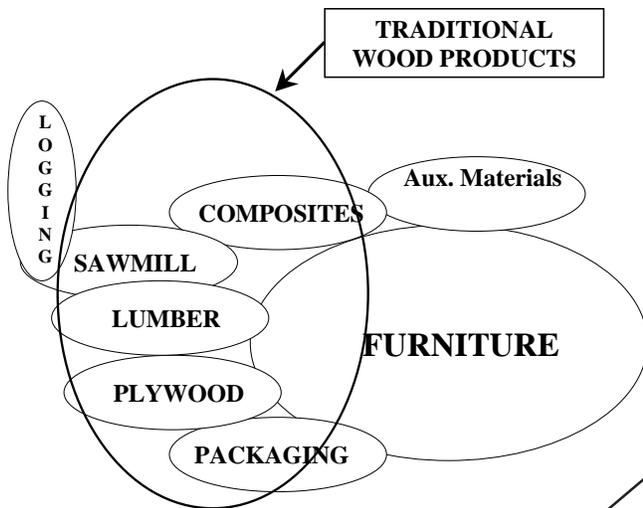




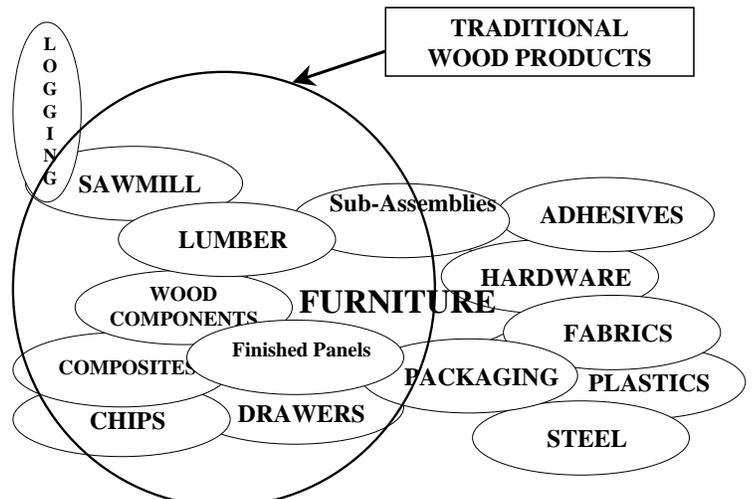
# Identifying Future Competitive Business Strategies for the U.S. Residential Wood Furniture Industry: Benchmarking and Paradigm Shifts

Albert Schuler  
Urs Buehlmann

## Yesterday – “One shop does it all”



## Today and Tomorrow – “Strategic supplier alliances”



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## Abstract

During the past decade, the residential wood furniture industry has lost approximately one-third of its market share to imports. The problem is spreading to other wood-based industries such as kitchen cabinets, upholstered furniture, and wood office furniture. In this article, we discuss benchmarking activities undertaken to provide a basis for comparing the U.S. wood furniture industry with other nations that have a globally competitive furniture manufacturing industry. The second part of this paper discusses strategies to help the U.S. furniture industry survive and thrive in a global business environment. The challenge is to identify our competitive advantages and to mitigate our weaknesses. We make a case for a paradigm shift in the business of designing, manufacturing, marketing, and distributing wood furniture, as it is perhaps the most promising vehicle for our industry to sustain a prosperous U.S. manufacturing base into the future. Furthermore, we need a change in business models - (a paradigm shift) - to avoid cost-based competition with low-cost producers such as those located in Asia and South America.

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## Introduction

During the past decade, the wood household furniture industry has lost approximately one third of its market share to imports. The problem is spreading to other wood-based industries, such as kitchen cabinets, upholstered furniture, and wood office furniture. In this publication, we discuss benchmarking activities undertaken to provide a basis for comparing the United States wood furniture industry with the best in the world. The objective is to quantify the gap that must be bridged if our industry is to become globally competitive and survive. David Kearns, CEO, Xerox Corp. (Acord 2000) defined benchmarking as “the continuous process of measuring products, services and practices against the toughest competitors or those recognized as industry leaders.” Terry Acord (2000) says we benchmark for two reasons: to gauge where we stand against key competitors, or to learn about (and implement) successful ideas from the best companies.

We collected quantitative data to facilitate a comparison of manufacturing costs<sup>1</sup> of U.S. producers with their major competitors (Fig. 1). We also investigated important trends that will affect our ability to compete in the future. Demographic trends suggest worsening problems with the skilled labor supply here in the United States, while globalization has created many lower cost competitors with access to cheap labor and abundant raw materials. For example, China is now the dominant furniture exporter to the United States, accounting for one-third of U.S. imports, up from zero a decade ago (Fig. 2). When we look further into the future, it appears things may get worse. Russia, for example, may become a major player in furniture markets as they reorganize their forestry sector to focus on value-added opportunities for the country, which also holds the world’s largest standing softwood inventory (Clark 2002). Ultimately, we may find that becoming cost competitive is either impossible, or it is not enough. Nonquantitative factors, such as managerial ability,

<sup>1</sup>Costs for all manufacturing industries are used as a proxy for furniture manufacturing costs because more years of data were available and the trends are the same. The relative position of each country is exactly the same with the United States the highest cost and Mexico the lowest with both series. Finally, the cost data for all manufacturing is more accessible and it is updated annually by the U.S. Department of Labor (2002) whereas the furniture cost data is updated only periodically.

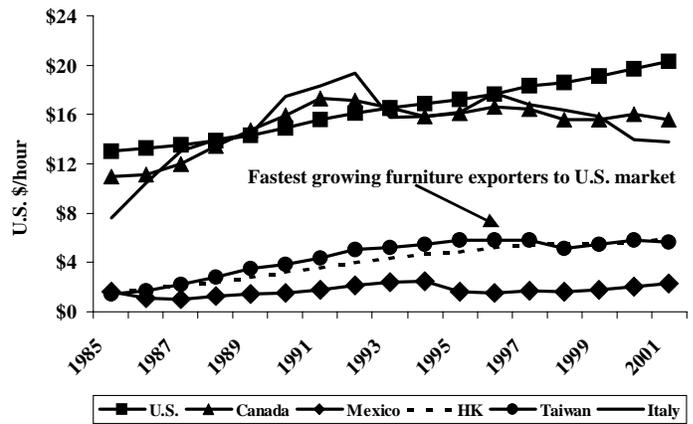


Figure 1.—Hourly compensation for production workers in manufacturing in the United States and other countries. Compensation is measured in U.S. dollars, and includes direct pay plus labor taxes.

