



# Mass customization and personalization for the wood products industry

Urs Buehlmann and Torsten Lihra  
Annual Meeting VWMA, January 28, 2011



# Overview

- The Future...
- Mass Customization (MC)
- The New Economy
- Success Stories
- MC revisited
- Summary



# The Future...

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# The Future...

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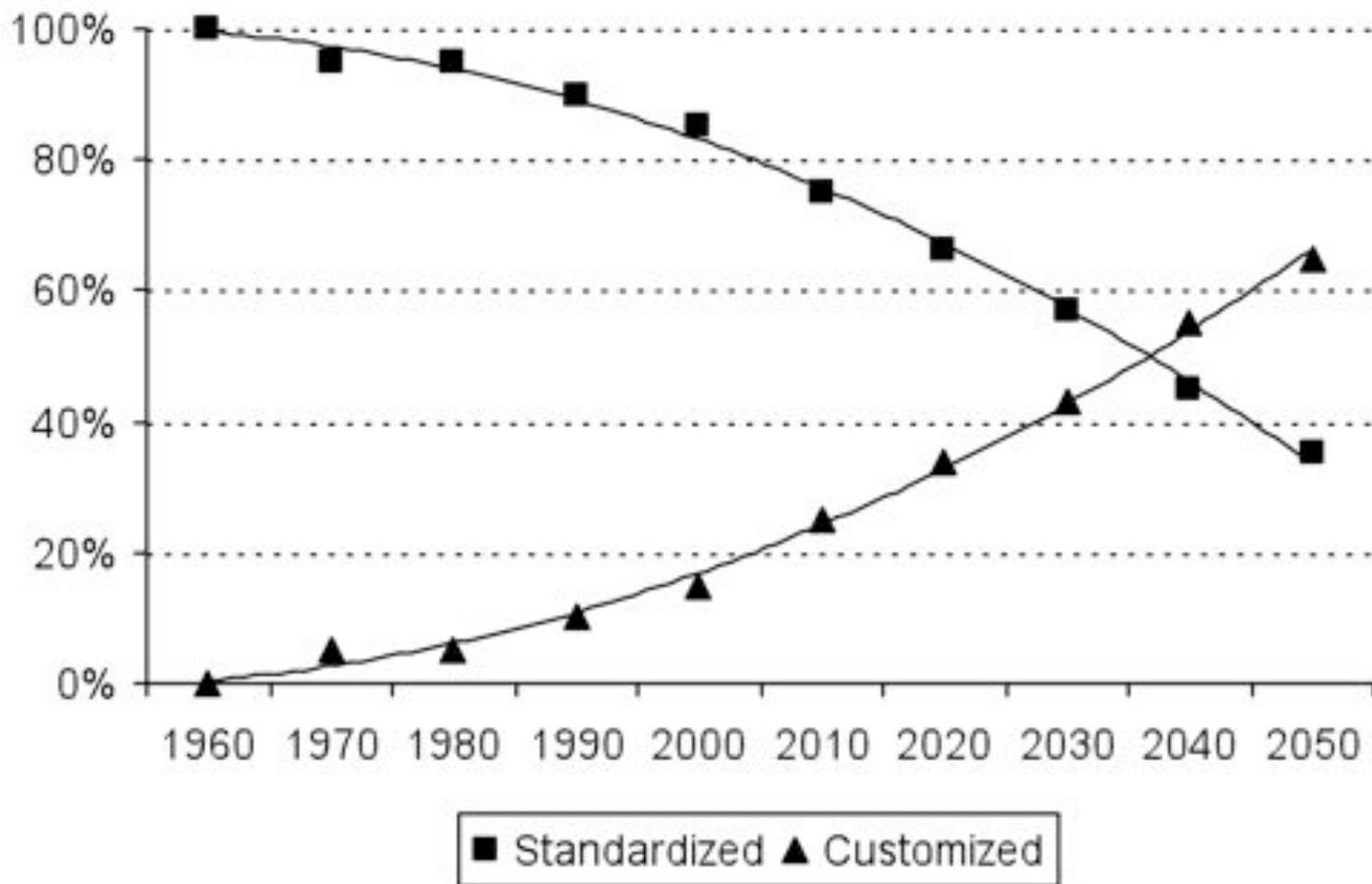
Photos	Fit	Origin
		
<a href="#">Dress Button Pocket</a>	<a href="#">New Water Det Loops</a>	
		
<a href="#">Nickel Side Zone</a>	<a href="#">Blue Silk Lining</a>	








# The Future...



# CHANGE!

- The Internet
- The long tail (niche markets)
- The green movement
- Globalization – WTO
- Containerized shipments
- Global capital investments
- Currency exchange and tax rates

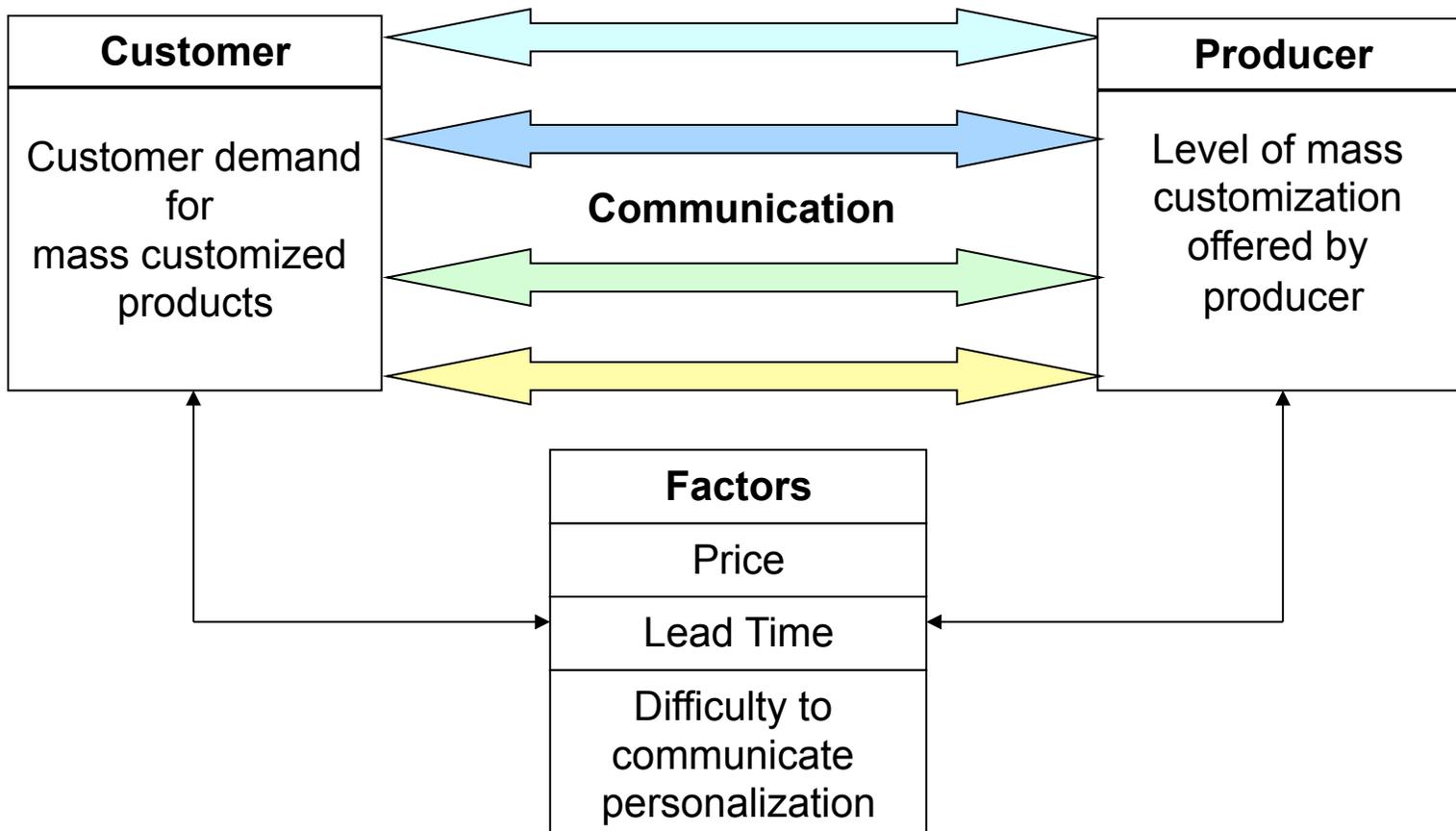
# MASS CUSTOMIZATION (MC)

