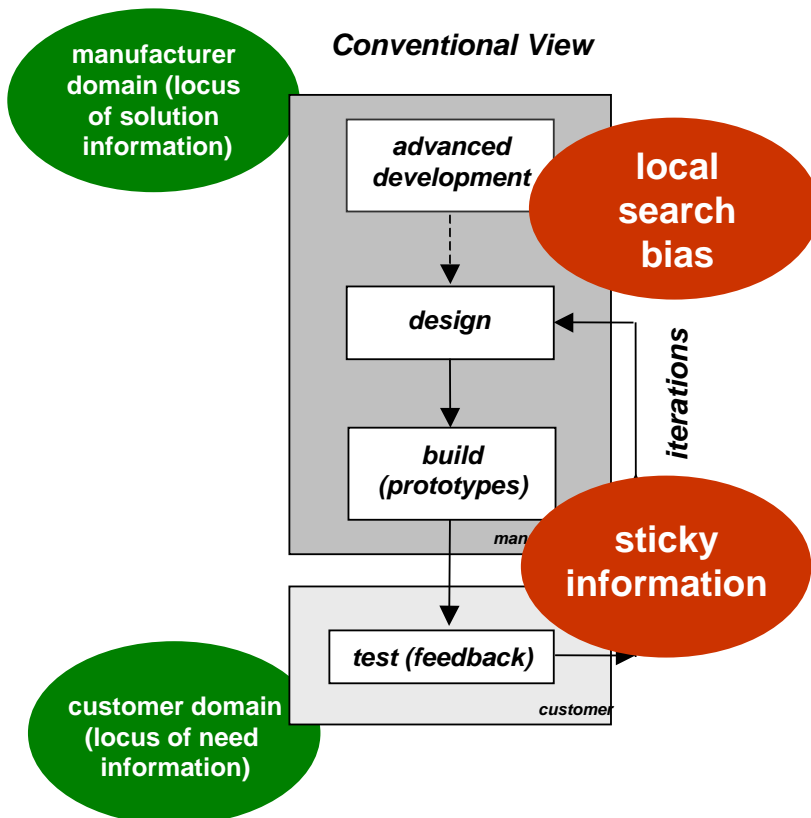
Mode 1 - Design for customers. Products are designed on behalf of customers. Firms use customer information from diverse input channels to explore needs: Listening into the customer domain by analyzing sales data, internet log files, or surveying sales personnel; Netnography; Quality Function Deployment.

Mode 2 - Design with customers. Display solutions or concepts to customers so they can react to proposed design solutions: Pilot customers or beta users. Concept testing, focus groups; Output-Driven Innovation method.

Mode 3 - Design by customers. Active integration of customer participation in NPD (Ramirez 1999; von Hippel 2005; Reichwald & Piller 2006), often with tools that are either provided by the firm or by customers themselves. The manufacturer is either empowering its customers to co-design a solution or is implementing methodologies to efficiently transfer an innovative solution from the customer into the company domain.

Mode	Method	Applied to	Selected references
1	<i>Conventional market research (focus groups etc.)</i>	Consumer goods	Griffin & Hauser 1992
	<i>Quality Function Deployment</i>	Mechanical engineering, software, construction, service engineering	Akao 1990
	<i>Kansei engineering</i>	Mechanical engineering, software, construction, service engineering	Nagamachi 1995
	<i>Conjoint analysis</i>	Consumer packaged goods, durables	Green, Carroll & Goldberg 1981
	<i>Feedback gathering / complaint management</i>	Consumer durables, consumer packaged goods	Brockhoff 2003; Kendall & Ross 1975; Fuller et al. 2008
2	<i>Concept testing (focus groups)</i>	Consumer packaged goods, durables and industrial products	Acito & Husted 1981; Page & Rosenbaum 1992
	<i>Virtual concept testing</i>	Consumer durables	Dahan & Hauser 2002
	<i>Beta testing</i>	Computer systems, software and consumer goods	Dolan & Matthews 1993
	<i>Consumer idealized design</i>	Consumer durables	Ciccantelli & Magdison 1993
	<i>Empathic design</i>	Consumer packaged goods, durables and industrial products	Leonard-Barton & Rayport 1997
3	<i>Consumers opinion platforms</i>	Consumer goods	Herrig-Thurau et al. 2004; Sawhney, Verona & Prandelli 2005
	<i>User idea contests</i>	Process industry, (aesthetic) design competitions for consumer goods	Ebner et al. 2008; Piller & Walcher 2006; Sawhney, Verona & Prandelli 2005
	<i>Collaborative prototyping</i>	Consumer packaged goods, durables and industrial products	Terwiesch & Loch 2004
	<i>Generative model revision</i>	Consumer goods	Lemasson & Magnusson 2002
	<i>Lead user workshops</i>	Industrial goods, complex consumer goods	Lilien et al. 2002; Urban & von Hippel 1988
	<i>Mass Customization toolkits</i>	Consumer goods	Franke & Piller 2004
	<i>User Innovation toolkits</i>	Industrial goods, complex consumer goods	Franke, Keinz & Schreier 2008; Thonke & von Hippel 2002; von Hippel & Katz 2002
	<i>Communities for co-creation</i>	Industrial goods, complex consumer goods	Franke & Shah 2003; Sawhney & Prandelli 2000

The second fundamental problem of NPD is to access solution information that can lead to "radical" innovation



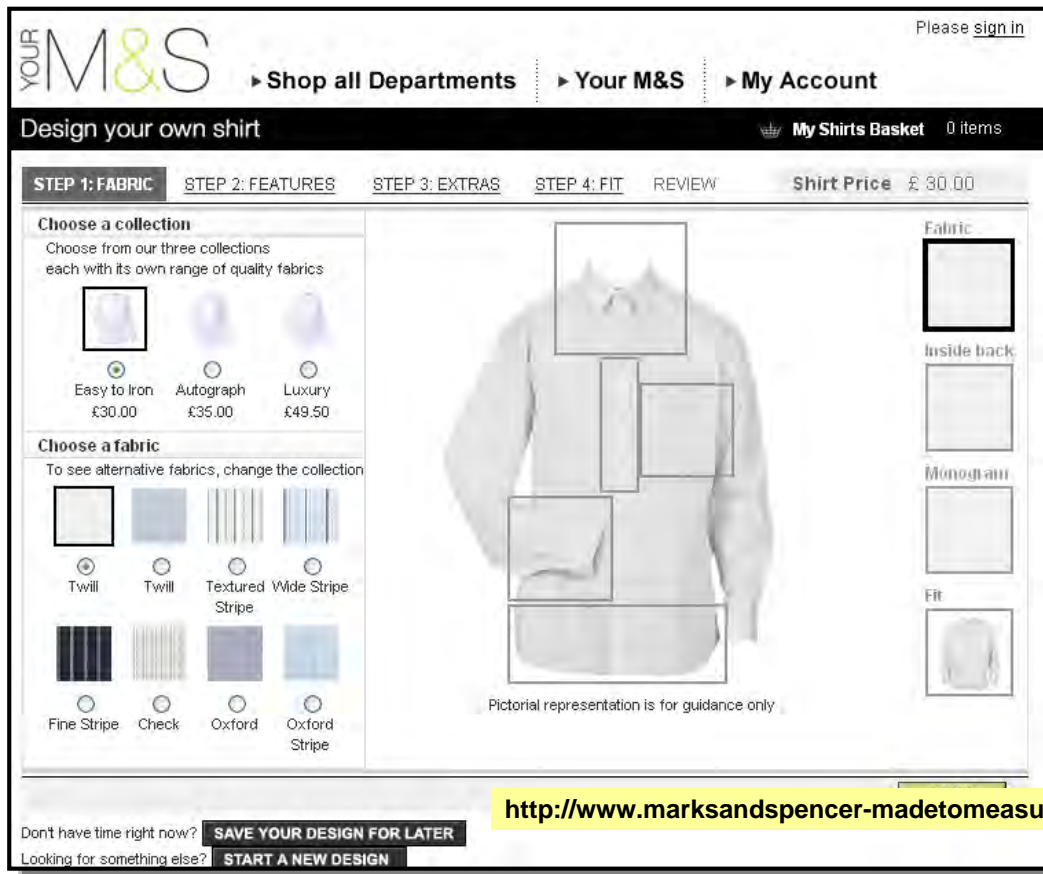
In long tail markets, the problems of NPD often occur in an even higher extent

- More heterogeneous customer needs results in **higher expenses to access sticky information** (or higher flop rates, respectively)
- Providing larger variety demands a **broader solution space**, hence **more solution information**
- In addition, navigating long tail markets also often comes at **high cost of building, managing and providing assortments**
- Companies face a **trade-off** between the benefits of serving the long tail and the cost associated with it (*as customers' additional WTP is limited*)

Topics of this talk

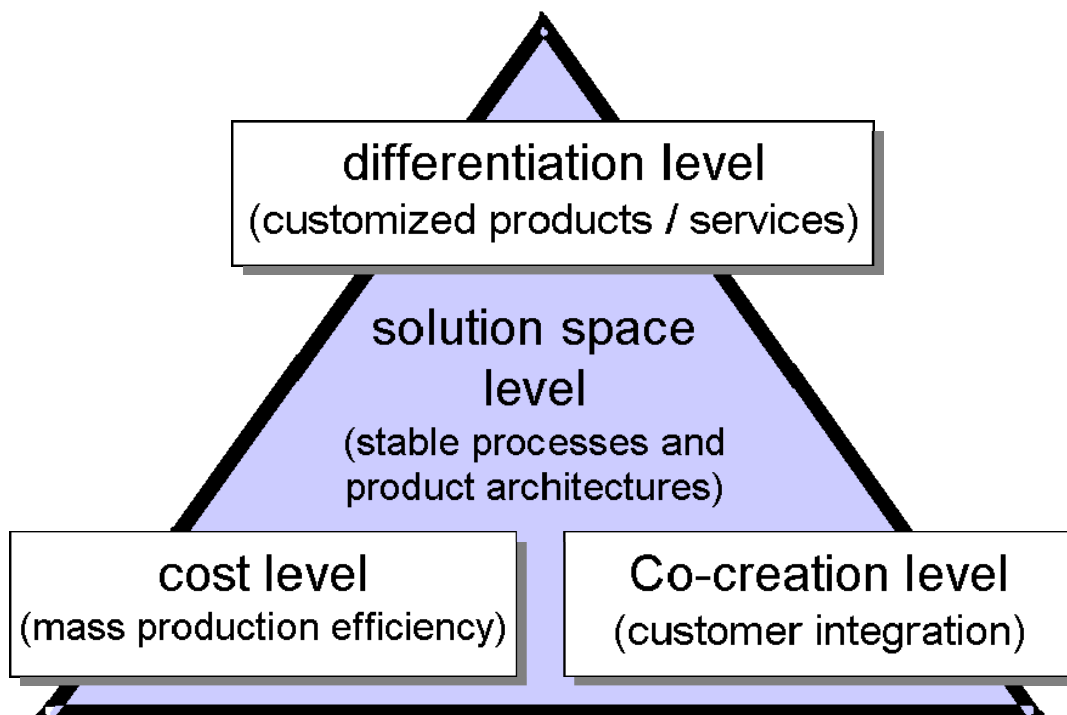
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A simple but useful mass customization site: Marks&Spencer, UK