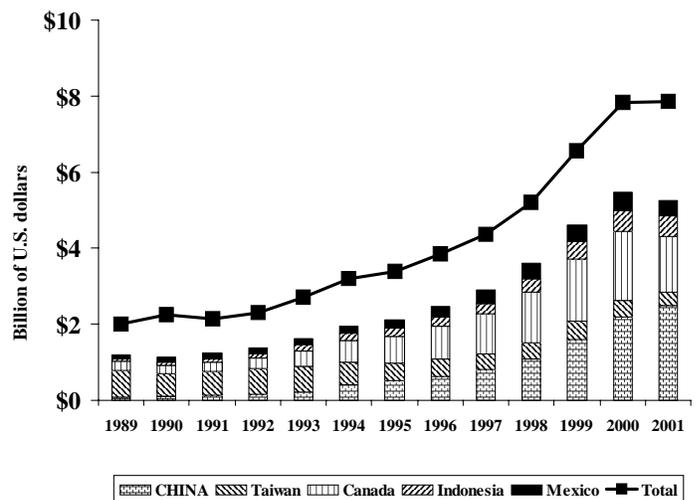


Figure 2.—Sources of wood household furniture imports (U.S. Department of Commerce 2002a).

entrepreneurial spirit, or employing a more appropriate “business model”, may be more important to becoming globally competitive. For example, the existence of “centers of excellence” — a group of interrelated industries, government and private organizations/institutions, research institutes and universities, equipment manufacturers, and consultants that reinforce/support the core industry — is now being recognized as a key competitive factor in establishing and maintaining global competitive position in a number of industries, including automobile manufacturing, food processing, pharmaceutical manufacturing, and many others (Porter 1998, Braden et al. 1998).

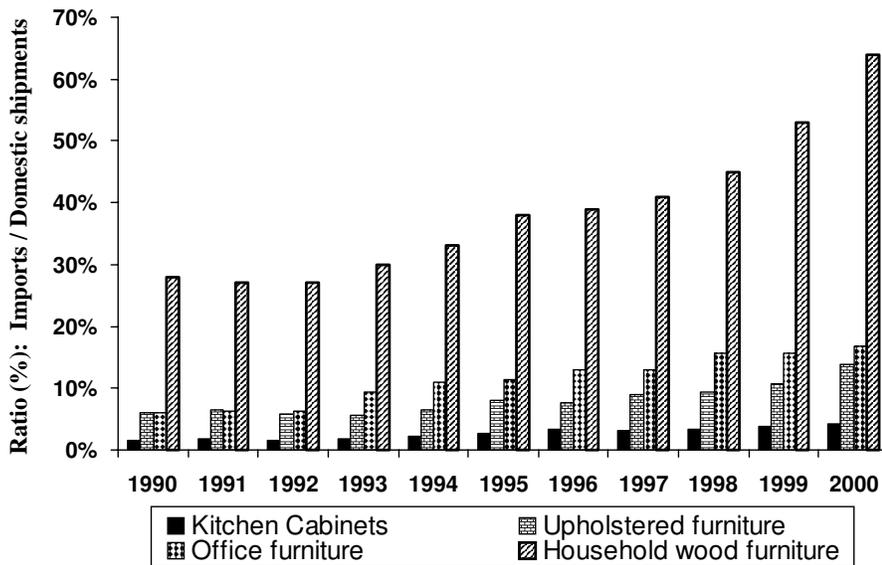


Figure 3.—The ratio of imports to domestic manufactured furniture. The trend shows that domestic furniture manufacturers are losing market share to imports (U.S. Department of Commerce 2002a).

The second part of this publication discusses strategies that we think have the potential to help the U.S. furniture industry survive and thrive in a global business environment. The challenge is to correctly identify our competitive advantages and to mitigate our weaknesses. We make a case for a paradigm shift in the business of designing, manufacturing, marketing, and distributing wooden furniture, as it is perhaps the most promising vehicle for our industry to sustain a prosperous U.S. manufacturing base into the future. We think there will be limited survival of standard, commodity-type producers in a high wage/benefit country like the United States. Furthermore, we need a change in business models — a paradigm shift — to avoid cost-based competition with low-cost producers such as those in Asia and South America.

Other issues influencing the strategic long-term competitive position are trends that are affecting the type of furniture demanded by consumers. One trend is the emergence of a customized economy and, parallel to that, trends toward mass customization (to serve this economy) in manufacturing industries like autos, food processing, electronics, and surprisingly, the residential construction industry (Perez 2002). We believe the U.S. manufacturers' ability to compete with Asian producers (and other regions) on a pure price basis is limited, and though Asian producers formerly targeted the low end and middle range (excluding bottom and top quartiles) of the domestic furniture spectrum, they are increasingly prepared to compete further up the price range. We think that U.S. companies must prepare for a shift from the old world of mass production where standardized products, homogeneous markets, and long product life and development cycles were the rule, to

the new business world where variety and customization of products and services become the norm. This trend is driving many manufacturing businesses, — including, we believe, furniture manufacturing — to seek improved efficiencies through componentization and supply-chain management systems to support efficient assembly processes. This is similar to the metamorphosis the U.S. auto industry began two decades ago. Furthermore, in the future customized economy, it is likely that unique goods and services will be built to order as opposed to the current dominant model of build/warehouse/sell. For instance, Dell Computers has become a market leader by exercising the build-to-order capability and differentiating itself from other players in the crowded field of personal computer manufacturing.

## Benchmarking

During the past decade, the residential wood household furniture industry has seen its trade deficit (difference between exports and imports) grow from less than \$2 billion in 1990 to \$7 billion in 2001 (U.S. Department of Commerce 2002a). There are three reasons why domestic furniture manufacturers — including wood office furniture, upholstered, residential wood household furniture, and even kitchen cabinets — are losing market share to imports (Fig. 3) and why these trends escalated in the 1990s and continue into the new decade (Bullard and West 2002):

- Globalization forces - global economic integration - has effectively exposed industries that may have been profitable/competitive on a national basis, but when bared to the new rules of global competition (free

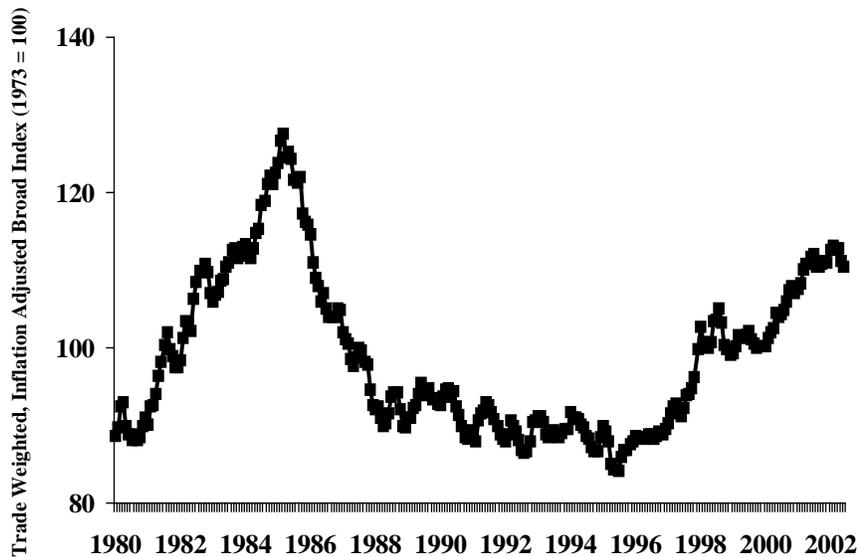


Figure 4.—Inflation-adjusted value of U.S. dollar, currently at a 16-year high (Federal Reserve Board 2002).

trade or trade liberalization), latent weaknesses were made apparent.