# Definition of MC

Mass Customization is the “*fulfillment of customized orders at an industrial scale with competitive prices and competitive lead times.*”

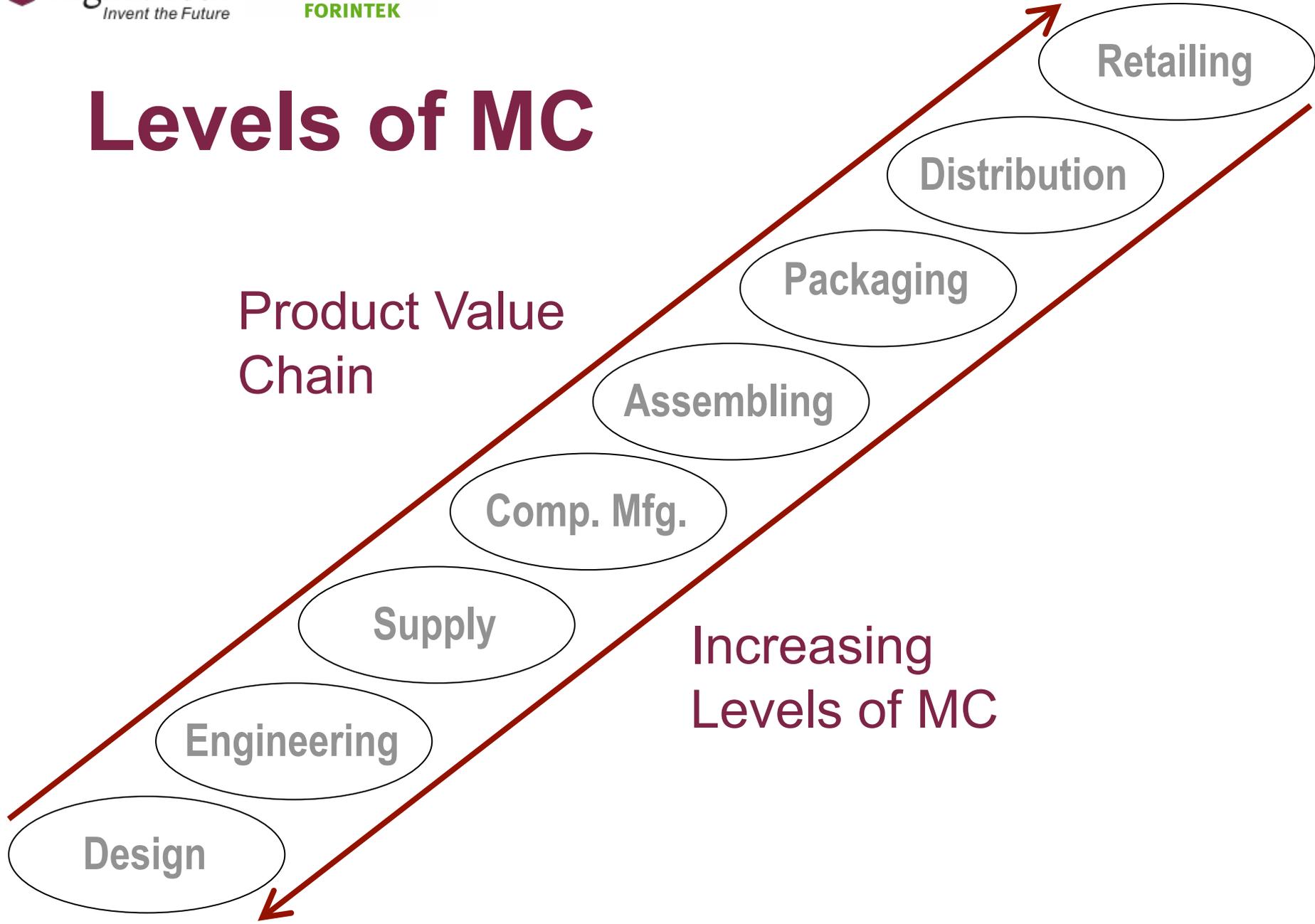
- ... customized orders
- ... industrial scale
- ... competitive prices
- ... competitive lead times

# MC framework



# Levels of MC

Product Value Chain



Increasing Levels of MC

# Challenges

Implementation of MC is challenging

- Make-to-order (MTO)
- Small batch sizes
- Supply chain management
- IT
- Marketing
- Customer interaction
- ...

# MC in different industries

- Architectural Woodwork
- Moulding
- Flooring
- Wood Components
  
- Nonupholstered household furniture
- Upholstered household furniture
- Office furniture
- Kitchen cabinets

# Kitchen Cabinets

## Configuring

offers end-users the opportunity to design furniture from a set of standard components or modules. Configuring may be done directly by the end user or may be done with the assistance of trained sales representatives.