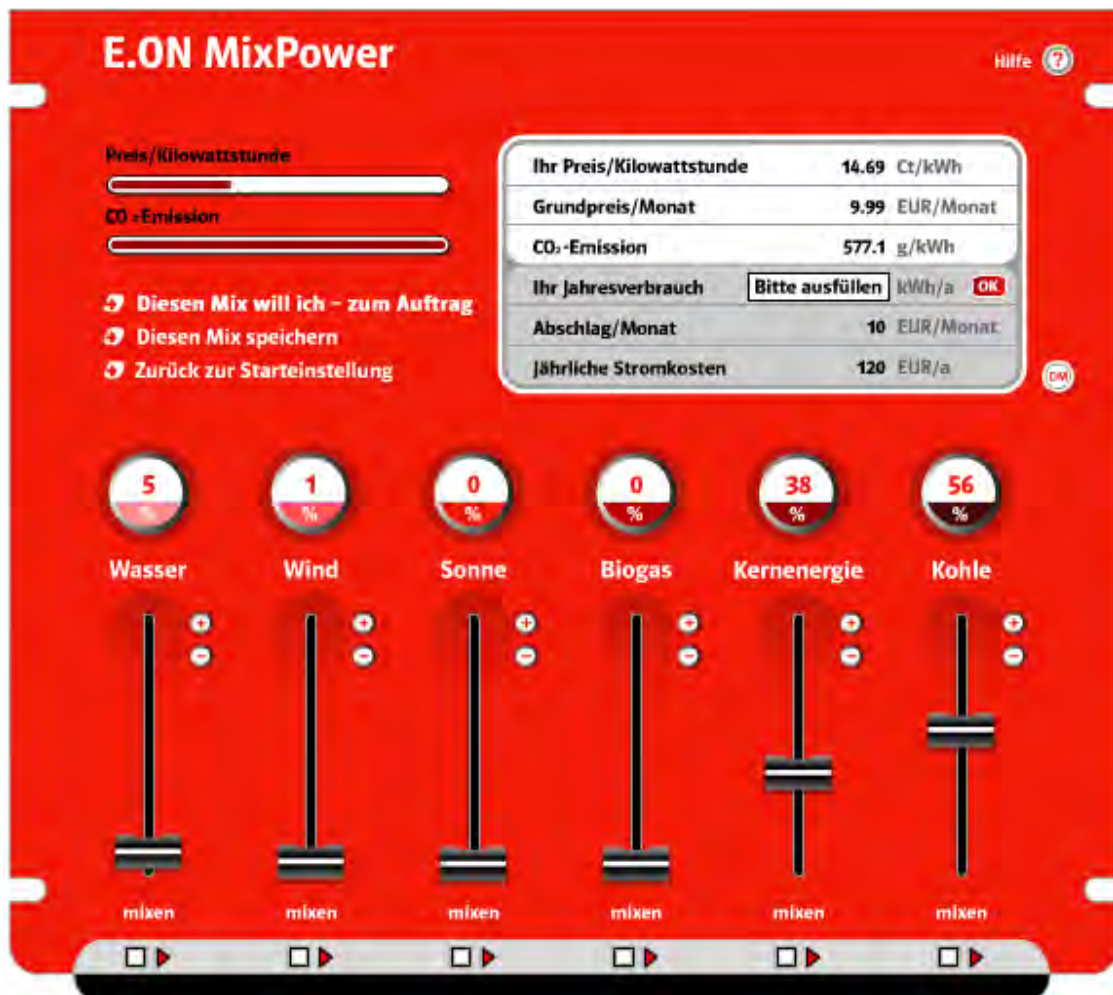
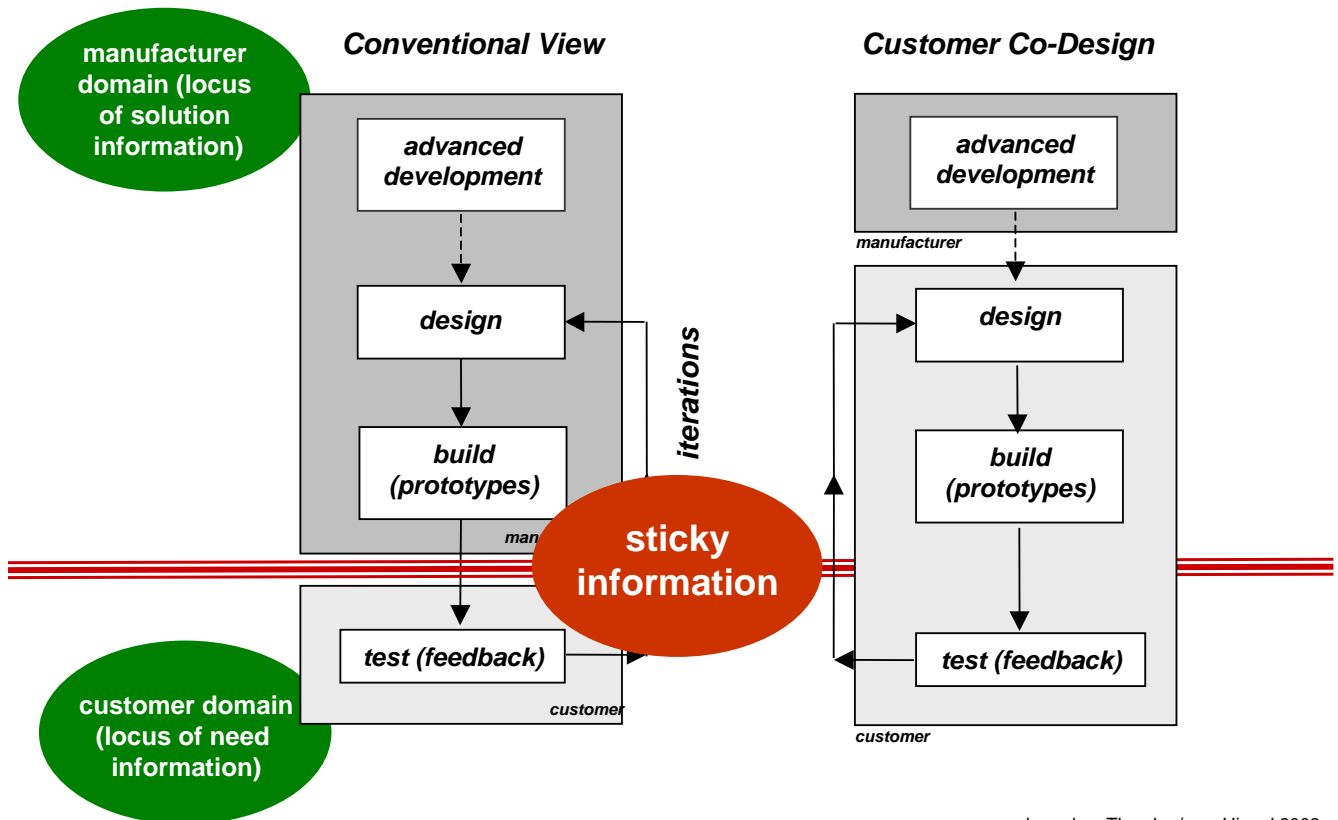


Mass Customization

"Producing goods and services to meet individual customer's needs with near mass production efficiency." (Tseng/Jiao 2001)



The idea of a customer co-design toolkit is to get access to an artifact representing the customers' needs



FACTORY121.COM SINCE 2002 CUSTOM SWISS MADE WATCHES

US \$ | SFr. | Euro | My account | Shopping basket

Choose a collection | Choose a design | Configure | Size & Options | Verify

Choose your dial

COMPONENTS

- Case
- Bezel
- Dial
- Strap

Arabic SFr. 27.00

Roman SFr. 26.00

Index SFr. 28.00

Dots SFr. 32.00



OPTIONS

Color

DESCRIPTION

DOTS: Sunray-polished or painted dial with luminescent hand-applied hour-markers and luminescent hands for optimal readability. Counters recessed with diamond cut circle lines.

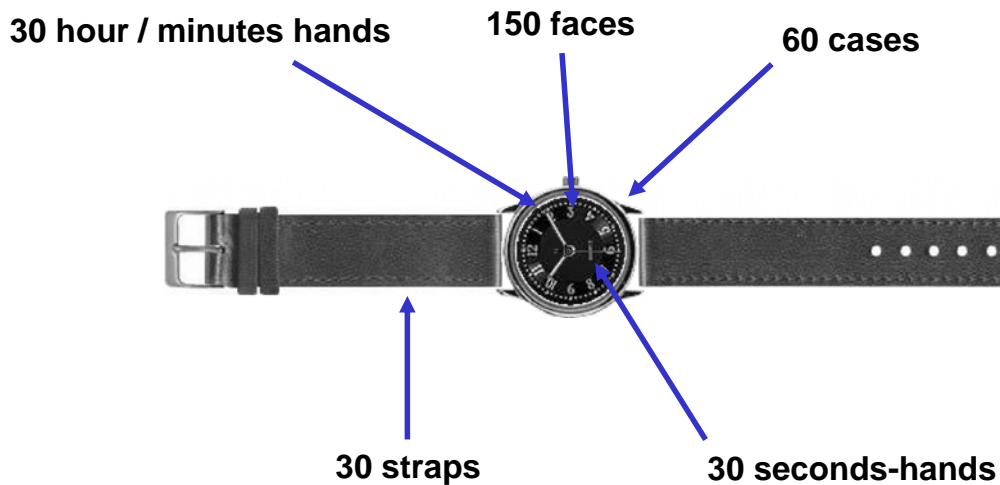
TOTAL PRICE

SFr. 315.00

[Home | Site map | Customer service | Warranty | Privacy & security | Terms & conditions]