- Containerized shipping technology greatly reduced transcontinental shipping costs (including breakage).
- The U.S. economy has out performed the rest of the world's economies for the past 5-7 years thus making the U.S. a magnet for foreign products. The U.S. dollar (real value, inflation adjusted, market exchange rate basis) is currently at a 16 year high, up almost 30 percent since 1996 (Fig. 4). Furthermore, when we compare the market exchange rate with its purchasing power parity value (what you can buy in the United States with a dollar compared with what you can purchase in Canada with a Canadian dollar for example), the U.S. dollar is overvalued by about 25 percent (Federal Reserve Board 2002). This imposes a defacto tariff of 25 percent on U.S. exports while giving foreign suppliers an advantage in U.S. markets.

In the past decade, the source of U.S. imports has shifted dramatically in response to currency realignments, China's entrance into the World Trade Organization, and changes in the relative standard of living of Asian countries. For example, Taiwan used to be a major exporter to the U.S. market, however, as its standard of living rose, so did its labor costs, and this weakened the country's competitive advantage. In an effort to increase its standard of living and find jobs for the 17 million annually in search of jobs (10 million from state factories that have been shut down, and an additional 7 million new entrants to the workforce), China has targeted labor-intensive industries (like

furniture) offering a potential to export while taking advantage of cheap labor (Zhengzhou 2002). In addition, Malaysia and Indonesia have increased relative market share because their cost positions, relative to Taiwan, have improved.

Conversely, Canada's increase in market share is due in some degree to currency realignment and it also has invested more heavily in its industry. Another potential difference is that Canada's industry is made up of much smaller companies, most of which are not publicly traded. This means the companies are not under constant shareholder pressure to perform as some of their American counterparts are. Thus, Canadian companies are better able to invest strategically. Mexico also has labor cost and currency advantages.

As shown in Figure 1, the United States is at a real disadvantage regarding wage rates in manufacturing. In fact, closing that gap is almost impossible because cost saving technology is globally available so whatever we do, our competitors have access to the same technology. Things are not going to improve on the labor front, either. Sixty percent of the labor force is between the ages of 35 and 64 while only 38 percent are 16 to 34 years old. We will have labor supply shortages for at least another decade, according to demographic projections from the Census Bureau (U.S. Department of Commerce 2000).

Cutting costs and improving productivity sometimes aren't enough (Fig. 5). The domestic millwork industry has problems similar to ones faced by the U.S. furniture industry – cheap imports and a strong dollar (Schuler et. al. 2001). The millwork industry invested heavily in

capital improvements to enhance productivity and it paid off with industry employment doubling in the past decade (additionally, sales also increased significantly). However, the textile industry did the same thing - improved productivity 50 percent via capital improvements and other cost-cutting measures, yet the industry has lost 50 percent of their employees (net job loss of about 125,000) in the past 3 years, as over 4 million square feet of production capacity has been shuttered.<sup>2</sup>

### Nonquantitative factors

In addition to quantitative factors discussed above, there are a number of nonquantitative factors that impact competitive position. An increasingly important factor is the existence of centers of excellence or industry clusters, which are strategic partnerships between manufacturers and their raw material and component suppliers, equipment manufacturers, customers, and supporting institutions to foster/create the development of a value-added wood products culture surrounding the furniture industry. These clusters have enabled the European furniture industry to remain competitive despite some of the highest labor costs in the world. Another example of the importance of clusters is found in the auto assembly industry in Alabama where Hyundai recently announced plans to build a \$1 billion factory (Kiley 2002). Hyundai chose Alabama primarily because Mercedes-Benz and Honda have plants in the state, which means that a network of suppliers that are used to meeting high standards is already located there.

### Opportunities and related trends

Favorable demographics, immigration, and an aging housing stock will combine to create the need for approximately 1.8 million housing units per year (conventional plus mobile homes) throughout the remainder of this decade (National Association of Homebuilders 2002). Furthermore, single family homes will be larger than ever, averaging 2,300 square feet in floor area in 2001, which is double the average house size of 1950. Additionally, house size is projected to increase another 10 percent by the end of the decade (National Association of Homebuilders 2002). Also, 75 to 80 percent of new conventional residential units will

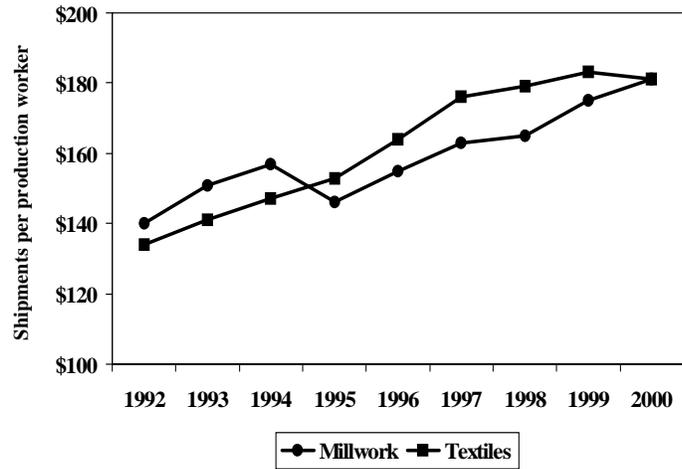


Figure 5.—Value of shipments per production worker in two U.S. industries. Graph shows that both millwork and textile industries improved productivity significantly in the 1990s ( U.S. Department of Commerce 2002b).

be single-family homes compared with 55 percent in the 1950s and 60s. Remodeling activity will be very strong, too, because 30 percent of the 120 million standing units are at least 30 years old (Joint Center for Housing Studies of Harvard University 1999). Additionally, 35-54 year olds, who spend the most on remodeling, have grown by 17 million since 1990 and will reach 83 million strong by 2005. Therefore, demand for furniture will be very high, driven by projected record remodeling demand and the demand for new housing. The challenge will be: How can domestic manufacturers stay competitive and share in the good times?

Figure 6 shows consumer expenditure by age and indicates when peak spending occurs for furniture, custom homes, vacation homes, and retirement homes (Dent 1999). Furthermore, there are approximately 80 million people between the ages 38 to 55 (born between 1947 and 1964), most of whom are now in their peak earning and spending years (Fig. 7). Consumer tastes for the baby-boomer generation were always different from the rest of society, as they had no aspiration to be middle class (Dent 1999). In fact, the middle class was perceived as the starting point for many of them. Baby boomers aspire to be unique in every way. But, until recently, it did not matter because they did not have the purchasing power to fulfill these aspirations. The 1990s economy, among other things, changed that; baby boomers now have the financial means to make it happen, and can demand a “customized economy” (Fig. 8) with unique vacation packages, unique transportation, unique homes, and,

<sup>2</sup>Raymond, A.G. 2002. Import explosion in our furniture, cabinet, and component universe. Presentation at Wood Component Manufacturers Association 73<sup>rd</sup> annual meeting, San Antonio, TX. Text of presentation available at: [www.raymondnet.com](http://www.raymondnet.com).

even unique furniture (Dent 1999). Our definitions and examples of these two economies are given below:

**Customized economy:** Characterized by biotechnology, telecommunications, microprocessors, custom homes, Dell's personalized computers, unique vacation packages, differentiated cell phones, Starbucks coffee, IKEA custom designed furniture, BMWs, SUVs, \$2000 washer/dryers, etc.