## **Accessorizing**

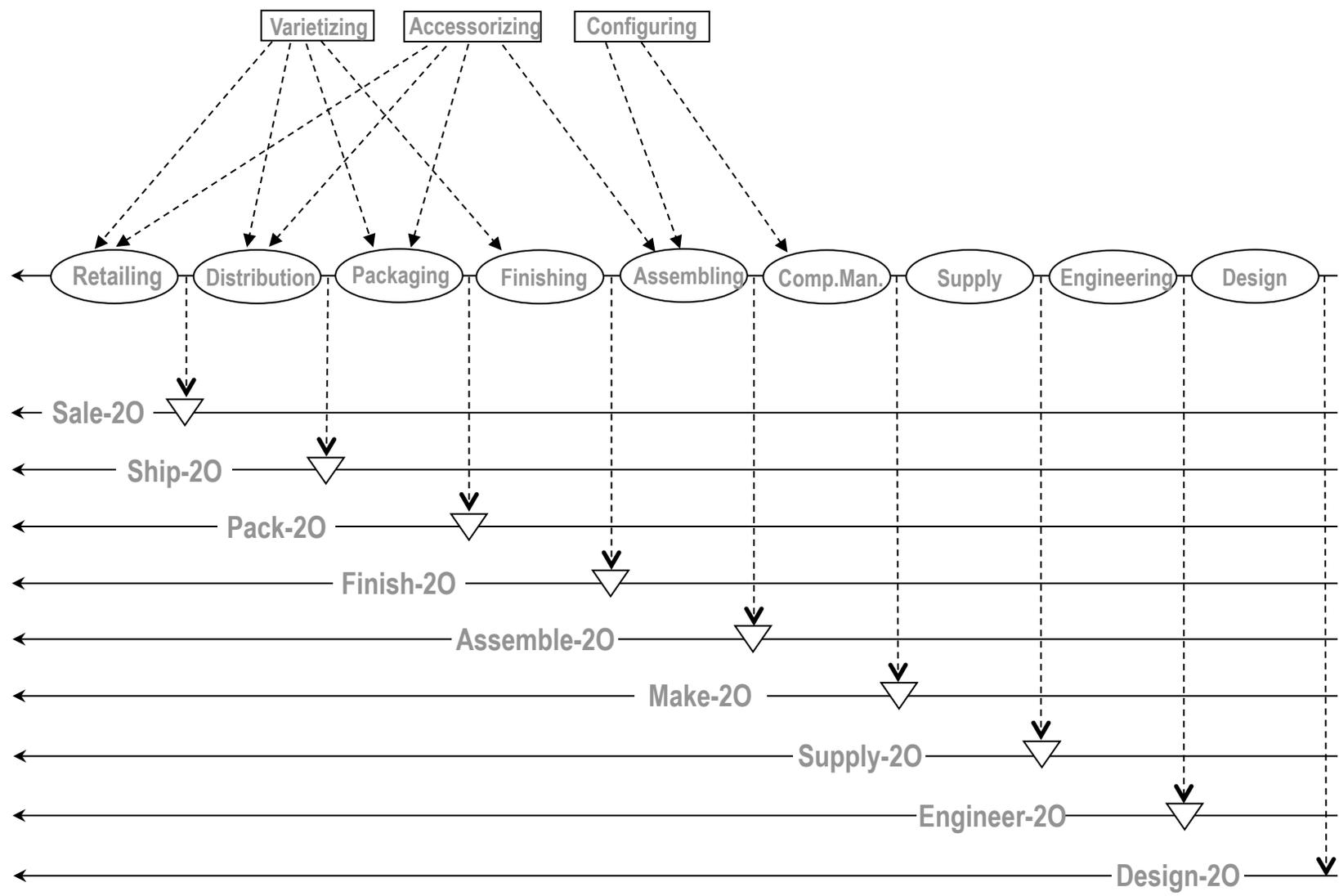
is the production of standard core modules that can be mass customized by adding accessories from a specified set of options. Final assembly of accessorized products is performed either by the manufacturer, the retailer, or the customer.

# Kitchen Cabinets (cont.)

## Varietizing

offers a wider variety of products covering a wider range of customer needs. Retailers pick those they think the customer wants to offer them off-the-shelf. Relies on quick delivery from distribution network and fast replenishment. Most often, variety is achieved through relatively simple changes to a standard product line, such as color or add-on items to products.

# Kitchen Cabinets



# Office Furniture

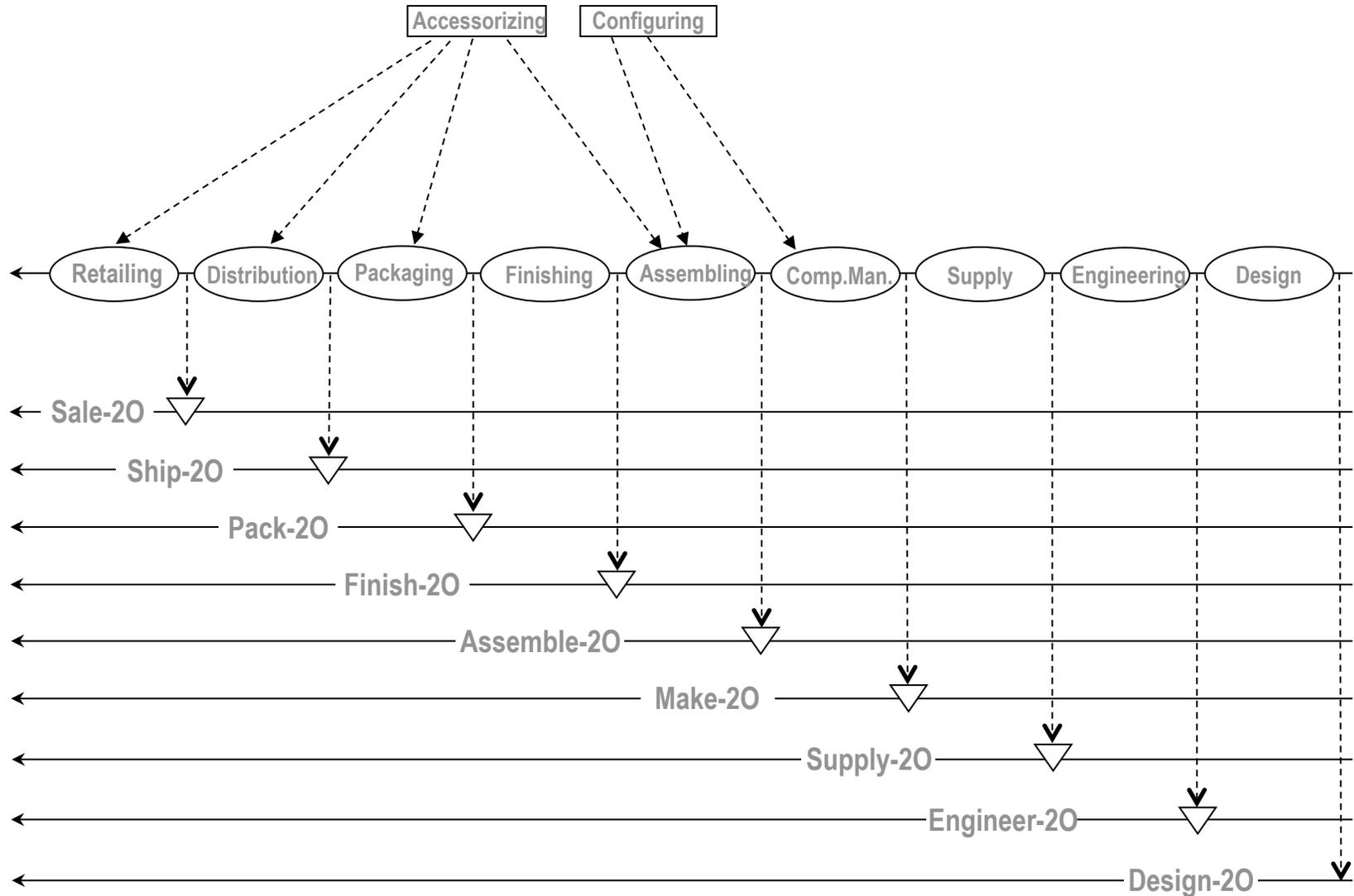
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# Office Furniture