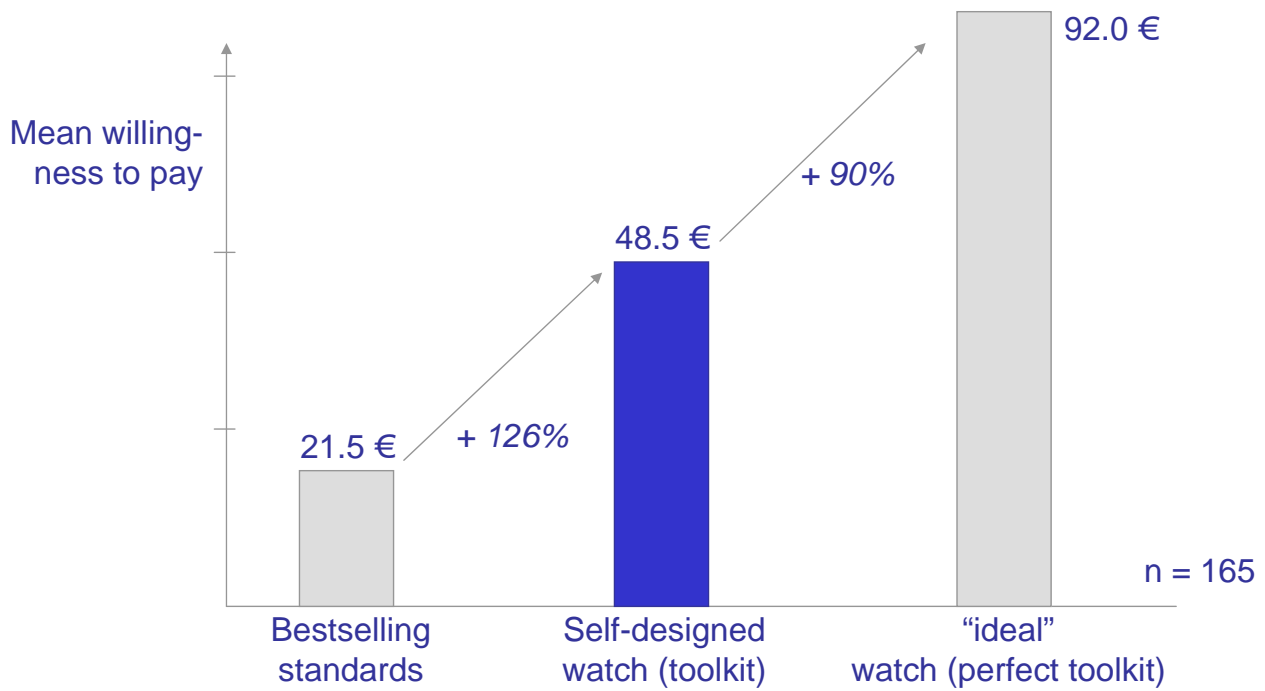
An experiment on the benefit of customization for consumers (expressed in their willingness to pay (WTP)) (Franke / Piller 2004)

The basic toolkit allows 648,000,000 design variants ...



... and our calculations show that customers use this huge solution space extensively.

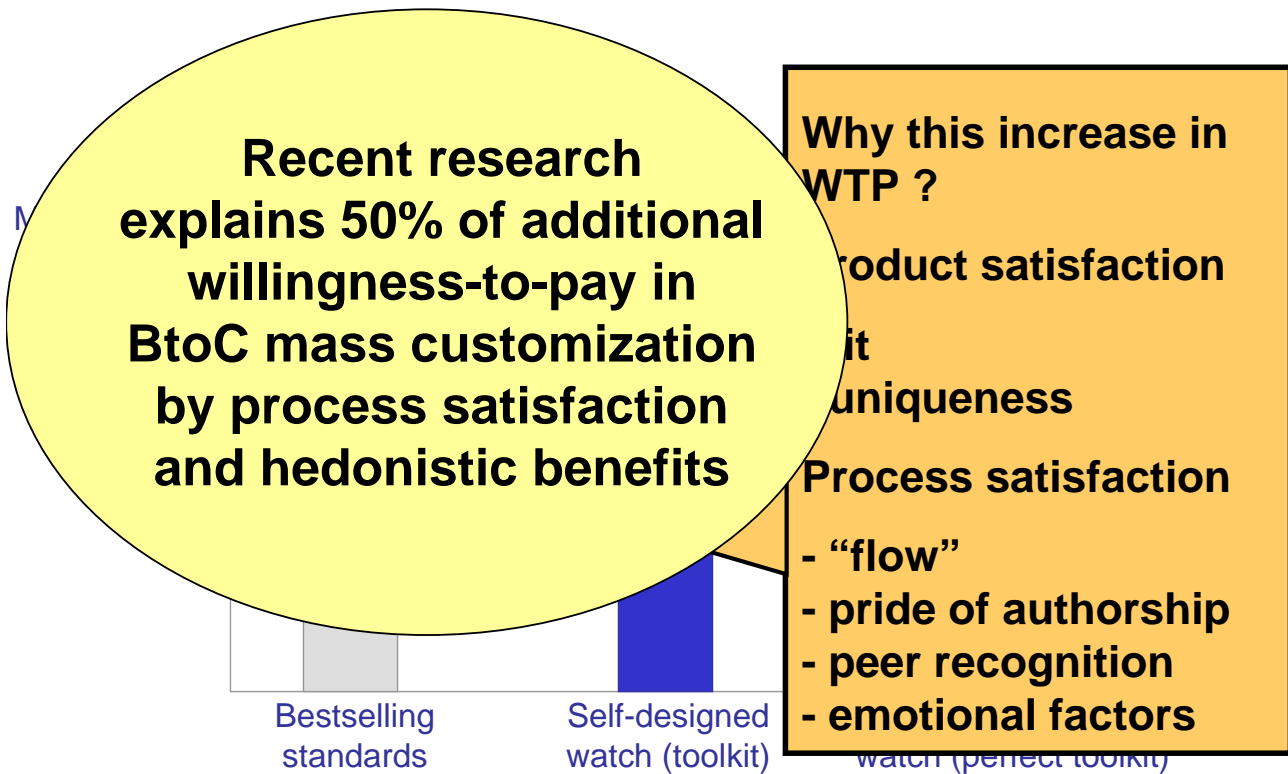
Mass Customization yields an impressive value increment to users



Mass Customization yields an impressive value increment to users



Mass Customization yields an impressive value increment to users



Customers' costs of mass customization

- **Premium (WTP)**
- **Effort and cognitive costs ("mass confusion")**
 - Considered as main reason why mass customization is not there yet (Broekhuizen & Alsem 2002; Dellaert & Stremersch 2005; De Meyer, Dutta & Srivastava 2002; Huffman & Kahn 1998; Piller et al. 2005; Zipkin 2001)
 - **Burden of choice** (Babin, Darden & Griffin 1994; Schwarz 2003; Simon 1976); **information overload** (Miller 1956; Neumann 1955); and **sticky information** (Huffman & Kahn 1998, von Hippel 1994).
 - **Principal-agent problem** with regard to behavior of provider (Kamali & Loker 2002; Terwiesch & Loch 2004).

Design of toolkits for customer co-design

- **Problem solving process, trial-and-error learning** (Marples 1961; Allen 1966; von Hippel / Tyre 1995)
- **Design of co-design toolkits**
 - **Experimentation** (Thomke 2003; Thomke/von Hippel 2002)
 - **Need-based versus parameter-based configuration** (Dellaert & Stremersch 2005; Randall, Terwiesch & Ulrich 2005; Schreier 2008)
 - **Subtractive versus additive option-framing** (Park et al. 2000; Levin et al. 2002)
 - Value of **integration with additional planning and control systems** along the supply chain
 - Value of **integration with product architecture planning** ("design for mass customization") (Havm et al. 2008)

Mass Customization provides one vital strategy to navigate the "long tail" – but also comes at a cost

- Cost of implementing the system
- Complexity cost of running and managing the system
- Complexity cost from customer perspective
- Managing the new business model
- Establishing scalable and sustaining mass customization systems

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Threadless: Collective Customer Commitment



Japanese Panda
by -Martin-



Frustrated chicken!
by label



Invisible Ice Cream Man
(a.k.a. Dreamsicle)
by Wheelso3



Goodbye, Tea!
by Klavr



Who Does Your Hair?
by AladdinSane



rencontre
by icdefre



Mocking the Crane
by Glennz



The Skies Are Full Of Strange Things
by Pook



3030 Love
by jublin



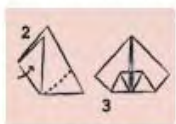
Summer Film Enthusiast
by mmorales



Solar Flare
by carrion



Calamari Compassion
by carrion



OCD Therapy
by jdrenard



A Quiet Breakfast



Love and Booty...
by



Do No Evil
by Jaycee



Revolt of the Plush



Larsen B
by ciano

Mass Customization	Collective Customer Commitment Method
development of product architecture and customization options by manufacturer ▼	development of new product design by some (expert) customers ▼
customer co-design process (elicitation) ▼	evaluation and refinement of design by manufacturer <i>and</i> customer community ▼
placing of order by each individual customer ▼	presentation of selected design concepts and obtaining commitment of potential customers ▼
custom (on-demand) manufacturing ▼	only if minimum lot size is pre-sold, (mass) production of product starts ▼
custom distribution	mass distribution

What Threadless does different

No own R&D, no own market research,
no own designers

Focus on supporting users to create value

Active customer integration

**Broadcasting of problems –
not seeking for creative talents**

Open participation and distributed problem solving

Very efficient screening mechanism

Relationship marketing as a side product

Crowdsourcing (Interactive Value Creation)

"Crowdsourcing represents the act of a company or institution taking a **function once performed by employees** and **outsourcing it to an undefined (and generally large) network of people** in the form of an **open call**. This can take the form of peer-production (when the job is performed collaboratively), but is also often undertaken by sole individuals." (Howe 2006)

Other terms, same idea: Commons-based Peer-Production of Innovation (Benkler 2002; Lakhani 2006); Open Innovation (Chesbrough 2003, Piller 2002); Interactive Value Creation; (Reichwald & Piller 2006; Piller 2004), Wikinomics (Tapscott 2007)

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The Threadless model can be observed in other industries as well

無印良品

www.muji.net

ネットストア ネットコミュニティ 店舗情報 企業情報

はじめての方へ サイトマップ お問い合わせ

モノづくり [家具・家電]