**Standardized economy:** Characterized by Levittown housing development following WWII, IBM desktop computers, K-cars, Chevy and Ford sedans, supermarket coffee, Wal-Mart furniture, etc.

What are the implications of a customized economy for furniture demand? The largest and most influential group in the U.S. society remains the baby boomers. They know and demand quality/value, and now they can afford it. The U.S. furniture industry has to figure out how to reach this customer. They will not buy substantial quantities of commodity furniture, no matter how cheap it is. Hence, we believe that there is an opportunity for supplying unique, quality furniture to a large, affluent segment of the population. Can the U.S. furniture industry do it? Yes, but they have to change the way they manufacture, distribute, and market furniture products, i.e., a paradigm shift is needed.

## Future Strategies

Jack Welch, former CEO of General Electric, is quoted as saying that there are three options for a business that is not competitive: "fix it, sell it, or close it". Our previous benchmarking studies<sup>3,4</sup> characterize the furniture industry as follows: (1) the industry is no longer price competitive; (2) furniture is becoming a pure commodity product (but it need not be); (3) the retail chain is broken

<sup>3</sup>Buehlmann, Urs; Schuler, Al. 2002. **Current trends and future strategies for the U.S. furniture industry in the face of stiff competition.** Presentation at the NHLA 30<sup>th</sup> Annual Hardwood Symposium. 31 May, 2002. Falls Creek, TN.

<sup>4</sup>Schuler, Al; Buehlmann, Urs. 2002. **Benchmarking the furniture in industry: Can the U.S. be competitive in wood furniture manufacturing?** Presentation at the annual Meeting of Forest Products Society, 26 June, 2001. Baltimore, MD.

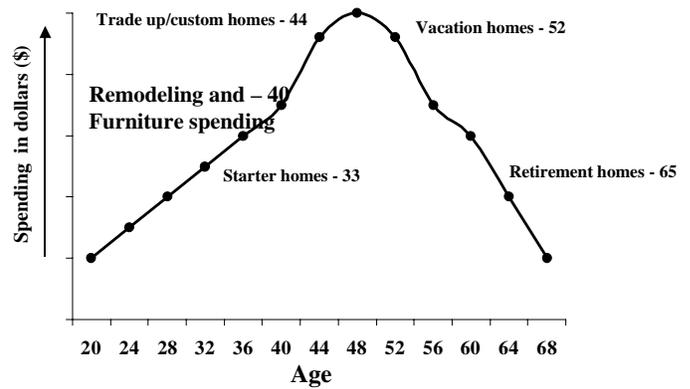


Figure 6.—Consumer expenditures by age for housing, remodeling, and furniture. Peak expenditures in various categories, and the average age at which the peak occurs, are noted.

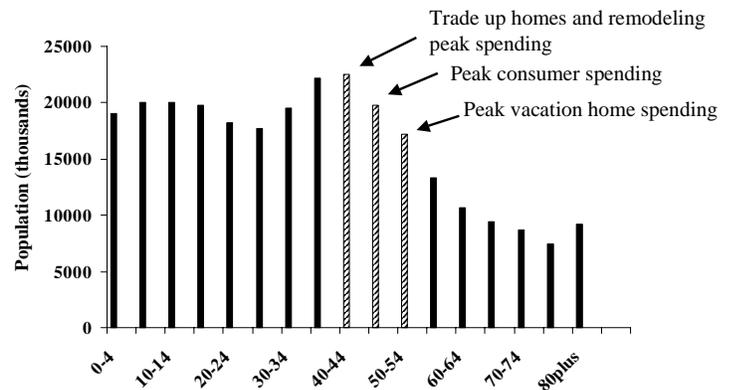


Figure 7.—U.S. demographic profile by 5-year age groups (U.S. Department of Commerce 2000).

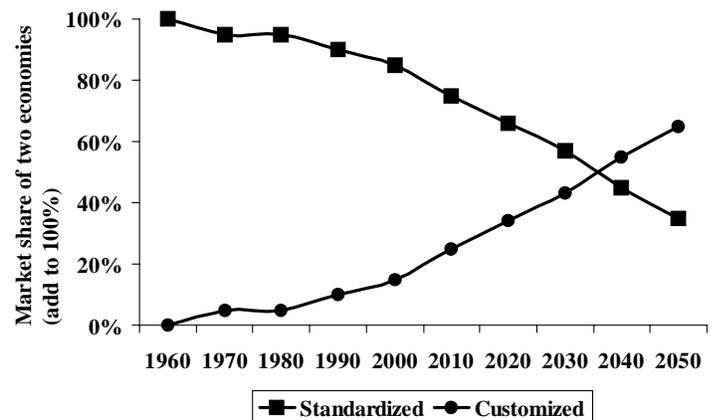


Figure 8.—Market share of standardized versus customized economies. See text for definitions.

and new distribution channels are evolving; and (4) there is and will continue to be a huge market for furniture in the United States. Our studies report that becoming cost competitive with our offshore competitors is highly unlikely, a view that is supported by Margaret Whelan, UBS AG Warburg's associate director of equity research (Thibodeaux 2001). Thus Hilsenrath and Wonocott's (2002) assertion that the industry must consolidate and become more productive will not be enough. The U.S. furniture industry needs strategic renewal in the form of a new and more appropriate business model — a paradigm shift — that will include: (1) a new business model – mass customization (moving away from the commodity business is central to this); (2) new manufacturing strategies - such as strategic supply chain alliances, global outsourcing, just in time (JIT), and lean manufacturing; (3) “reinventing furniture” - using design and construction to make furniture manufacturing a more modular product; (4) new sales channels – including internet sales; and (5) innovation.

Whereas no individual action will achieve success in isolation, Schultz (2002) correctly stated: “Foreign competitors enter our markets, not because their wages are low, but because there is an opportunity in the absence of differentiation”. Thus, if the U.S. furniture industry can differentiate its products to customer requirements and deliver them quickly while providing the expected service and quality, the opportunities for foreign imports can be reduced. Vaughan-Bassett uses “speed of delivery” as a major marketing tool by guaranteeing 10 and 17 day delivery to retail customers on the East and the West Coasts, respectively (Miller 2002).

Not only does such an approach lessen the opportunities of importers, but it also will allow domestic manufacturers to become more successful exporting their products globally. After all, the U.S. east coast is home of some of the world's most sought-after wood species for furniture. This, combined with the growing demand for better-quality, differentiated products worldwide, has to be seen as an opportunity by the domestic manufacturers. Why not export to our main competitor, China? Although China currently imports only about 1 percent of its domestic furniture demand (about \$100 million in 2000) (Badanelli 2002), the country's increasing wealth and the large number of potential customers should lead U.S. manufacturers to find ways to sell their product overseas. Exports to Europe, too, should be seriously considered, since in Europe, solid wood furniture is in high demand.

## **Reinventing furniture industries—what others do**

Other companies or industries have reinvented themselves. Starbucks changed the coffee drinking business by tapping into a latent demand for a premium coffee drinking experience. Harley Davidson reinvented itself by tapping into the growing demand by aging baby boomers for an alternative to the sports car/SUV fun transportation. We think furniture manufacturing in the future will gravitate toward an assembly type process where customized furniture is manufactured on demand similar to Dell's strategy with computers.