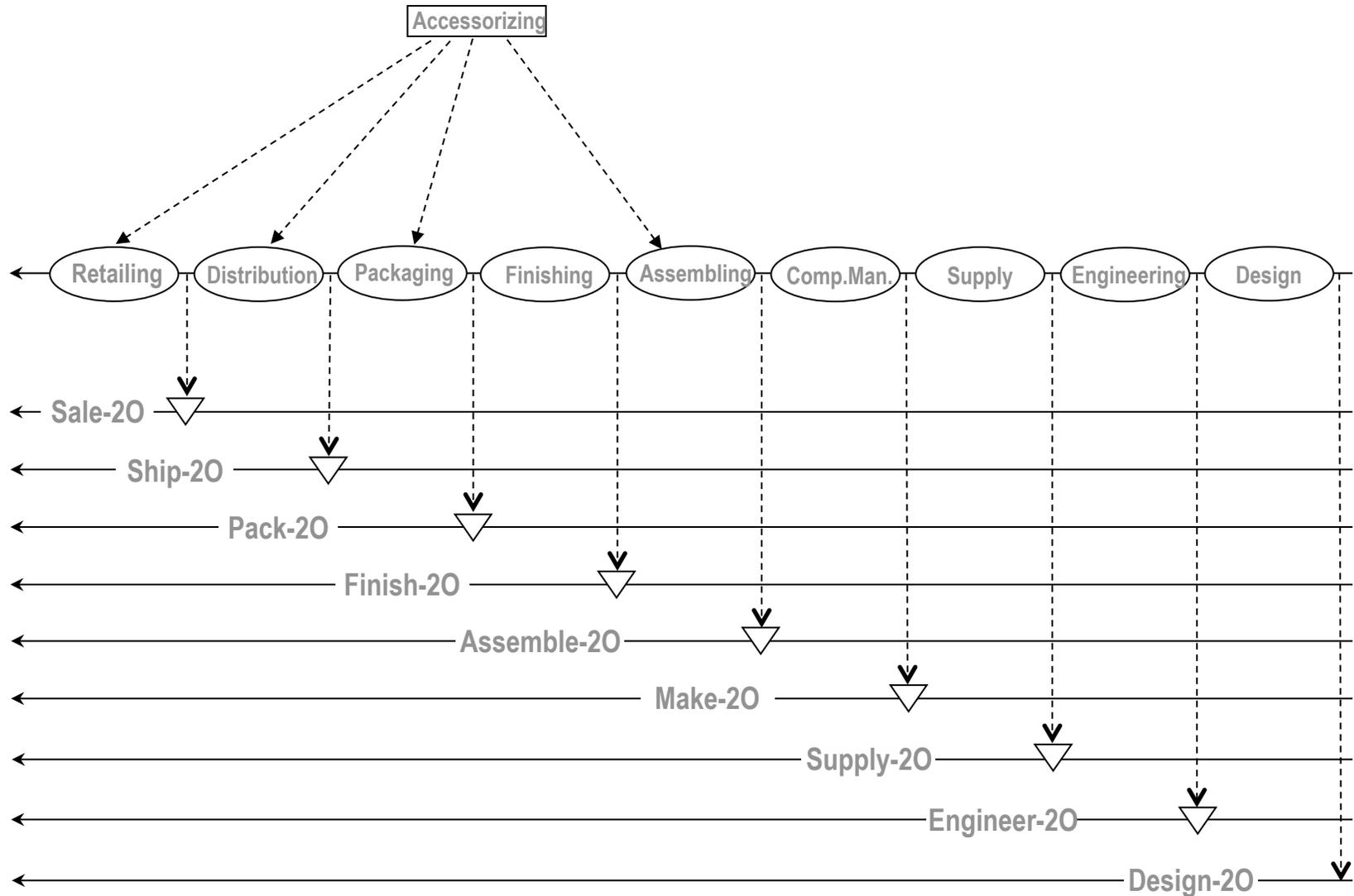


# Upholstered Furniture

## Accessorizing

is the production of standard core modules that can be mass customized by adding accessories from a specified set of options. Final assembly of accessorized products is performed either by the manufacturer, the retailer, or the customer.

# Upholstered Furniture



# Household Furniture

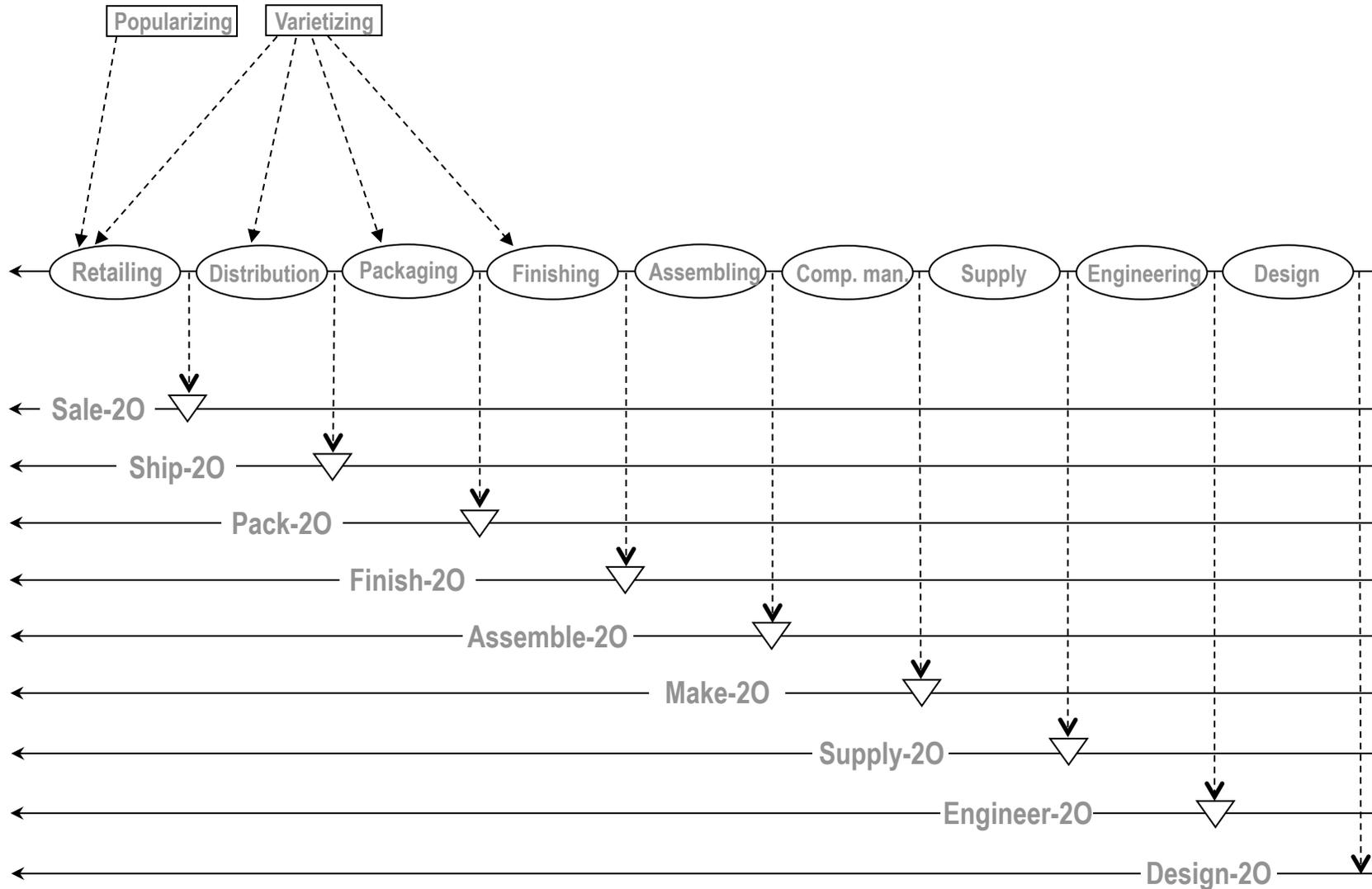
## Popularizing

the mass producer's solution to customization. Limited number of items that can be stocked and sold off-the-shelf by retailers. Focus on evolving the popular product mix in-line with evolving customer needs.