「こんなモノがあったらうれしいな」

ほしいモノをカタチにするのが、「モノづくり」です。
ご提案からいくつかのステップを経て、購入の予約を募り
商品化した取組みの記録です。



【プロジェクト no.5 壁の利用】
壁棚

わずか1日で300個に達し、
商品化が決定しました。
¥1,260 → ¥1,050 (税込)



【プロジェクト no.1 ベッドまわりの照明】
持ち運びできるあかり

モノづくりから、商品化第一号。
¥7,245 → ¥5,900 (税込)



【プロジェクト no.3 すわる生活】
体にフィットするソファ

ソファほどスペースを占めないで、
ソファのようにリラックスできる点に人気集中。
本体¥12,600+カバー¥4,200=¥16,800(税込)

The screenshot shows the RYZ BETA website interface. At the top, there is a navigation bar with the RYZ logo and the word 'BETA' in yellow. To the right of the logo are four menu items: 'DESIGN', 'VOTE', 'SHOP', and 'COMMUNITY', each with a small blue arrow pointing to the right. Below the navigation bar is a main promotional banner. The banner is divided into several sections. On the left, there is a blue bar with the text 'MANY WILL FOLLOW, BUT OUR FIRST will always be special →'. To the right of this bar is a yellow bar with the text 'MEET THE CREATIVE PANEL'. Below these bars, there are three main images: a man in a baseball cap, a detailed drawing of a sneaker with yellow laces, and a man's face. Below the man in the cap is the text 'THE CREEP BY CAVEMAN'. Below the sneaker drawing is the price '\$90.00' and a 'BUY NOW' button. Below the man's face is the text 'HERE TO HELP YOU REFINE, PERFECT AND RYZ TO YOUR BEST!'. To the right of the sneaker drawing is a yellow bar with the text 'MEET THEM NOW →'. Below the main banner is a blue bar with the text 'SHARE YOUR STYLE DESIGN the chosen one →'. Below this bar is a white bar with the text 'HAVE YOUR SAY AND VOTE VIEW ALL ENTRIES →'. Below this bar are three images of different sneaker designs. Each image has a 'LOG IN TO VOTE →' button below it.

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A typical lead user development

In the scorching-hot west Texas plains of Wichita Falls, a paramedic and novice cyclist, **Michael Edison** participated in his first "Hotter 'N Hell Hundred Miles" bicycle race in 1988.

Texas is famous for its heat, where temperatures during the hundred mile race can soar above 100°F and water stops are 2 or 3 hours apart.

Michael started well back in the pack of the 1000 riders and quickly learned that **reaching for a water bottle mounted on his bike frame** was potentially dangerous.

"I kept bumping into people, so I was thinking, there's got to be a better way to get a drink," he said.

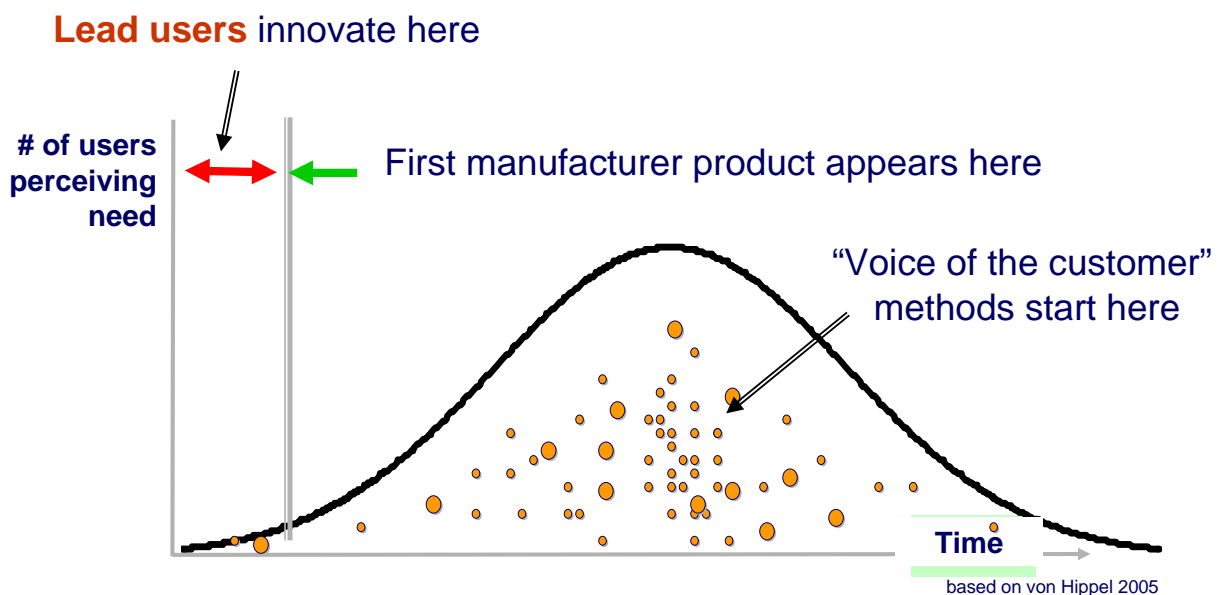
After the race, he returned home and **began toying with materials familiar to him from nine years as a paramedic.**

He attached **medical tubing to an I.V. bag, stuffed the bag into a sock, and sewed the sock onto the back of a T-shirt.**

One ride with the contraption sold him on the idea, which he dubbed the **CamelBak** for its hump-like shape on a cyclist's back.

In 1989, he founded a company making these devices, which he sold in 1995 for **\$4 million** to the Bowes family, which sold it again in 2003 to Bear Stearns for **\$210 million.**

Users have the advantage of problem-solving in their own use environments as they “do” a desired activity – they are learning by doing.



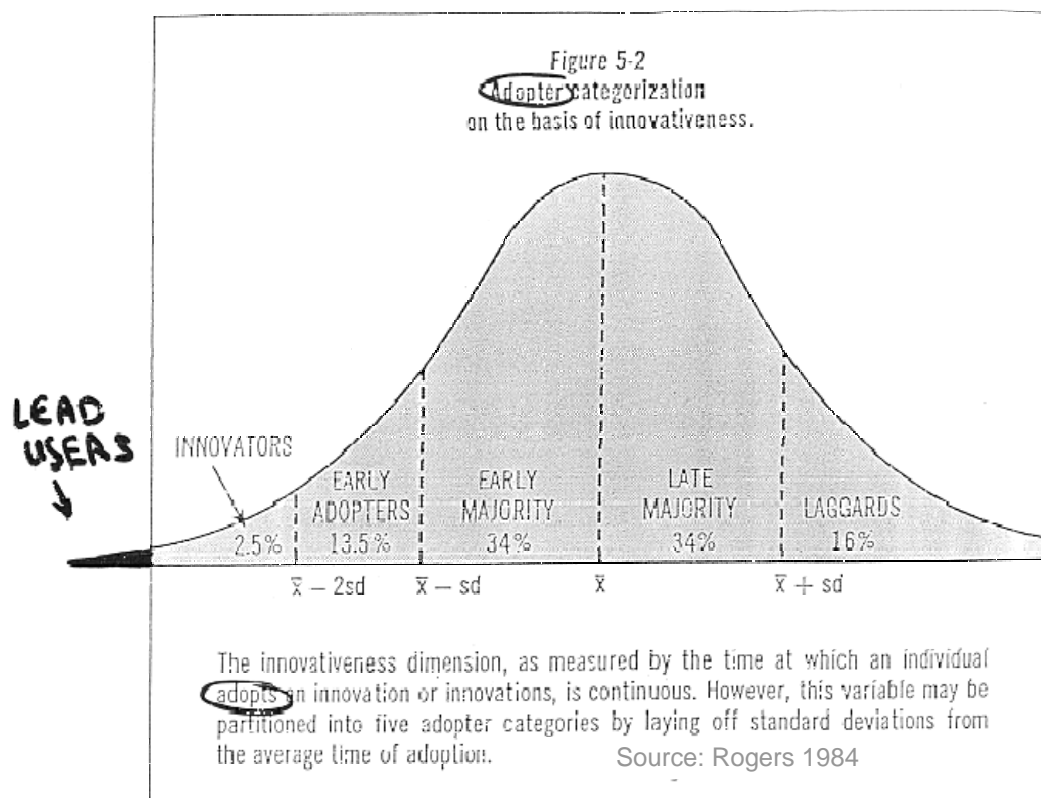
Lead users are... (von Hippel 1986; 1988)

“Lead User” innovations form the basis for new products and services of value to manufacturers.

“Lead Users” are users that:

1. Have needs that **foreshadow general demand** in the marketplace;
2. Expect to **obtain high benefits** from a solution to their needs. (Such users are more likely to innovate – “Necessity is the mother of invention!”)
3. Have **solution skills** to transfer need into a feasible solution

An important differentiation: Lead user method is NO market research – and often lead users are NOT customers of the manufacturer



History of “AOL Instant Messenger”

Instant Messaging is a User Innovation

- By 1987 MIT Lab for Computer Science had thousands of “Athena” workstations online and difficulties diffusing system admin info rapidly. Developed “Zephyr” instant message system.
- MIT students begin to use for general instant messaging.
- Other universities adopted Zephyr-like programs