With Dell, the customer designs his/her computer on Dell's website by selecting chip speed, RAM, CD reader/writer, screen size, disk capacity, preinstalled software, weight, and so on. The computer is not manufactured until the customer designs, orders, and pays for it. Supply chain management techniques and electronic data interchange (electronic invoicing, purchasing, payment, etc.) ensure minimum parts/components inventory, minimum paperwork, and a minimum of work in process. There are numerous other examples. Auto assembly using JIT and supply-side management to mass-produce customized vehicles, has been a success story for the past two decades. A key to making this work and being profitable is the capability to use interchangeable components — modular or cell technology — to produce what appears to be customized or unique products to the customer. For example, the new 2002 Honda CRV, a sport utility vehicle, uses the same frame and wheelbase as the Honda Civic while the recently introduced Honda Pilot uses the same frame/wheelbase as the Honda Accord (Muller 2002). The Toyota Highlander, a luxury SUV, uses the same wheelbase and platform as the Toyota Camry automobile. For several years, both Ford and General Motors have been making frames for several of the models interchangeable, and the frames for the SUVs are interchangeable with many of the sedans, coupes, or pickup trucks. Yet, the customization available for cars today is only the beginning. The industry does invest heavily to make customization even more prevalent and encompassing. Rothschild (2002) describes efforts under way at BMW in South Carolina, where the goal is for customers to be able to call on a Monday, make significant custom requests for a vehicle, and the following Monday be able to pick up their car.

Foreign automakers are doing an even better job in “modularizing” the design and assembly of cars than the U.S. automakers. Honda, Toyota, and even BMW and Mercedes are developing almost brand new vehicles based on “platforms” whereby new, unique vehicles are

developed quickly — this is “flexible manufacturing” as it should be.

We are not proposing that the domestic furniture industry copy all fads of modern business management, however, we believe that many concepts from other industries, if implemented, would promote the survival of the domestic industry.

### **Business model**

A recent *Wall Street Journal* article highlighted an emerging strategy of large automakers, which is to source cars from low-cost plants in Third World countries to supply home markets (Zaun et al. 2002). Evidently, despite their large investments in domestic car production capacity, most automakers would love to benefit from the low production costs available in Third World countries. However, such offshore production plants will only be able to produce standard products due to long distances to the end market, or produce basic product modules that then can be customized in final assembly plants that are closer to the end markets. This is a reason why the domestic upholstered furniture industry is not confronted with the same glut of imports, as is the residential, non-upholstered, furniture industry. With upholstered furniture, customers often can choose their coverings from a wide range of possible colors and fabrics - thus producers can pre-fabricate the frame and the basic upholstery, however they must wait for the customer order to install the fabric. Currently, there is no method for such a customized order to be economically delivered from the offshore producing country to the United States in time to meet the customer's expectations.

In contrast, today's nonupholstered wooden residential furniture manufacturers and importers are not subject to this timing challenge. Standard furniture is ordered in large batches from these producers by importers and can have a lead time of several months before it is received in the import warehouse for final inspection and distribution. Sometimes customers have to wait several months for delivery (Collins 2002) when the importer's forecasts are erroneous. A business model is needed that leverages our strengths, and reduces the negative impact of our weaknesses. We have discussed our main weaknesses, which are labor and production costs, but we have strengths, too. Nearness to market is, in our view, our most important competitive advantage. If we can devise and implement new methods to speedily deliver unique, high quality products to our domestic customers, we will have a sustainable competitive advantage that offshore suppliers will not be able to overcome unless they install manufacturing

capacity in the United States. However, should they build domestic capacity, they will also incur the disadvantages that current domestic manufacturers have to overcome

The key to making mass customization economically viable for the U.S. furniture industry is to make many of the components or building blocks interchangeable. Two observations serve as the basis for our recommendation for a business model focusing on mass customization and speed of delivery. Furniture manufactured to the customer's specification cannot be economically shipped from offshore assembly plants and arrive within the month (except for rare instances in which air transport is possible). For products small and light enough to make for viable air transportation, other rules apply. For example, a large portion of customized notebook computers are produced and assembled in factories in Taiwan and China, whereas larger, more bulky desktop computers are assembled in factories in the United States using components imported from offshore producers. Furniture is not likely to be a candidate for air transportation anytime soon, thus requiring final assembly if not total production close to the market.

We think the combination of mass customization and speed of delivery is the starting point for the renewal of the U.S. household furniture industry. The Internet is not the solution for all communication needs between buyer and supplier, nor is it the solution for everybody who is looking to buy new furniture, but it does offer wide-ranging possibilities to enhance the buyer-seller relationship. We believe these possibilities are little used currently by the U.S. furniture manufacturers.

Adoptable solutions currently exist in Europe, where the problems faced by the U.S. industry have existed for a longer time. Among several European producers that use the concept of mass customization, Huelsta, a German producer of living room furniture, offers customers the opportunity to design their own modular furniture using free design software available online ([www.huelsta.de](http://www.huelsta.de)). The design is electronically forwarded to the company to receive a quote and a delivery date. After acceptance of the quote, the furniture is delivered to the customer's home in a few weeks. This system is very similar to Dell Computer Corporation's system where customers select system components and obtain pricing, delivery, and other information from the Internet.

To our knowledge, the closest implementation of this concept by an American residential furniture company is Stanley Furniture's design page ([www.stanley.com](http://www.stanley.com)). However, this design page only allows the customer to

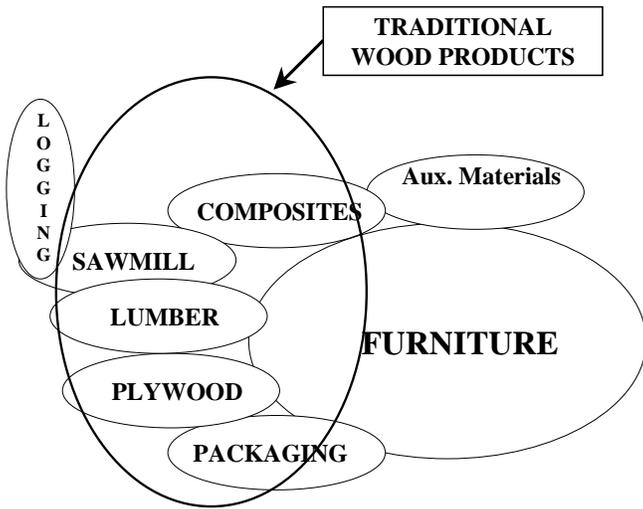


Figure 9A.—Furniture industry of the past.