## Varietizing

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# Household Furniture

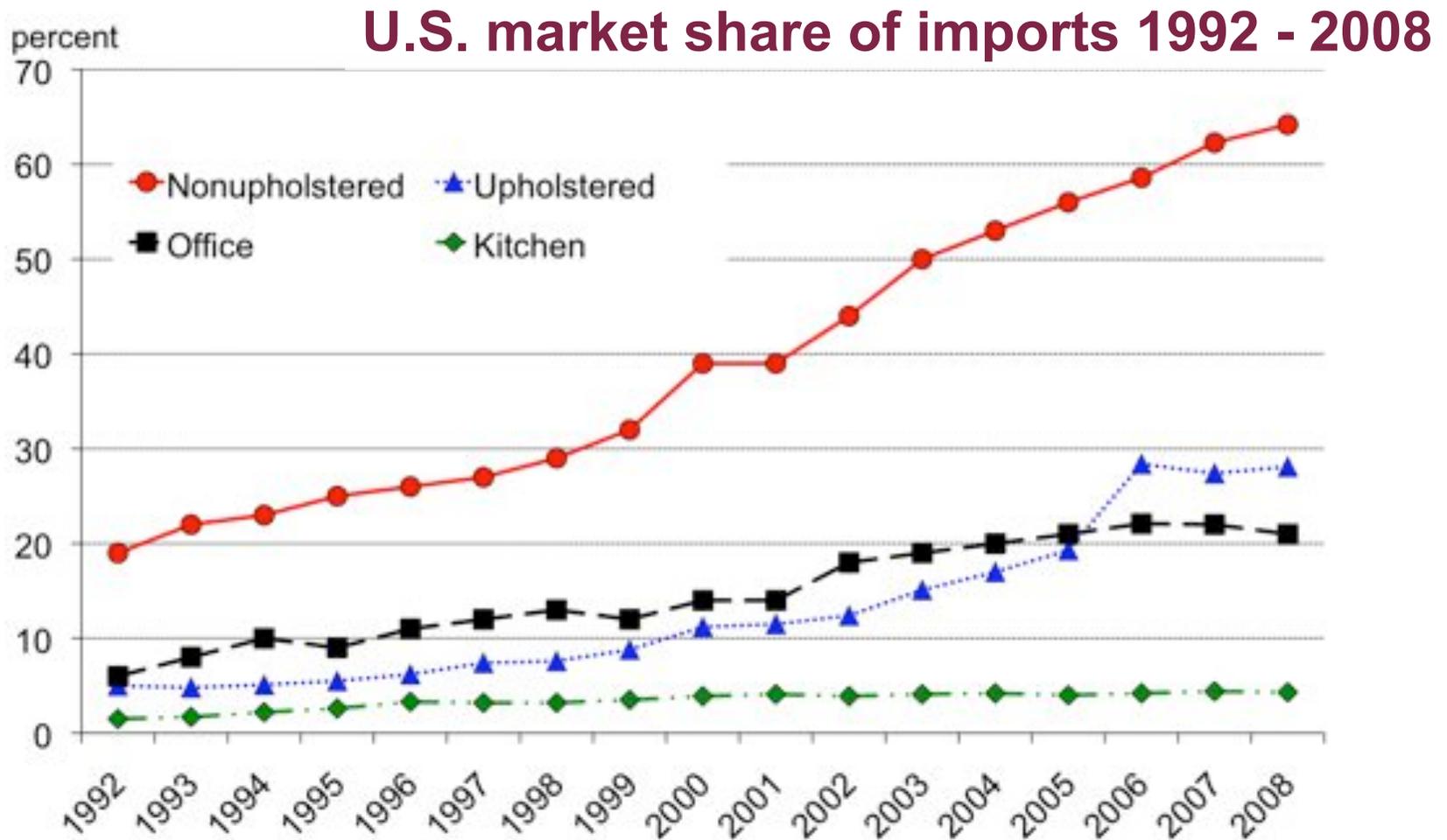


# MC levels of example industries

Increasing levels of MC

Industry sector	MC level	Production mode
Kitchen Cabinets	<u>Configuring</u> Accessorizing Varietizing	Assemble to order Make to order
Office Furniture	<u>Accessorizing</u> <u>Configuring</u>	Assemble to order Ship to order
Upholstered Furniture	Accessorizing	Assemble to order
Household Furniture	<u>Varietizing</u> Popularizing	Ship to order