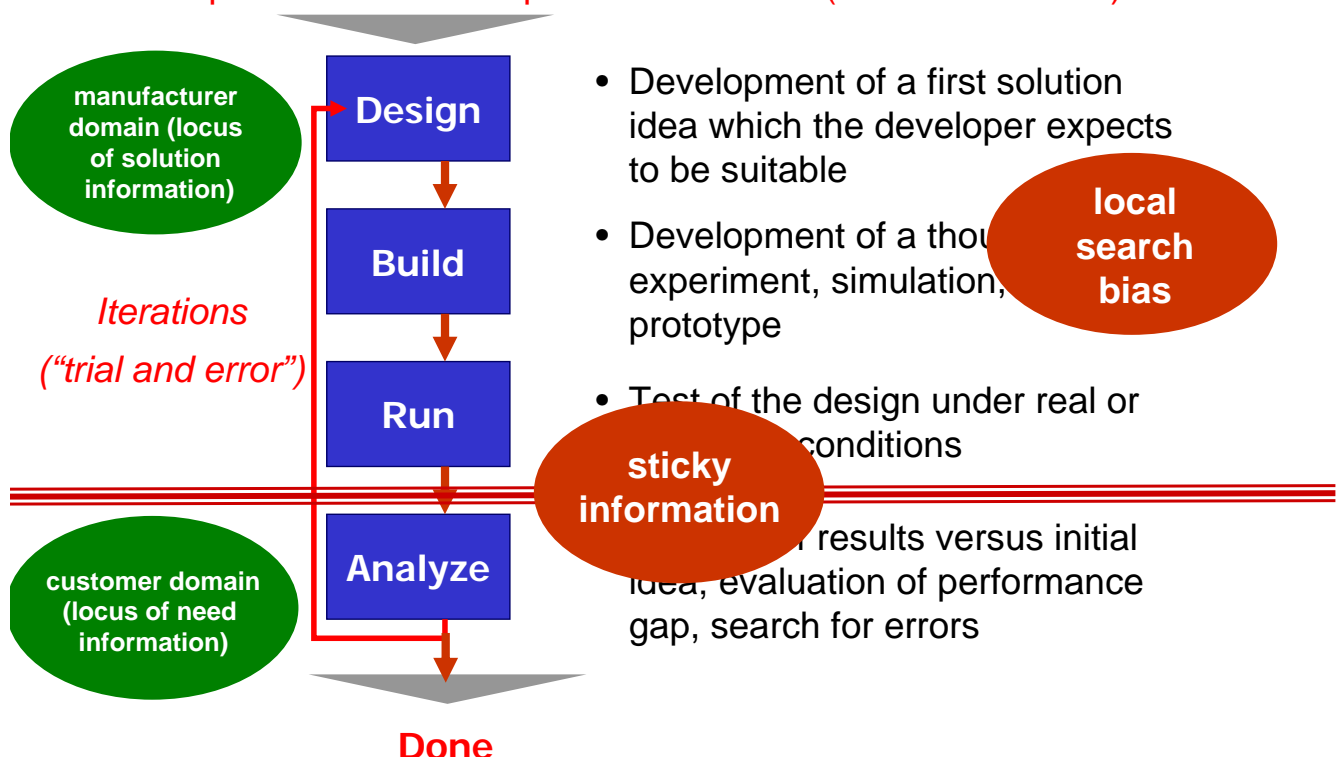
First Commercial Product 9 years later

- 1996 Israeli firm Mirabilis put out commercial product ICQ
- 1998 Mirabilis acquired by AOL

Source: October 2002 Technology Review

Lead users can perform trial-and-error problem solving in ONE domain – without cost & risk of information transfer

Initial Specification: Task / problem definition (need information)



There are two fundamental ways to profit from the lead user idea: (1) Search for LU innovations and (2) Benefit from lead experts in analog markets

1. Search for LU innovation

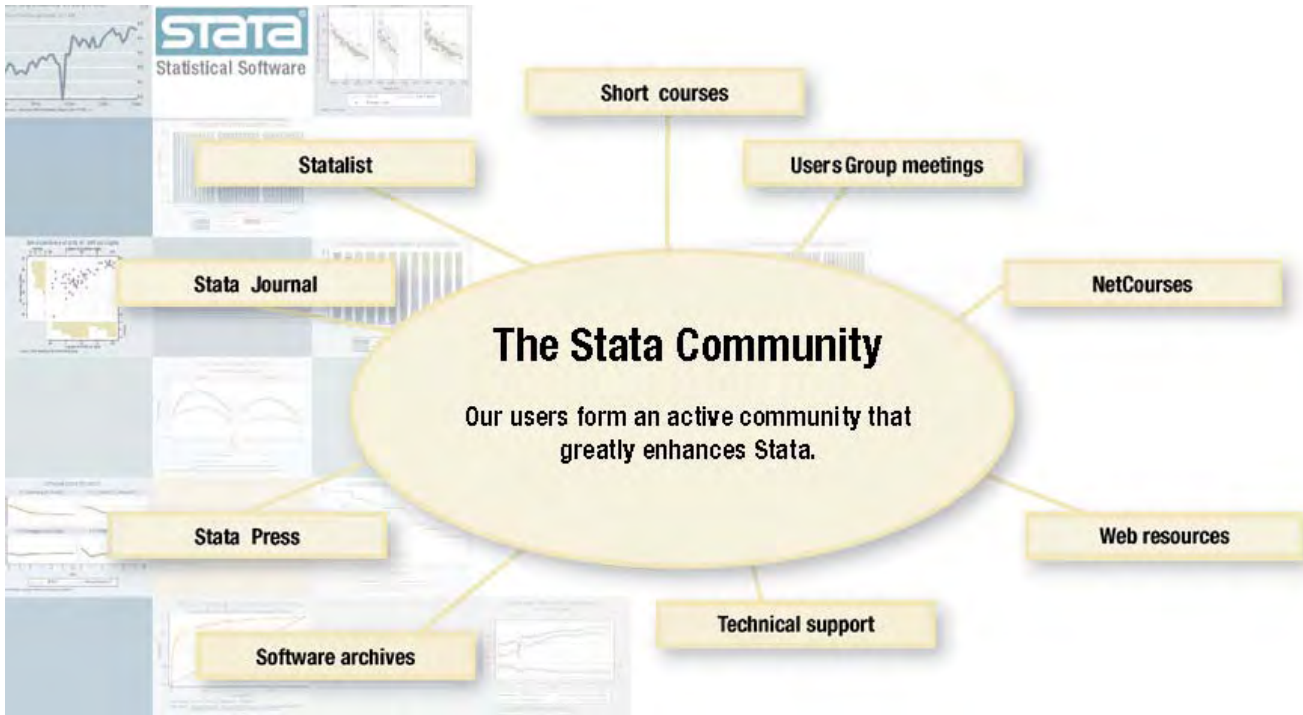
2. Benefit from lead experts in analog markets

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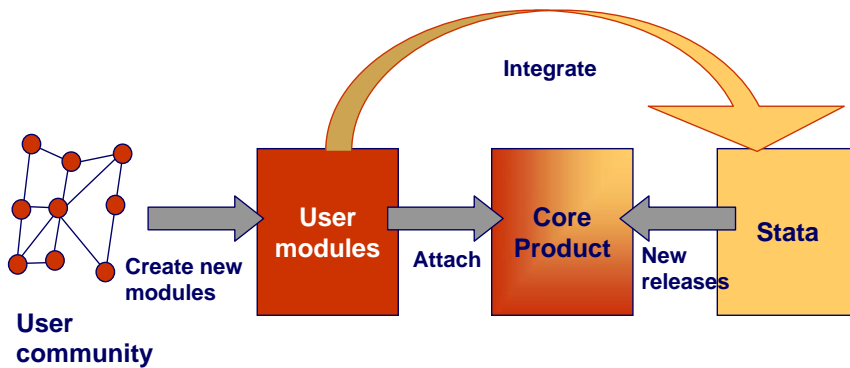
- Conventional description of LU in literature
- Focus is on access to need information
- Search for innovations out there in your market by your potential customers
- Examples: Sports, machinery, medical equipment
- However: Often not a systematic approach !

2. Benefit from lead experts in analog markets



The Stata Corp Open Innovation Model

Self-organized user community innovates. STATA integrates best efforts.



Self organized user community

High technical incentive for users to innovate on core product

Users determine leading features

Stata provides quality control and integration with core

Full acknowledgement of user innovators

Significant portion of STATA product is based on user ideas

There are two fundamental ways to profit from the lead user idea: (1) Search for LU innovations and (2) Benefit from lead experts in analog markets

1. Search for LU innovation

2. Benefit from lead experts in analog markets

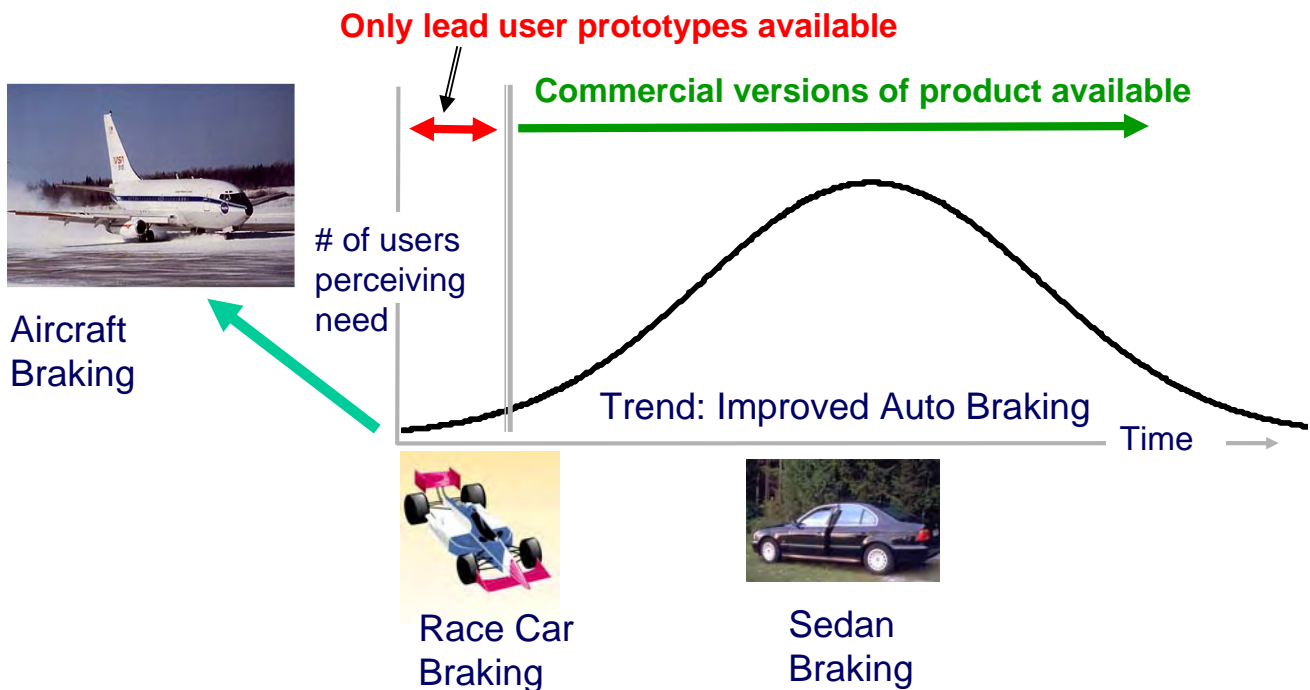
There are two fundamental ways to profit from the lead user idea: (1) Search for LU innovations and (2) Benefit from lead experts in analog markets

1. Search for LU innovation

2. Benefit from lead experts in analog markets

- Find analog markets with similar problems (in a higher extent)
- Focus is on solving a pre-defined technical problem
- Search for experts that have faced a similar problem – and found a leading edge solution
- Approach described as the "lead user method" by Eric von Hippel (see teaching videos on his MIT homepage)
- Examples: 3M, Braking systems, ...