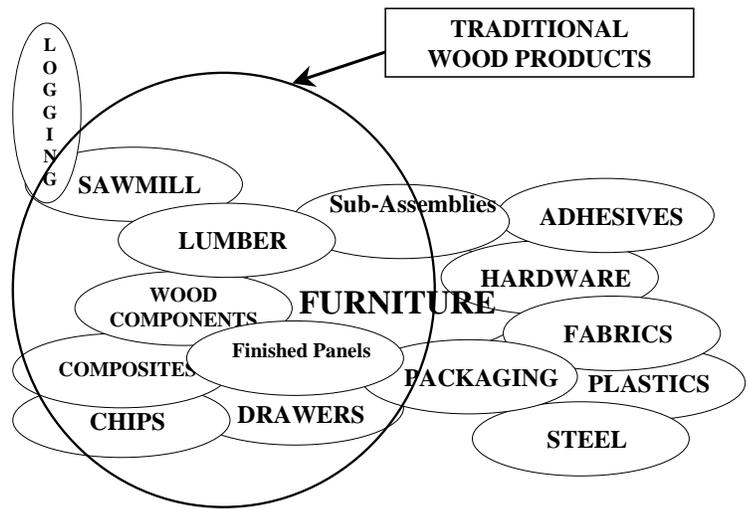


Figure 9B.—Furniture industry of today and the future.

select predefined pieces of furniture and to arrange them in a floor plan, very much like obtaining the information from a catalog. Customization and fast, reliable delivery in the United States is not outside the industry's possibilities, as proven by the office furniture industry. Herman Miller, Inc., for example, delivers its customizable Simple, Quick, Affordable (SQA) product line in fewer than 10 days. SQA performance metrics are more than 99 percent on-time deliveries and average time from order to shipment is less than 5 days.

### Manufacturing

Manufacturing needs to become an integral part of the business model. In fact, changes in manufacturing rightly belong in the section "Changes in Business Model", but due to its importance, it is treated separately.

There is a lack of sufficient reinvestment in residential household furniture manufacturing plants.<sup>2,3,4</sup> These plants were built and equipped early in the second half of the 20<sup>th</sup> century and little has changed since. No wonder such plants have closed since the necessary investment after decades of neglect simply cannot be justified. Outdated equipment and infrastructure often are correlated with outdated modes of operation – large batches, high set-up times, low interchangeability of parts due to inaccurate processing (custom fitting), and similar symptoms of neglect. An outdated operation does not only imply problems with the actual manufacturing processes, but also often indicates outdated procurement, design, distribution, and sales methods. Outsourcing components is hard to justify

when it means entire sections of plants would have to be idled and workers laid off. Standardization of components, modular design, or the use of subassembled parts is difficult to implement when proprietary designs are produced on custom-made equipment that needs to be amortized. However, for many situations, outsourcing of standard components is the better alternative. Yardeni's<sup>5</sup> opinion that "outsourcing is the modern day equivalent of the division of labor, which is one of the main sources of productivity gains" is shared by most management experts. Thus, the industry has to accept that the times of "one shop does it all" are over.

Figure 9A presents a furniture industry model of the past, manufacturing many of their own components in their own rough mills, drying/seasoning the components/sub components, assembling them into furniture, finishing, and finally, marketing and distribution. The industry needs to change from the "one plant does it all" model to one of strategic supplier alliances to allow each entity to focus on its core competencies, as depicted in Figure 9B. For such a model to work, the entire wood products industry, from the forest to the retailers, has to be strengthened.

### Supply chains need to be developed

Highly successful companies, such as Dell Computer Corporation or Honda Automotive, are involved in all

<sup>5</sup>Yardeni, Edward. 2001. Ten big themes for 2001 and beyond. Unpublished paper. Deutsche Bank Alex Brown.

<b>Basic Beginnings</b>	<b>II Moderate Development</b>	<b>III Limited Integration</b>	<b>IV Fully Integrated Supply Chains</b>
Quality/cost teams	Ad hoc supplier alliances	Global sourcing	Global supply chains
Longer term contracts	Cross functional sourcing teams	Supplier TQM development	Cross enterprise decision making
Volume leveraging	Supply base optimization	Total cost of ownership	Full service suppliers
Supply base consolidation	International sourcing	Non traditional purchase focus	Early sourcing
Supplier quality focus	Cross location sourcing teams	Parts/service standardization	Insourcing/outsourcing to maximize core competencies
		Early supplier involvement	
		Dock to stock pull systems	

Figure 10.—Stages of supply chain evolution.

steps of manufacturing their products, yet they do little manufacturing on their own. In fact, Honda purchases 80 percent of the total costs of its car from outside suppliers (Monczka et al. 2002) and Dell outsources all of its manufacturing activities except assembly (and for notebooks, not even assembly is done at Dell) to original equipment manufacturers that specialize in certain activities (e.g., core competencies). The manufacturer becomes a “system integrator”, ensuring that all parts of the value supply chain are available in the quality required, and on time. Such supply chains are possible for furniture, yet still are not very common. Probably, the wood products industry, with some notable exceptions such as the office furniture or the kitchen cabinet industries, is still in the beginning or early stage of supply chain development, as presented in Figure 10.<sup>6</sup>

### Successful clusters in the furniture industry

For strategic supply chain alliances to work, centers of excellence (e.g., clusters of industries related to the same product) (Porter 1998) are key in establishing and

maintaining a global competitive position. Two European examples illustrate this point. In Northern Italy, a tight cluster (12 by 18 miles) of chair manufacturing-related businesses produce 30 percent of the world’s annual wooden chair production.<sup>7</sup> About 65 percent of Denmark’s export-oriented furniture industry is concentrated within a 50-mile radius around Jylland (Anonymous 2001), which is recognized as another highly successful cluster. The Danish furniture cluster includes a concentration of furniture companies surrounded by furniture research institutes, related wood-working industries, such as edge-glued panel producers, MDF, and particleboard manufacturers, and the transportation infrastructure. Each reinforces the other, with the whole being stronger than the sum of its individual parts. In such clusters, supply chains are well developed, the latest and best technology is adopted, JIT is the norm with minimal component inventories, and competition is fierce. Industries can thrive in such environments, proven by the successes of the chair industry in northern Italy or the furniture cluster in Denmark.

<sup>6</sup>Handfield, R. 2002. **Supply chain management**. From class lecture, BUS 573, College of Business Management, North Carolina State University, Raleigh, N.C.

<sup>7</sup>Gardino, Paolo. 2001. Furniture industry clusters in Italy. Presentation on file at Dott. Paolo Gardino consulting company, Rome, Italy.



Figure 11.—Case-finishing (left) versus component flat-line finishing (right).

In the United States, the North Carolina furniture industry has traditionally encompassed many elements of a manufacturing cluster (Porter 1998). Yet, with the loss of ever more manufacturing capacity, the U.S. residential furniture industry is in danger of losing this competitive advantage. Reasons for the demise of the North Carolina cluster include the lack of adaptation to new business models, insufficient re-investment in plant and people, and competitors with advantages hard to match in the United States.<sup>3</sup> Once gone, it is very unlikely that such a cluster would re-emerge without substantial help from outside the industry. Thus, maintaining and enhancing “our” furniture cluster is very much in the interest of all individual companies and the industry, and only can be achieved through cooperation of companies, industries, associations, and governmental, educational, and research institutions.

### Reinventing furniture

The American furniture style is different from styles in other parts of the world. Whereas the origins of American furniture are found in Europe, today Europe lives with a different type of furniture. North America has preserved much of the past style and constructive details of their furniture, while the European furniture industry searched for new manufacturing and design solutions that addressed their manufacturing environment. In Europe, high labor costs and expensive social benefits, combined with high production costs, stringent regulations, and raw material constraints, forced the industry to introduce furniture constructions and designs that utilize large quantities of low-grade material and are easy to manufacture in an automated plant to save labor costs. For example, since European

furniture parts are surface finished prior to assembly, automation of the finishing process is less of a problem than it is for typical American furniture, where finishing is applied after assembly (Buehlmann and Schleusener 2002). Figure 11 contrasts the two methods, which obviously require differing amounts of human labor.