# Performance of Industries

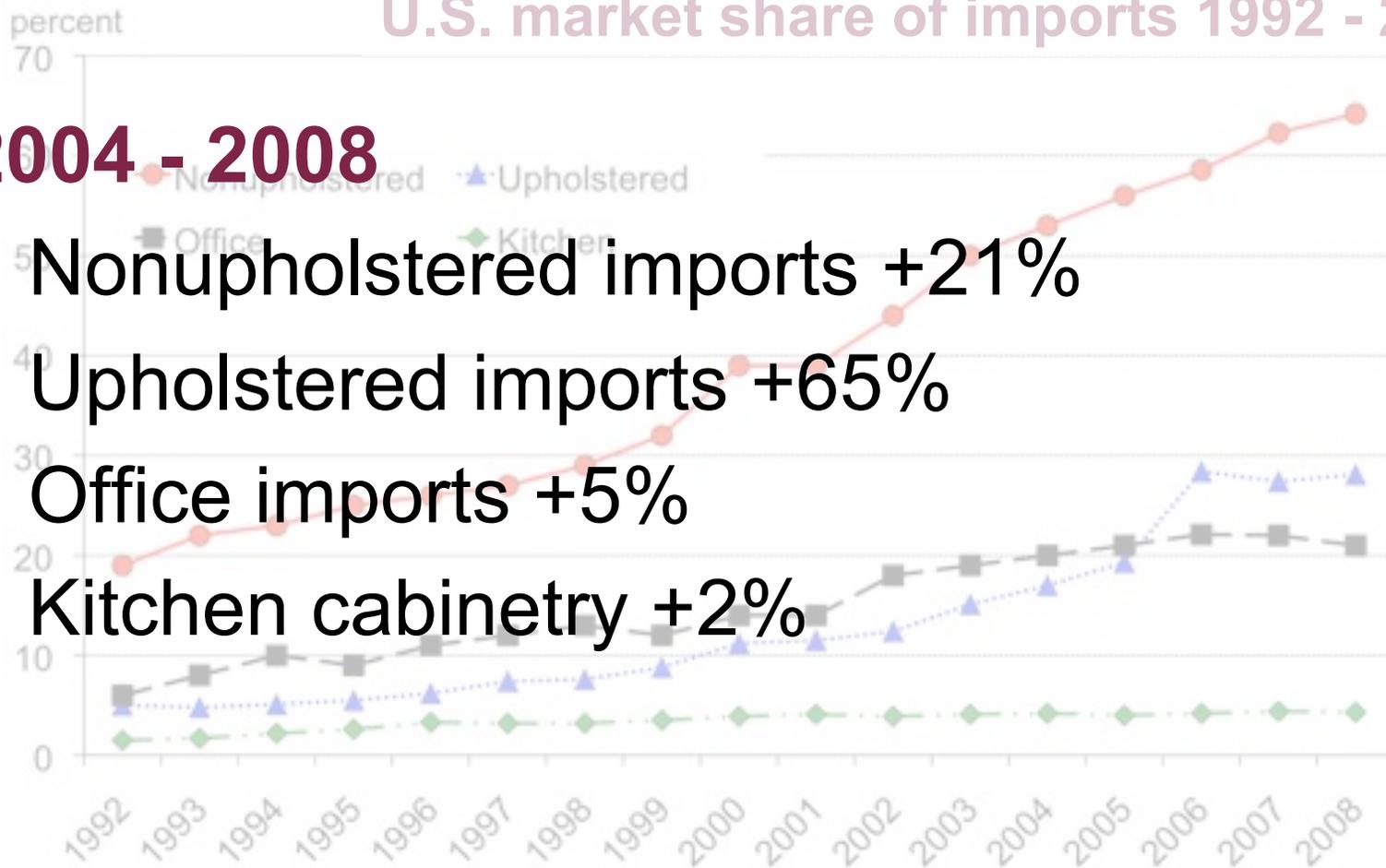


# Performance of Industries

U.S. market share of imports 1992 - 2008

## 2004 - 2008

- Nonupholstered imports +21%
- Upholstered imports +65%
- Office imports +5%
- Kitchen cabinetry +2%



# Success Stories...

# CABINETS AND OFFICE

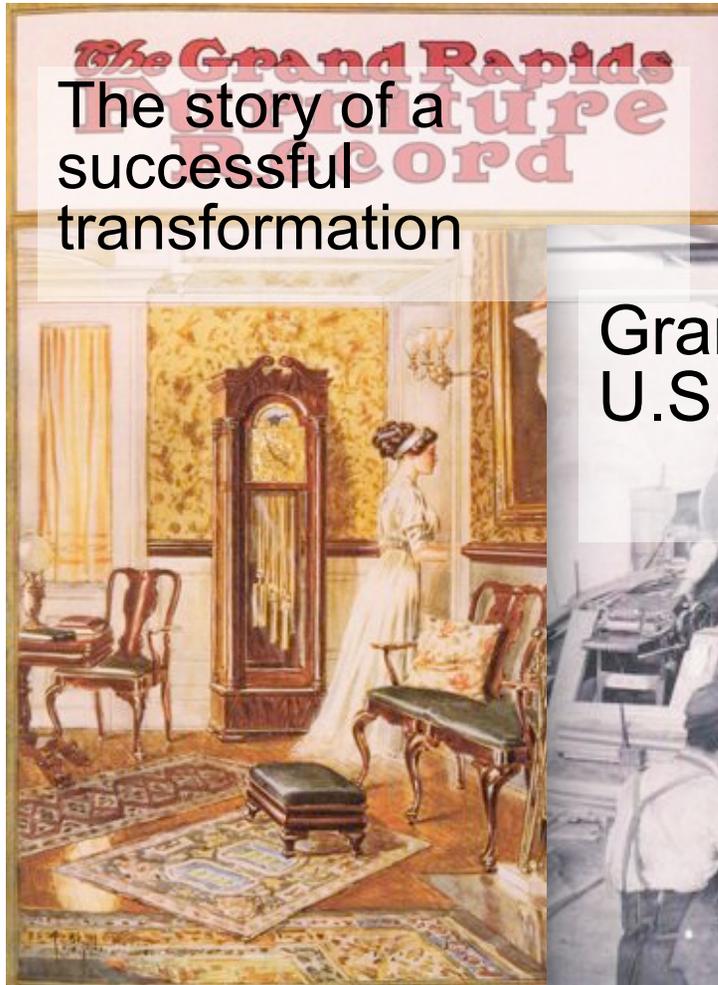


source: Kitchen Craft



source: Herman Miller

# OFFICE FURNITURE EXAMPLE



source (both pictures): C. G. Carron, Grand Rapids Furniture 1998

# FURNITURE MOVES SOUTH

- the call of the South:
- cheap lumber
  - cheap labor
  - investment in new technology

THE FURNITURE MANUFACTURER AND ARTISAN

*the call of the South!*

**THE** South invites you, because it has much to offer you—much that you can use to your profit; much that no other section can give you.

The South has demonstrated to other manufacturers who have come here from less-favored sections, that it was for them the "Land of Promise" into which they journeyed and prospered, and, to-day, the inducements which brought them South and are offered to you—are stronger than ever before.

**RAW MATERIALS:** Native forests of the principal woods used in furniture manufacturing: Cedar, Cypress, Gum, Oak, Poplar, Sycamore, Walnut and the world-famous Southern Pine; right at the doors of Southern mills, delivered by freight cars to your local. And cheap transport from all over the world, being Malagasy and other important woods in through Southern ports, at lower carrying cost than to Eastern and other ports.

**POWER:** Water power and hydro-electric power. **FUEL:** Coal, oil and gas. **LABOR:** Plentiful, reliable and to be had at low wages, because of low-cost living conditions.

**TRANSPORTATION:** Drawn by railroads and waterways to the principal shipping centers of the United States, through the ports of Charleston, Savannah, Jacksonville, Pensacola, Mobile and New Orleans, to the markets of the world.

**The L. & N. Invites You South**

The Louisville & Nashville Railroad carries you, Mr. Manufacturer, across South to your South, as well as to the East. With this Railroad line running to all the transportation of raw materials to give to manufacturers the best information, as to specific conditions in Southern locations and to practical economies of various South. Ask for this invitation form.

For Full Information, Communicate With  
**C. S. PARK**  
 Southern Railway System, Dept. 100  
 Nashville, Tenn. 37203



THE GRAND RAPIDS FURNITURE RECORD



# CHICAGO

... the South and other places...

**CHICAGO** is the greatest furniture market in the country, because it is the market place of greatest convenience to the greatest number—the only centrally located, readily accessible market place where the merchant may find the widest opportunities for selection and purchase, coupled with ample provision for his personal comfort—where he may find the most highly perfected machinery for doing business and the most inviting diversion for his leisure hours—where he may, in fact, find all the material requisites of a great national wholesale market amid surroundings that best contribute to his wellbeing, both as a merchant and as a man.

**Midsummer Exhibition Opens July First**



CHICAGO anticipates with pleasure the great gathering of Furniture Merchants within her gates during the month of July and assures them of a most cordial welcome and every convenience for their profit, comfort and entertainment.