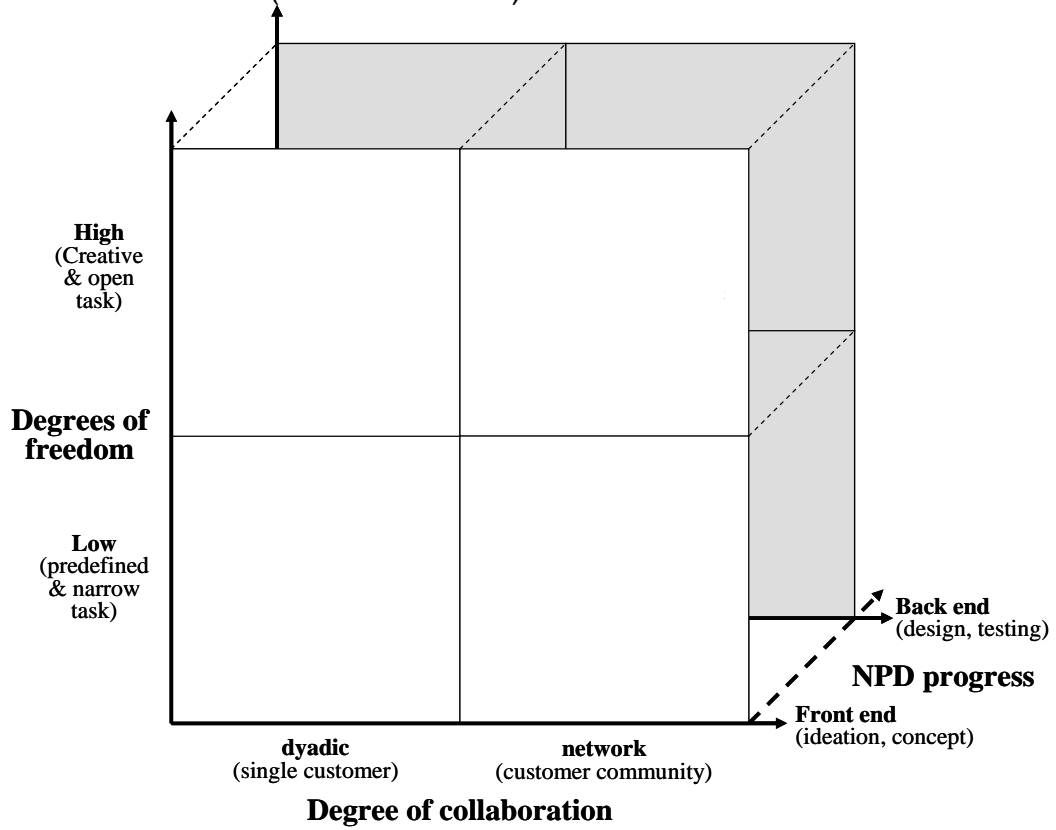
Breakthrough solutions are often found in “advanced analog” applications and markets



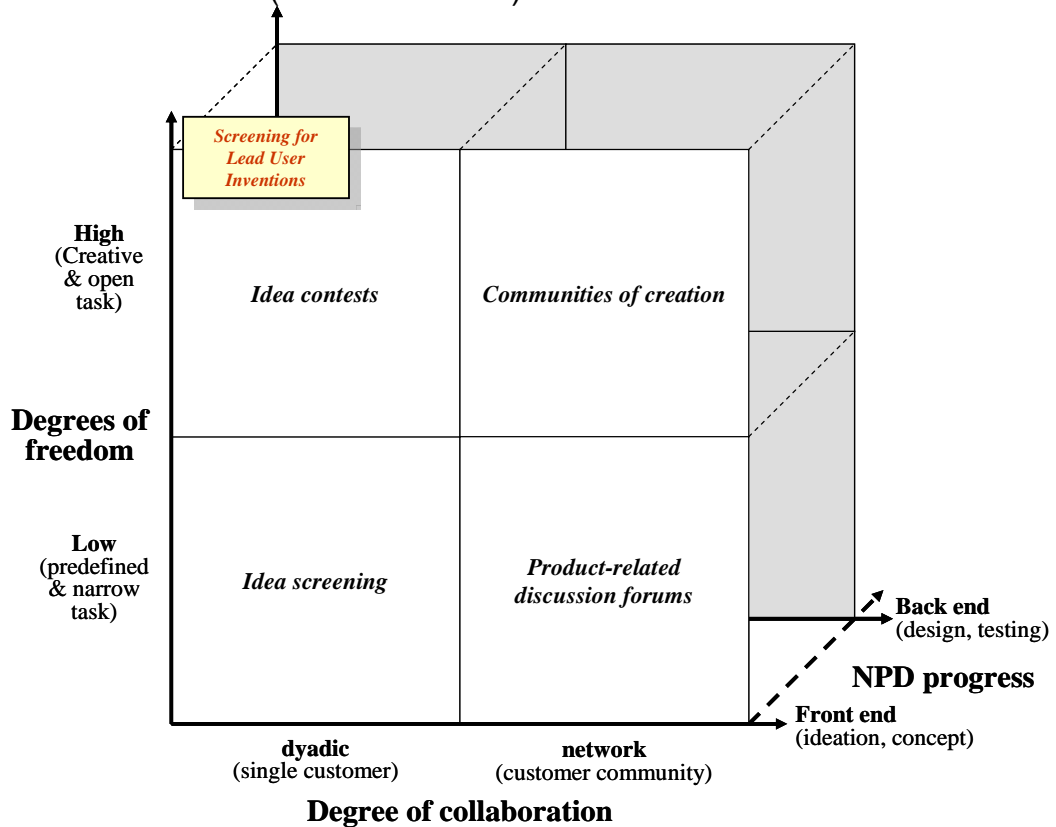
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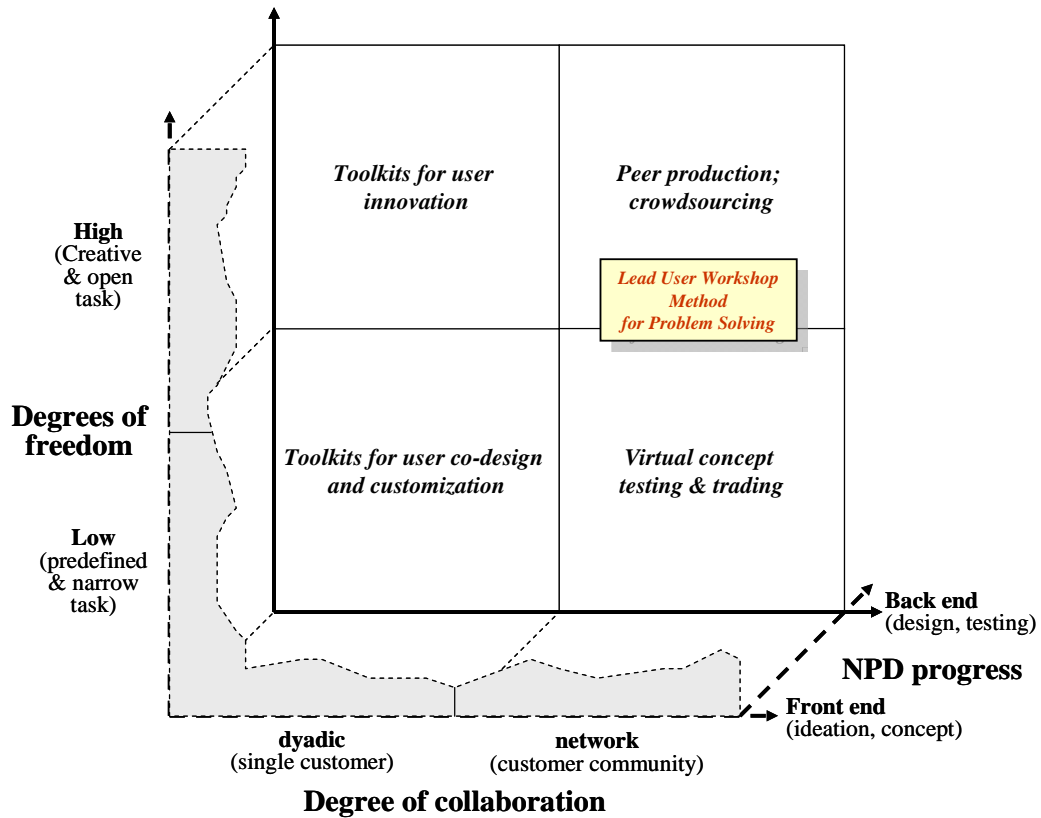
A typology of "mode 3" methods of collaborative customer participation in NPD (Piller & Ihl 2009)



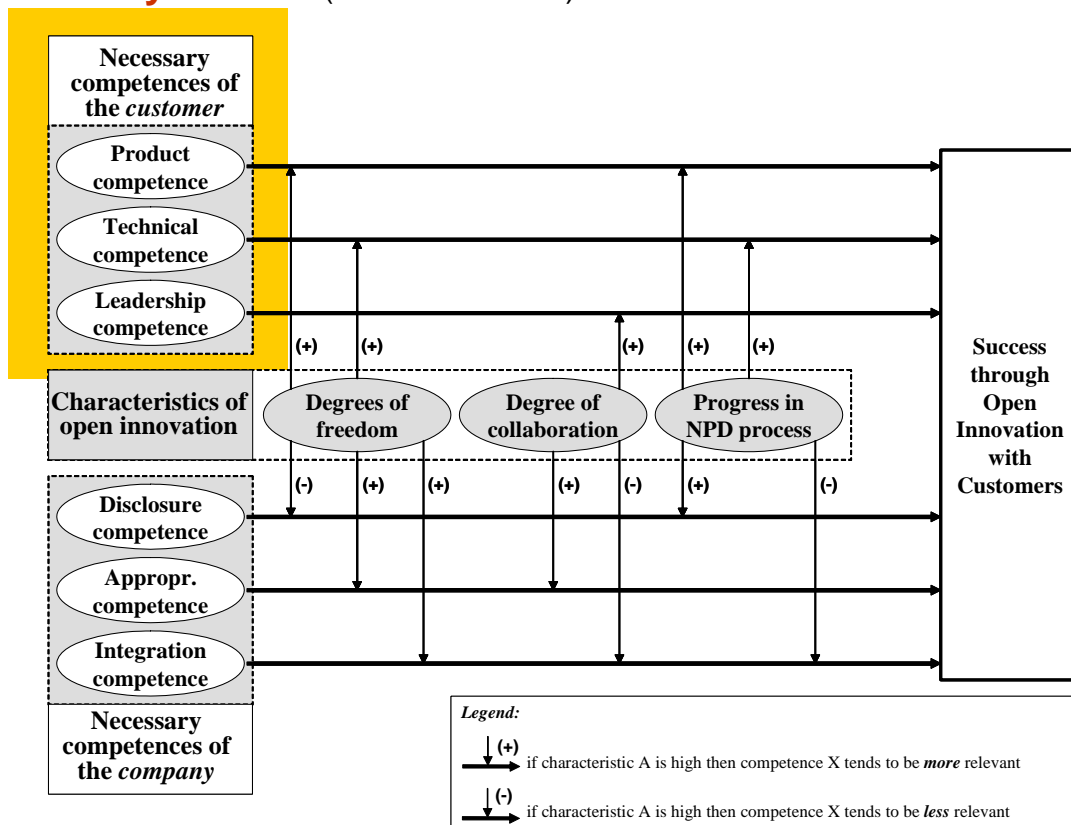
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A typology of "mode 3" methods of collaborative customer participation in NPD (Piller & Ihl 2009)