The high input that is typical of American furniture manufacturing, (i.e., which is not restricted to finishing) can be observed throughout the process. Low-cost offshore furniture producers are capitalizing on the labor-intensive structure of our industry in their efforts to gain a bigger share of the U.S. market.

What we are suggesting is a careful re-evaluation of the current design and construction of typical American furniture. The question is: How can U.S. manufacturers produce the product demanded by the customers as efficiently (i.e., with as little input as possible) and how can they standardize and modularize the piece(s) to allow for more efficient production methods?

### Restructure distribution systems

Distribution of furniture is under extreme pressure to change. In recent years, furniture retailers have consistently suffered financial losses and more than 5 percent of the existing U.S. furniture retail capacity is insolvent or shrinking.<sup>8</sup>

<sup>8</sup>Raymond, Art. 2001. **The furniture and cabinet universe – challenges facing the furniture industry.** A.G. Raymond & Co. Presentation at the 3M Advisory Board meeting, September. High Point, NC. Text of presentation available at: [www.raymondnet.com](http://www.raymondnet.com).

Consolidation is strong and distribution channels are changing at a fast pace. In 1999, 48 percent of all residential furniture was sold through conventional furniture retailers. Heilig-Meyers, the Richmond, VA-based retailer, which is now operating under Chapter 11, was the largest retailer having sales in excess of \$1.6 billion. However, specialty stores like Office Depot or Staples, and mass merchants like Wal-Mart or Kmart, have increased their share of the market in the past few years (Fig. 12).

The furniture retail chain also is undergoing fast and far-reaching change. The industry uses the retail chain to maintain greater control over distribution through branded, company-owned retail stores and with innovative branding tactics such as, Vaughan-Basset's Elvis Presley collection (Miller 2002). Despite the almost complete disappearance of Internet-based furniture retailing, which never was a significant retail channel, the Internet offers tremendous opportunities for interacting with potential customers, be that with the customers at home or in-store using an Internet portal. In our view, Bakos (2001) correctly denoted the opportunities and threats of the Internet in regard to commerce by stating: "It may seem clear that lower search and information costs should push markets toward a greater degree of price competition, and this outcome is certainly plausible, especially for homogenous goods. On the other hand, on-line retailers can use Internet technology to provide differentiated products, and thus avoid competing purely on price... Customization of conventional goods becomes especially possible when retail e-commerce is combined with modern production techniques that allow building-to-order."

Bakos also points out the importance of delivery time, by stating "even in markets for physical goods, markets increasingly value quick, just-in-time deliveries from manufacturers to final customer to reduce costs and time-to-delivery." The Internet offers the U.S. furniture industry a tool among others for survival if companies accept and embrace the change it will bring to the industry. The Internet era will see the demise of traditional business practices and eliminates companies that adhere to them for too long. However, it offers opportunities aplenty for open-minded, dynamic competitors.

### Innovation

The U.S. furniture industry isn't recognized as being very innovative. Compared to other industries, it brings an astounding number of slightly different styles to the furniture market in High Point, NC every year. But

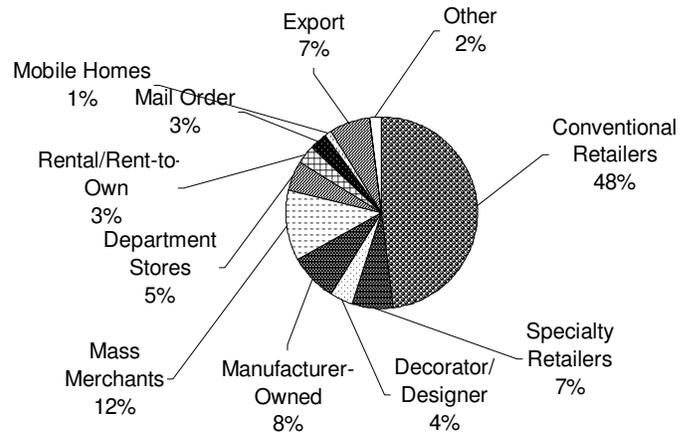


Figure 12.—Household furniture distribution channels in 1999. (Raymond 2001, see footnote 8.)

besides trying to hit on customer preferences slightly better with this year's new style, little is achieved. Frequently, the old lines are kept in the product mix, leading to an enormous number of different products that a typical furniture plant needs to manufacture. Since different lines have minimal or no common interchangeable parts, batch sizes become smaller, warehouses grow larger, and productivity and profits suffers.

Innovation that helps customers fulfill their needs also helps a company achieve competitive advantages. However, too often we forget that the physical good is not all that defines the customer's buying experience, but it is "... the total package of benefits the customer receives when he buys" (Corey 1975). That is why Levitt (1980) claims "there is no such thing as a commodity" since all products are differentiable. An area where furniture retailers (and manufacturers) try to be innovative is in pricing and payment terms. However, the way this is done reinforces the public's perception that furniture is a true commodity product that competes purely on price. Offers of 50 percent discounts, no interest, no payments for a number of years, etc., do not convey the message that furniture is what makes the home unique and special.

In contrast, let us consider computers, another product that is often perceived as a commodity, to highlight an alternative marketing strategy. Let's look at the flow of money when you buy a computer from Dell. You either pay with credit card, in which case Dell gets your money instantaneously, or you accept the non-negotiable payment terms over whatever duration you

opt for. If you pay by credit card, Dell has the money available within hours, however, Dell only pays the suppliers of the components after 90 or more days. Thus, Dell obtains free cash for at least 89 days at no interest (Chase et al. 1998)!

We feel that furniture is an important part of our life experience, thus offering tremendous opportunities for differentiation. Can we imagine offering services beyond just delivering furniture to the front door of the buyer? Could it be possible that buyers want someone maintaining their furniture, making sure that the doors work all the time, that surface scratches are taken care of, or that professionals help pack and then set-up the furniture in the new home after a move? As Snel (2002) states, “it’s about selling the services that keep the consumer tied into your brand...”. Car manufacturers are focusing heavily on this concept. Bringing the Internet and global positioning systems to cars is so important for car companies because they see it as a way of capturing a recurring revenue stream and keeping customers loyal (Snel 2002).

Innovation, combined with the industry’s proximity to the U.S. market (the only sustainable competitive advantage at hand), presents key opportunities to be explored for the future. What is needed is a departure from the commodity mentality that has dominated the industry for decades. We propose comprehensive market research to obtain direction for innovative solutions and to obtain information for reinventing furniture and remake distribution. We are convinced that these advantages – proximity to market and innovation - offer ample opportunities for future exploration.

### **The European experience**

The U.S. furniture industry has to metamorphose itself if it is to remain globally competitive. Europe offers relevant concepts since the two continents have similarities. Western Europe has high labor and production costs and is competing in a business environment where there is an abundance of cheap labor in the nearby east-central region of Europe, open borders (free-trade), and growing regulations in the western parts of the continent. Labor costs in Eastern Europe are about 10 to 18 percent of typical Western Europe.<sup>9</sup> Such a large cost differential attracts

considerable attention from investors into labor-intensive manufacturing capacity, such as furniture. However, thanks to the highly automated, low-labor production systems employed in western Europe and due to widespread customization of orders, no exodus of western manufacturers to the east is happening.