**Ample Hotel Accommodations**

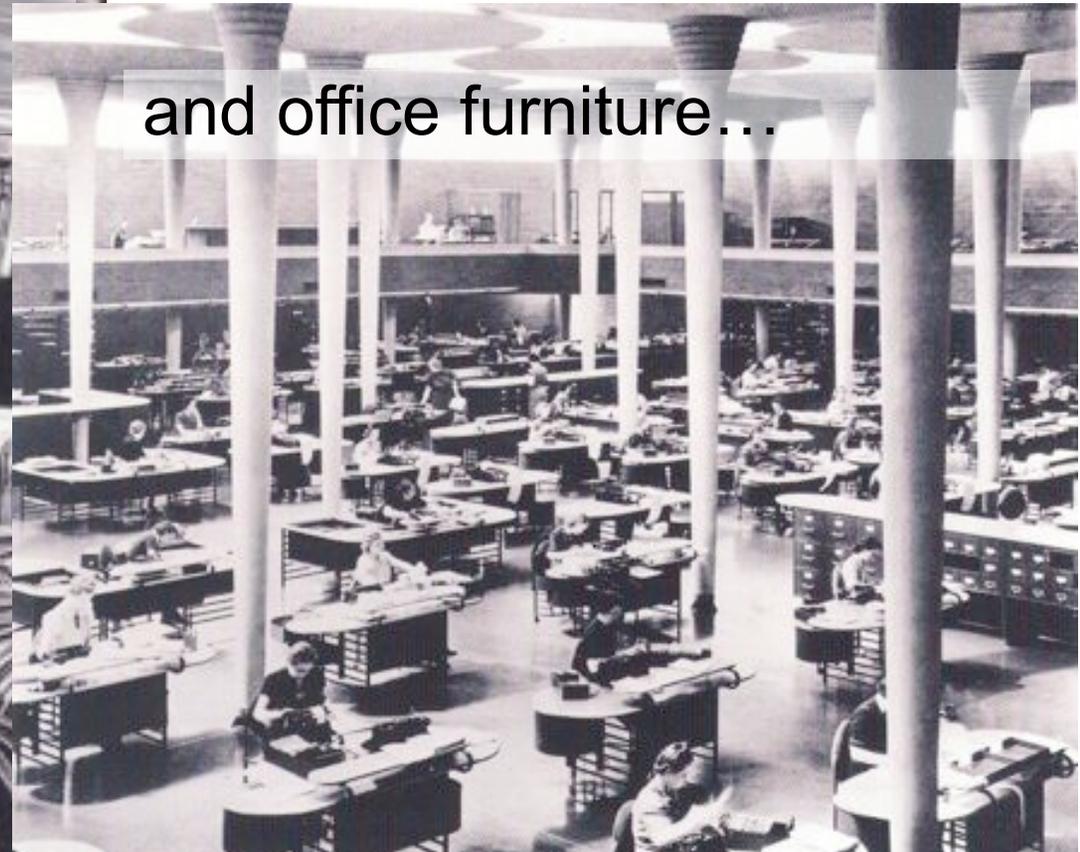


source (both pictures): C. G. Carron, Grand Rapids Furniture 1998

# THE ONES LEFT BEHIND ADAPT



Grand Rapids is  
adapting - moving  
into contract...



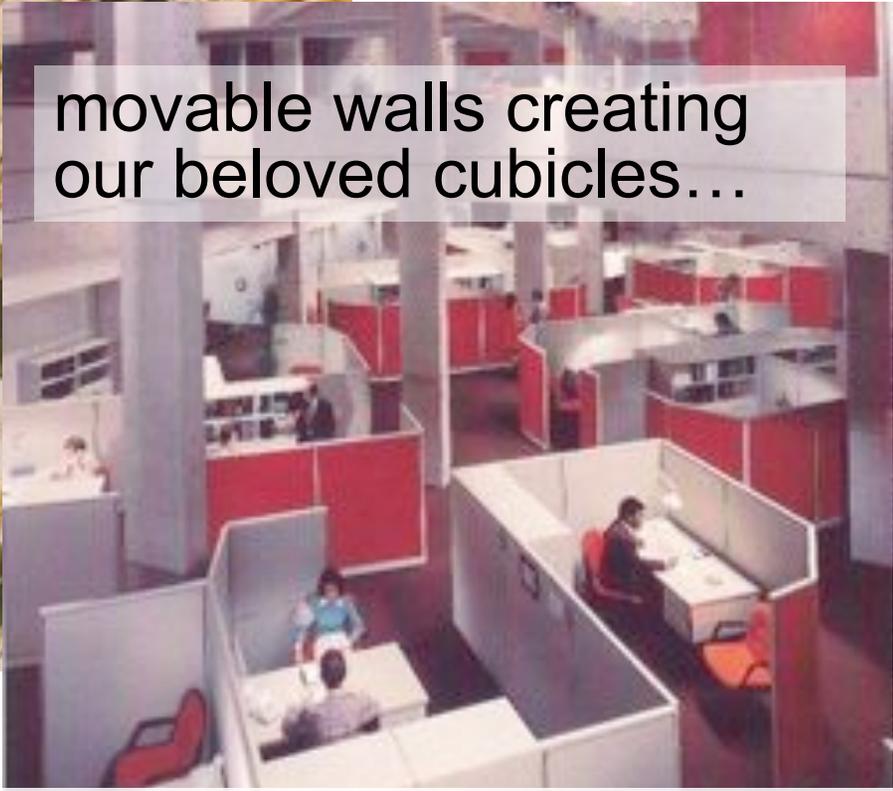
and office furniture...

source (both pictures): C. G. Carron, Grand Rapids Furniture 1998

# INNOVATE



innovations keep coming - color choices...



movable walls creating our beloved cubicles...

source (both pictures): C. G. Carron, Grand Rapids Furniture 1998

# REINVEST PROFITS

allowing the industry to make profits...

and to keep plants and employees up-to date and competitive...



# OFFER MASS CUSTOMIZATION

starting with basic modules...