Competences of firms and customers to co-design successfully in NPD (Piller & Ihl 2009)



Competences of customers for open innovation

Product competence

Understanding of the product domain

(1) Product related knowledge: Know-how about the product architecture and the used materials and technologies (Lüthje 2004)

(2) Use experience: Emerges via the frequency of using products. Required to experience and systematically analyze existing problems that arise from using the products currently available in the market.

Franke et al. (2006): Extension, show that **being “ahead on an important marketplace trend”** is related to increase in commercial attractiveness of innovations developed by users. Focus on identifying “extreme” users in a given product domain.

Competences of customers for open innovation

Technical competence

Ability of customers to come up with solutions for a given NPD problem.

(1) Methodological knowledge: Methodologies, tools and activities that are employed and undertaken in new product development and manufacturing.

Customers have traditionally lacked technical skills and capabilities that NPD requires. But with the internet (solution) knowledge becomes more accessible and proximate. This helps consumers' ability to engage in activities where initial learning costs were traditionally perceived to be too high.

- **User-focused online tutorials** (e.g., makezine.com; evsupersite.org) (O'Hern and Rindfleisch 2008)
- **Toolkits for user innovation and co-design** (Thomke and von Hippel 2002; Franke and Piller 2003).

(2) Analogous market knowledge: Resembles target market with regards to customer needs and/or the technology used, but often belongs to another industry (Hienerth et al. 2007).

Competences of customers for open innovation

Leadership competence

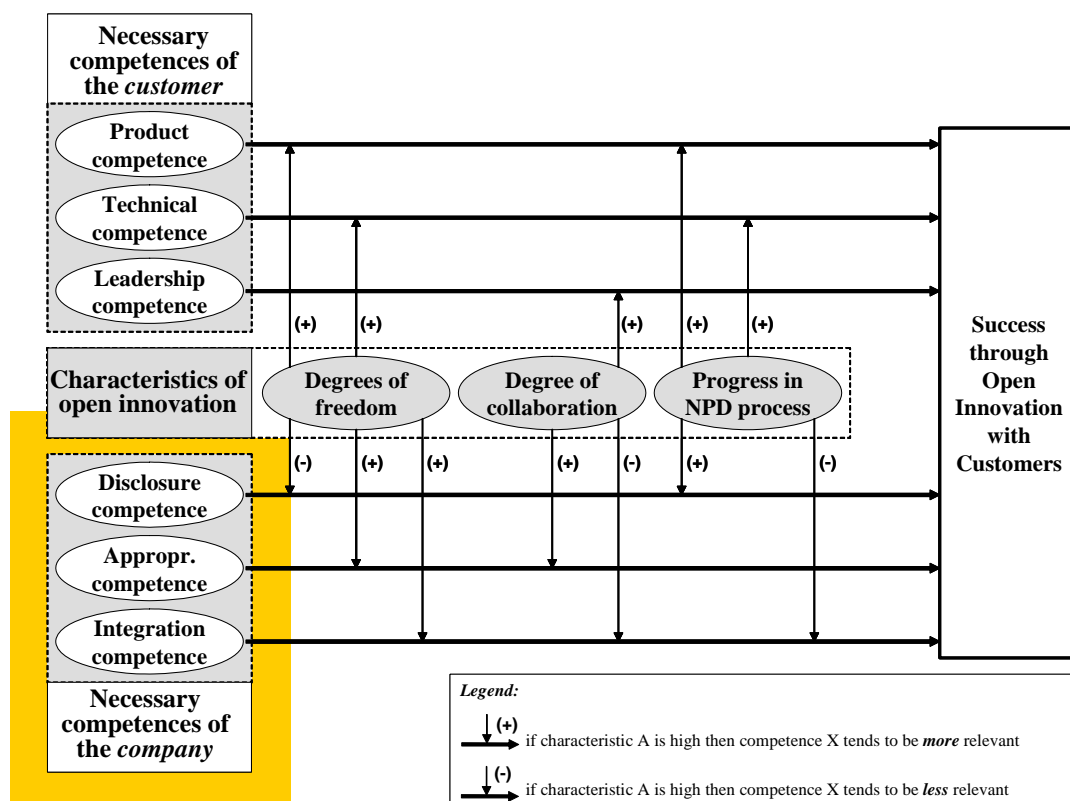
Leadership competence (held by at least some customers) represent the demand for *locomotion*, i.e. ensuring goal achievement by coordinating the various subtasks; and *cohesion*, i.e. motivating group members in a coherent way towards the common goal. Especially relevant in open innovation settings with network collaborations in communities.

Members on customer innovation communities **often innovate not anonymously**, but with reference to identity, reputation, technologically derived status, collegial networks, and physical interaction (Lakhani & von Hippel 2003). **But despite their self-organizing character, most open innovation communities also rely on strong leadership** to function effectively and to resist free-riding and under-investment of effort (von Hippel & von Krogh 2003).

Elements of leadership competence (Fleming and Waguespack 2007):

- (1) **Human capital:** related to strong technical contributions
- (2) **Social capital:** social brokerage and boundary spanning between individual contributions.

Competences of firms and customers to co-design successfully in NPD (Piller & Ihl 2009)



Competences of firms for open innovation

Disclosure competence

Firms' disclosure competence refers to the fact that NPD problems need to be communicated in order to establish an interaction with innovative customers.

Voluntary information disclosure may be an unthinkable practice in firms with management that traditionally oriented towards closed innovation, because such openness obviously entails the challenge of protecting one's intellectual property. Nevertheless, voluntary information disclosure is a core requirement of co-creation (Lhuillery 2006; Harhoff et al. 2003).

(1) Problem Broadcasting: Amount of disclosure is a strategic choice that firms' management needs to decide upon. This decision, whether it is made good or badly, has a considerable performance impact and thus requires a corresponding competence (Henkel 2006). In addition, technical competence to perform broadcasting task.

(2) Problem Formulating: Competence to formulate NPD problem in a way that a heterogeneous group of customers (external actors) can contribute to this task. Non-trivial task that strongly contributes to performance of open innovation (Lakhani et al 2008, Piller 2009).

Competences of firms for open innovation

Appropriation competence

Appropriation competence refers to a firm's need to be able to (1) capture the co-produced knowledge from customers and (2) protect it against outsiders and free-riders.

(1) Capturing knowledge implies that firm needs to provide special benefits for customers in order to compensate customers for the forgone property rights on their idea.

(2) Protecting knowledge co-produced with customers against outsiders and free-riders, often (especially in customer communities) with absence of effective legal means of appropriation like patents and contracts.

Competences of firms for open innovation

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(1) Capturing knowledge implies that firm needs to provide special benefits for customers in order to compensate customers for the forgone property rights on their idea. **Incentives (expected benefits) for customers include:**

(a) **Direct returns**

Other extrinsic benefits when customers transfer knowledge to manufacturing company without a direct return (Harhoff, Henkel and von Hippel 2003):

(b) **Product use and improvements**

(c) **Network effects and standards**

(d) **Reputation**

Intrinsic benefits for customers:

(e) **Enjoying an activity:** Feeling of fun, competence, exploration, and creativity (Schreiber 2007, 2008)

(f) **Fulfillment of norms for the sake of itself:** (Generalized) reciprocity, altruism or fairness.

Strategic competence of firms to discover and serve these benefits in an efficient way.

Competences of firms for open innovation

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New competence required in the pursuit of alternative means of appropriation:

(a) Organizational appropriation mechanisms

(b) Strategic appropriation mechanisms

Competences of firms for open innovation

Integration competence

Firms need to integrate new knowledge co-produced with customers into their own NPD process.

(1) Integrating heterogeneous customer inputs: If innovations are progressively being created over networks operating under different organizational principles, then workflows for NPD have to be extended beyond the firm's internal organization.

How can different actors and their contributions be integrated smoothly?