Labor intensive products, such as certain upholstered furniture or traditional furniture, are being manufactured in Eastern Europe. However, most entrepreneurs shy away from dealing with the rather poorly trained labor in the East, where there is insufficient infrastructure and support (e.g., the absence of clusters). Thus, whereas the European furniture industry has its own problems to deal with, the threat from imports seems to be less severe than that which the United States is experiencing. In fact, several European countries have positive furniture trade balances, among them Italy and Denmark. These countries seem to maintain the domestic industry, while the United States today imports more than one third of the furniture it consumes and this rate is ever increasing.

Another interesting observation can be made in terms of per-capita spending for furniture. In Europe, new home construction and sales of existing homes are only a fraction of what they are here in the United States. European home sizes are significantly smaller than the typical U.S. home. Another difference is that European furniture, as are European homes, is purchased “for life”. Yet, countries such as Germany (above \$400 per capita/year), Austria (about \$390 per capita/year), and Luxembourg (\$350 per capita/year) have higher per-capita spending on furniture than the United States (about \$320 per capita/year) (Haas 2001). Such comparisons indicate the potential for the U.S. industry to grow their markets in the future, especially given the fact that in the U.S. houses are larger and ownership of second homes is more widespread.

### **Path to the Future**

The path to the future for the U.S. furniture industry must be based on the only sustainable competitive advantage we have – proximity to market. This, combined with innovative and novel ideas in all aspects of the furniture industry – design, supply chain, manufacturing, distribution, service, and customer relations (e.g., the total product concept) – presents the opportunity for the industry to take advantage of the positive market outlook for furniture sales for future decades.

No one questions the wide range of problems facing the wood products industry, especially the residential

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<sup>9</sup>Personal communication with Dieter Haas, Obersulm, Germany. April 29, 2002.  
email address: [dieter-karl.hass@t-online.de](mailto:dieter-karl.hass@t-online.de).

furniture industry. Paths to the future have to include all the stakeholders, including companies, industry associations, governmental agencies, as well as educational and research institutions. We envision a multi-path approach, where specific problems are analyzed and solved while taking advantage of opportunities as they materialize. In particular, we suggest that the following four areas become the focus for the U.S. wood furniture and wood products industry in its strategic planning efforts:

- Business model
- Manufacturing
- Education
- Public policy

Much work needs to be conducted on the details of these wide-ranging multi-institutional efforts. Some topics of relevance for the individual areas are outlined below, but are not, nor can they ever be, complete.

### **Business model**

How can the industry work together to take advantage of the fact that we are close to the retail market and the source of the most important raw material – wood – for making furniture? Which product designs and marketing efforts can help the industry move away from the commodity market into a customized and individualized possession - a personal statement that conveys values and tastes to the onlooker? How does the industry take best advantage of the opportunities available by adopting modern technologies, with communication technology being just one example of many? If we consider the opportunities and problems inherent in new, evolving technologies, the entire domestic wood products industry chain will ultimately benefit.

### **Manufacturing**

Manufacturing has to be an integral part of the business model. Fundamental questions regarding the manufacture of furniture should be answered in future strategic summits. Questions include, but are not limited to, “What types of furniture can be produced competitively in the United States?”, “What market segments should we focus our marketing efforts on?”, and “What needs to be done to create/enlarge these segments?” Remember the Starbucks and Harley-Davidson models. In fact, a wide range of furniture seems to have a good chance to be manufactured domestically well in the foreseeable future. Examples are low-cost Ready to Assemble (RTA) furniture (since such products do not have a high labor content) to custom-

made pieces for individual consumers (e.g., mass customized furniture). Conducting reverse engineering and costing on products that currently are flooding our markets would allow a better understanding of offshore producer’s practices and weaknesses, presenting the opportunity to focus on points where the domestic producer can do a better job. For many industry executives, the question of capital investment is important. How can industry executives allocate considerable sums of money for technology with no guarantee that it will produce a positive return? Analyzing and discussing successes and failures within the industry will enable executives to make better-informed decisions that allow them to fulfill their ultimate objective – enhanced profitability.

A big part of the manufacturing renaissance has to be mass customization — using interchangeable, modular components that will facilitate the efficient production of higher margin, unique furniture products aimed at key demographic parts of our society. A key concept needed to support this renaissance is the need to nurture “centers of excellence”.

### **Education**

All efforts will be in vain if the industry is not able to attract, educate, and retain young individuals who believe that they have a viable future in the industry. Institutions of all types offering education for woodworkers and managers around the country can confirm the difficulties in attracting students to wood and furniture programs. But this is only one side of the battle. The challenge is to convince smart, motivated students to enroll in an industry with a reputation for stodginess, low pay, and few chances for advancement. Also needed are better opportunities for life-long learning for the individuals already in the industry. This applies especially for hands-on, applied education (e.g., ideas or methods that can be used immediately in their positions). Above all, we have to instill an openness to change in these people so the industry can become perceptive of new opportunities even though it means abandoning existing practices.

### **Public policy**

Governmental support cannot keep the industry alive for an extended period of time. Nor would it be good for the industry to live in a “safe haven,” since this would only lead it to completely lose its competitive edge with global producers. Only through fair, open trade can the industry measure its capabilities globally, and strive to become better. However, government at all levels can play important roles by setting policy - tax,

environmental, educational, and other – with a knowledge of the peculiar situation that the industry faces. Centers of excellence, in which education is an essential part, benefit from active and supportive government policy. For example, BMW in its quest to establish an automotive center of excellence in South Carolina, lately made the largest private cash donation ever to Clemson University (Rothschild 2002). South Carolina, showing good public policy, matched the amount given by BMW.

The furniture industry, including the wood products industry, is in a difficult competitive position. Most of the problems are of our own making. Either the industry questions and changes its ways of doing things or it will continue to lose business to more nimble offshore competitors. Helmut Leube, President of BMW Manufacturing Corp., put it very succinctly: “We need the ability to anticipate change and the ability to benefit from change” (Rothschild 2002).

Let us hope that the domestic furniture industry does not experience the fate of the automakers, that after having captured market share through imports, overseas producers began setting up shop here. It is time to prove what is possible: a profitable domestic furniture manufacturing industry.

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Schuler, Albert; Buehlmann, Urs. 2003. **Identifying future competitive business strategies for the U.S. furniture industry: Benchmarking and paradigm shifts.** Gen. Tech. Rep. NE-304. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 15 p.

This paper describes benchmarking activities undertaken to provide a basis for comparing the U.S. wood furniture industry with other nations that have a globally competitive furniture manufacturing industry. The second part of this paper outlines and discusses strategies that have the potential to help the U.S. furniture industry survive and thrive in a global business environment. A case is made for a paradigm shift in the business of designing, manufacturing, marketing, and distributing wooden furniture, as it is perhaps the most promising vehicle for our industry to sustain a prosperous U.S. manufacturing base into the future. Furthermore, a change in business models – a paradigm shift – is proposed to avoid cost-based competition with low-cost producers such as those located in Asia and South America.

**Keywords:** benchmarking, paradigm shift, furniture industry, market share, competitive position, demographics, flexible manufacturing





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