...allowing customers to  
configure and accessorize their  
products



source: <http://v2.steelcase.com/>

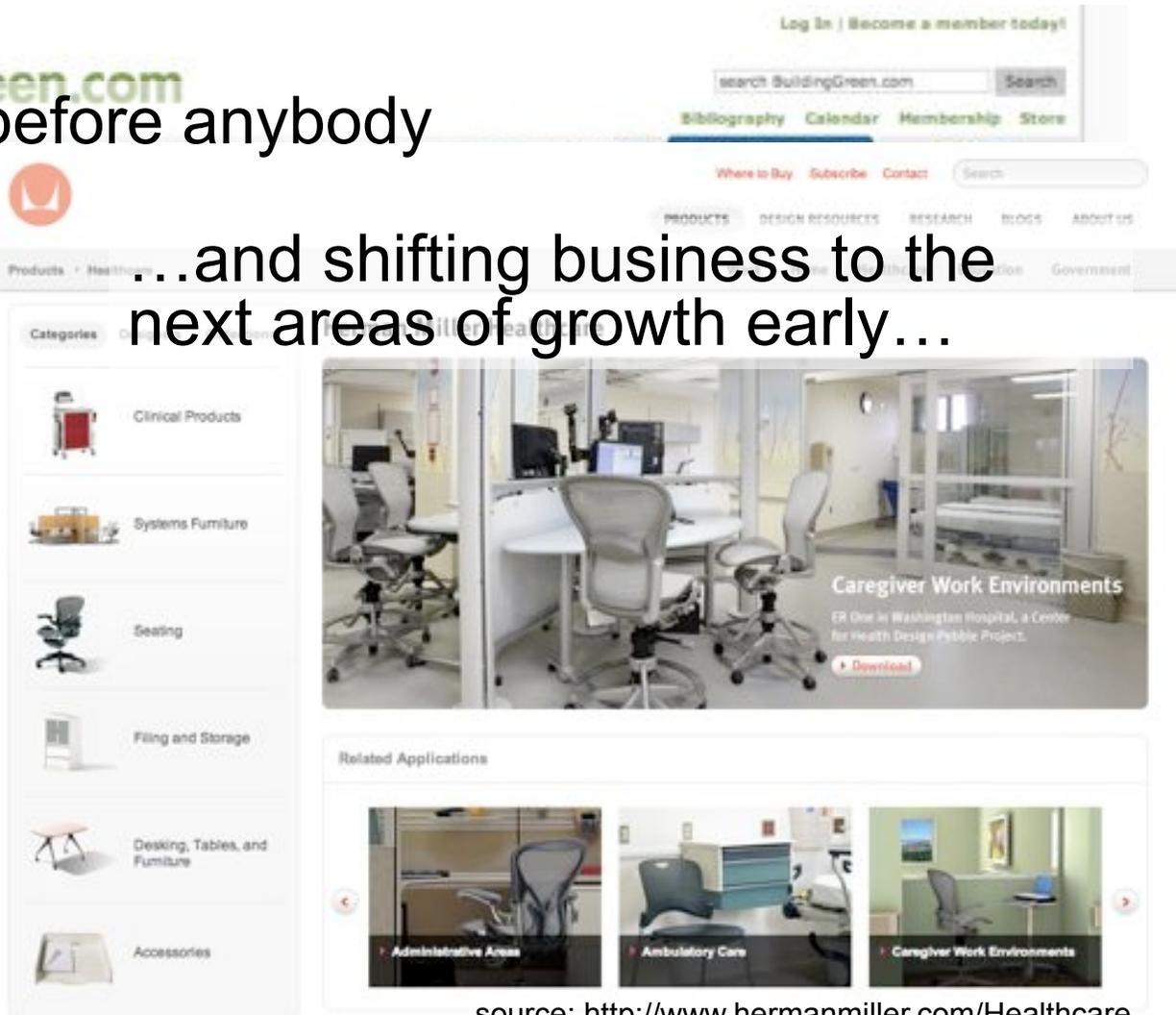
source: <http://v2.steelcase.com/>

# ... AND INNOVATE AGAIN!

going green before anybody else...



source: <http://www.buildingg>



...and shifting business to the next areas of growth early...

source: <http://www.hermanmiller.com/Healthcare>

# MC REVISITED

# Definition of MC

Mass Customization is the “*fulfillment of customized orders at an industrial scale with competitive prices and competitive lead times.*”

- ... customized orders
- ... industrial scale
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# Challenges

Implementation of MC is challenging

- Make-to-order (MTO)
- Small batch sizes
- Supply chain management
- IT
- Marketing
- Customer interaction
- ...

# Our Spring workshop will...

- show examples of successful MC
- offer a more detailed discussion of MC
- show a market study on the potential of using MC for improved market success
- address challenges of implementing MC
- have experts on hand for discussions
- allow for networking with peers!
  
- Collin and Steve know more...

# SUMMARY

# COMPETITIVE ADVANTAGE

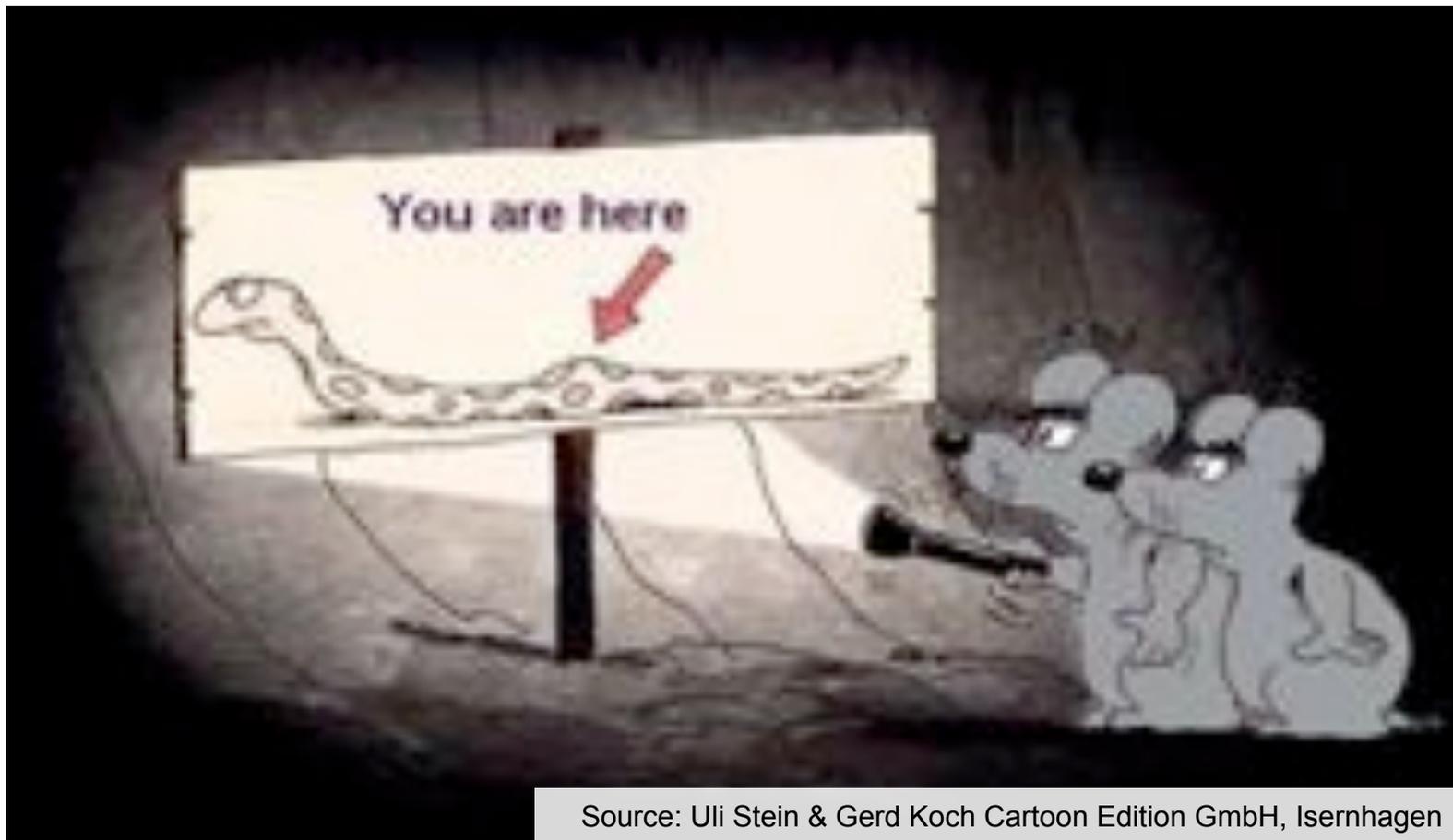
- The only two **SUSTAINABLE** competitive advantages in a time of global competition are:

**CLOSENESS TO CUSTOMERS**  
**and**  
**INNOVATION**

# COMPETITIVE ADVANTAGE

Firms in the US need to leverage their main competitive advantage of **being close to customers** through **innovations** in product customization, faster delivery, convenient return and repair policies, and offer services in all other areas where customers expect value!

# THANK YOU!



Source: Uli Stein & Gerd Koch Cartoon Edition GmbH, Isernhagen

# Questions-Discussion