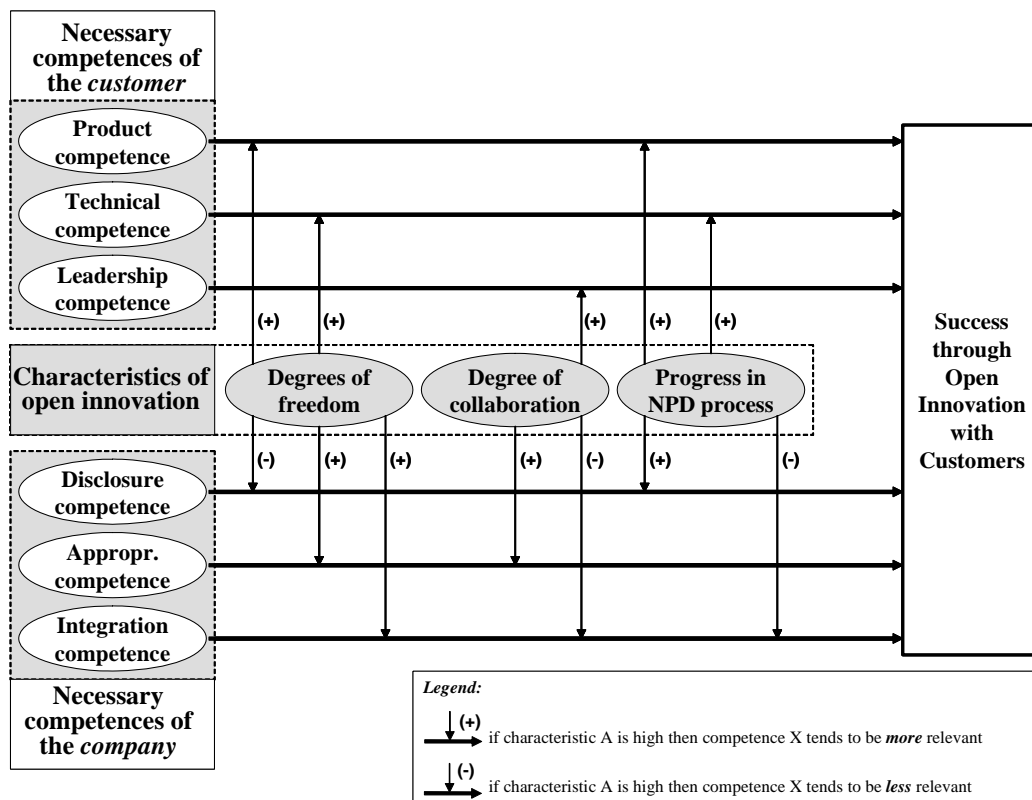
Benkler (2002) distinguishes between three mechanisms:

- (a) Integration through **automated task processing** over dedicated information platforms
- (b) Integration through **peer production**
- (c) Integration through reintegration of **hierarchical coordination forms**

(2) Integrating external solutions into the firm's NPD process: Necessary precondition is to **overcome "not-invented-here" (NIH) syndrome** (Katz and Allen 1982). Resistance to external knowledge from customers may be even greater than towards input from colleagues.

Means: "Gatekeepers"; Absorptive capacity

There still is plenty of research needed to fully understand the these competences for co-design



Topics of this talk

- The challenge to access need information in "long tail markets"
- Long tail strategy #1: **Mass Customization**
- Long tail strategy #2: **Collective Customer Commitment**
- Long tail strategy #3: **Lead User Method**
- A competence based view on co-creating with customers

- **Conclusion and what's next**

The screenshot displays the eMachineShop website interface. At the top, the logo reads "eMachineShop.com" with the tagline "Machine your custom parts online". A navigation menu on the left includes links for Home, Demo, Free Download, General Info, Audio Guide, Pricing, Updates, Price file, Equipment, Materials, Examples, Company, CEO Blog, Search, Order Status, Support, Contact, Careers, Press, Privacy, and Site Map. The main content area features a welcome message: "Welcome to eMachineShop - where you can design, price, and order your custom parts online!". Below this, a horizontal bar lists key benefits: Instant Pricing, Total Convenience, Low Cost, Instant Expert, and Free Design Software. A central image shows various custom parts like gears and brackets. Text on the right lists examples of parts: engines, furniture, games, jewelry, lighting, medical devices, photographs, sculptures, sound equipment, sports tooling, toys, and more. A section titled "Intelligent design software gives instant exact pricing, expert feedback, and unrivaled convenience. Here's how it works:" is followed by a three-step process: 1. Download (showing a CAD software window), 2. Draw (showing a 3D model of a gear), and 3. Order (showing a cardboard shipping box). The bottom of the page includes a "Done" status bar.

Rapid manufacturing technologies will reinforce this trend

- Prototyping technologies grow up.
- Laser sintering and similar additive fabrication techniques "for manufacturing solid objects by the sequential delivery of energy and/or material to specified points in space to produce that part."
- Rapid manufacturing done in parallel batch production can provide a large advantage in speed and cost compared to alternative manufacturing techniques such as plastic injection molding or die casting.
- Machine and material cost are dropping sharply, while the available design know-how is increasing.

User Manufacturing

- Users (customers) are becoming not only co-innovators, but also manufacturers, using a **new infrastructure** provided by some specialized companies.
 - (1) **Easy-to-operate design software** that allows users to transfer their ideas into a design without much experience in how to operate a CAD software.
 - (2) **(Open) Repositories of designs**, often under creative commons license.
 - (3) **Easy-to-access flexible manufacturing technology**.
- This also allows (expert) users to set up an **"instant company"** that designs, makes and globally sells physical products (as easy as starting a blog or creating an eBay store).

[More information: <http://tinyurl.com/yofu2y>]

An online marketplace that offers sellers complete e-commerce services to independently create and sell a wide variety of products

- “The CafePress.com web site averages 9 million unique visits per month
- Approximately **1500 new, independent shops join the CafePress.com network each day**
- As of 2008, over 6 million orders had been shipped to customers spanning the globe
- Roughly **50,000 new, unique products are added each day**
- The most popular item is the white T-Shirt; over three-quarters of a million standard white T-Shirts were purchased in the first six years”

- | | |
|---|--|
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- BROWSE OUR TOP CATEGORIES**
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Learn more about the benefits of

Companies like Spreadshirt, Cafepress, Zazzle, Ponoko, e-machineshop, etc. profit from the long tail – by providing capabilities for niches to create their own market and assortments

- Users can create their own assortments ...
- ... and there own market.
- **Manufacturers no longer have to understand what customers want** ... they are just producing what people tell them to do (and not "why they need it")
- **User manufacturing provides the missing link of user innovation:** Some innovative users create new products (often to profit from using them), but also get enabled to share their developments (at larger quality) with a larger group

Conclusion

- The critical task in NPD is to discover and meet customer needs.
- Long tail markets are becoming norm in many industries. This asks for new strategies for efficient NPD and market creation (niche exploitation).
- A different understanding of accessing need information is required:
From design for customers to co-design with customers.
 - **Mass customization and customer co-design toolkits** are efficient strategies to serve heterogeneous customer needs.
 - Customers can take **different roles along the value chain**: Lead users, co-designers, decision makers ...
- **User manufacturing** may overcome problems of traditional mass customization systems.
 - New manufacturing and design technologies are finally entering the stage of wider application.
 - This is, however, a supplemental approach – the challenge is to create a fit between standard production and customer co-design.

What could my company (organizational unit) do to hand s.th. out to the periphery and still make money?

What can we share with users (or competitors)?

What is the real core of our company?

How can we build competences required for successful collaboration with customers and users?

How can we implement organizational practices which prevent a new kind of NIH problem?

Mass Customization & Open Innovation News

Notes and ideas on mass customization, personalization, customer integration, and open innovation – strategies of value co-creation between suppliers and customers. This blog continues a long running newsletter, published and edited by Frank Piller, RWTH / MIT, since 1997.

EVENTS

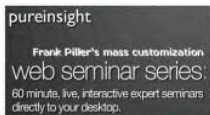


The MCPC 2007 has been THE event of the international mass customization community-- the conference is over, but still you can order the conference proceedings. [\[More\]](#)

Upcoming MCP Events & Calls for Papers: [List of focused MC events and conferences in 2008](#)

CONFIGURATOR DATABASE

The largest database of configuration toolkits.



Webinar Downloads: (1) [My executive briefing in mass customization](#) and (2) [A trend report on user co-creation and user manufacturing.](#)

[« Innovation Excellence - Conference in Vienna features open innovation and more | Main | Seminar in Sweden: Mass Customization & Innovation in Fashion Retailing »](#)

User-led innovation: New report suggests a framework to structure forms of interactive value creation



strong>"User-led Innovation: A New Framework for Understanding Business and Social Value" is a new report published by the [Smart Internet Technology Research Group](#) in Australia.



The report reveals some of the major drivers of user-led innovation and explores how it is affecting organizations' relationships with key stakeholders. **It investigates how user-led practices generate business and social value through a major case study of the virtual world Second Life.**

A first part by [Darren Sharr](#) presents a [comprehensive analysis of the structural](#)

NEW BOOK



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Updates, Newsletter & Cases:
www.open-innovation.com
mass-customization.blogs.com

practices across a range of disparate fields. This is leading to the emergence of a post-industrial innovation system that brings with it new production processes, content models, service platforms and licensing agreements.

In contrast to various forms of market-based transactions, user-led practices encompass their own distinctive value systems, motivations and principles governing cooperative forms of social exchange.



This report identifies **four 'user-led niches'** which have become

New Opportunities for SMEs

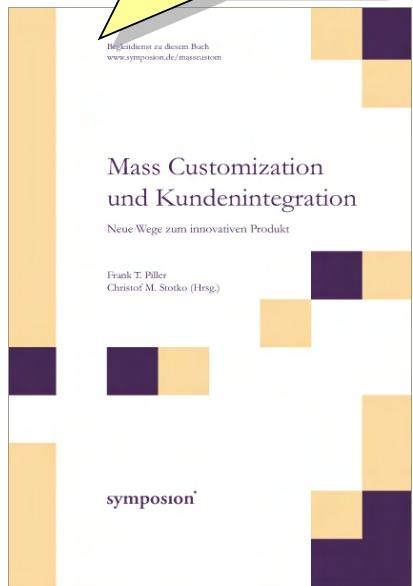
[Ponoko: Design, Contest and Latest Press on User Manufacturing Enabler Ponoko](#)

[Seminar in Sweden: Mass Customization & Innovation in Fashion Retailing](#)

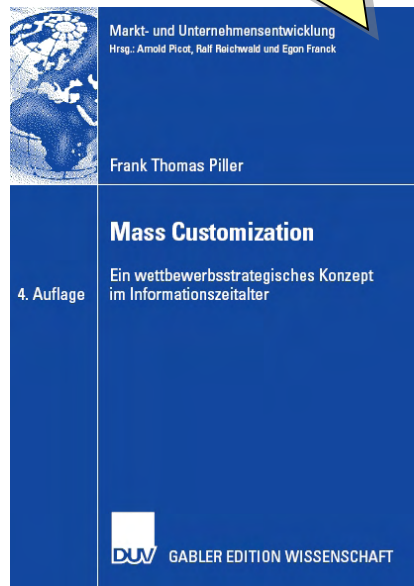
Aktuelle Betrachtung der kundengetriebenen Wertschöpfung – Das erste deutsche Buch zu Open Innovation. 2., stark aktualisierte Auflage erscheint im April 2009!



Das erste deutsche Fachbuch, das sich jeder Leser selbst individualisieren kann. Management-orientierte Einführung in Mass Customization



Wissenschaftliches Standardwerk zum Thema. 4. Auflage 2006 Mit umfangreichen Fallbeispielen im Anhang.



Download von Auszügen und mehr Informationen zu den Büchern.

Die Bücher zum Vortrag
www.mass-customization.de