

# **White Paper on Reviving the US Furniture Industry**

*How can you view things from outside the box  
if you have been inside it all your life?*

*This white paper will lead your thinking to  
places where you have never been before!*

**Dare to Dream Dare to Do**

**TO COMPETE WITH FURNITURE IMPORTS  
AS AN INDUSTRY**

by  
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**September 28, 2004**

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*This booklet is dedicated to my wife, **Christina Lei**, for her 32 years unconditional help, support and sacrifice to accommodate me for pursuing my dream. Without her being a partner, I would not have dared to give up a comfortable academia's lifestyle to seek for the real-world experience as an entrepreneur.*

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# SUMMARY

Although there has been a lot of talk about the negative impacts on the US furniture industry by the imports from China, little has been done by the industry as a whole to remedy the situation. This white paper suggests to the business owners, industry executives and the academic community how they can view the current globalization effects from different angles in order to make critical decisions for their future directions.

As the author points out, the only way that the US furniture industry can ever revive itself is to undertake some unprecedented measure, such as crafting an industry-wide strategy to prevail the just-in-time (JIT) manufacturing practice throughout the furniture industry.

To craft a well-thought-out industry-wide strategy, the white paper also suggests that the best approach is through a collaboration of industry professionals and academics. Henceforth, a consortium of professionals and academics should be formed to design the contents as well as the action plan for this industry-wide strategy.

The center piece of this industry-wide strategy calls for establishing a production facility, which is operated by a newly formed organization, for the purpose of demonstrating the process of adopting JIT operation in planning, plant layout, equipment setup, personnel training and manufacturing, etc.

Although having the public endeavor in mind, this new organization needs to be incorporated as an independent and self-sufficient “for-profit” entity. It will solicit OEM business from major furniture or kitchen cabinet companies and will keep growing as a business. In other words, this new entity has to be a leader in JIT manufacturing for others to follow.

The white paper is used as a tool to reflect the author’s insight as an educator, a researcher and an entrepreneur who has in-depth knowledge about the woodworking industry in Asia as well as the United States. However, insight alone doesn’t solve problems, insight followed by action does.

Therefore, the spirit of this white paper is to challenge all sectors of the US woodworking community to treat this “industry-wide-strategy” concept as a focal point to debate, to dream and to take action.

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# **Dare to Dream, Dare to Do**

## **TO COMPETE WITH FURNITURE IMPORTS**

### **AS AN INDUSTRY**

As reported on one prime-time TV news before Christmas of 2003, a hand-made shoe factory in New-England area awarded its workers with an annual bonus of \$1,000 each, plus \$1,000 per year of longevity worked. A married couple both working for the company received a total bonus of \$27,000.

Before the management of this shoe company made the announcement to the gathered workers, some even thought that the plant's closure would be announced. What are the implications of all these?

The story tells us that even some US manufacturers in a very labor-intensive industry, such as shoe making, in which imports already have 90% of the US market, can still compete, survive, and be profitable, if they are doing something right.

On the other hand, can these companies keep the last 10% of the US shoe market? If not, will this particular company still be one of the last standing companies?

The reality is that in today's swiftly changing business environment due to the globalization, the management of this shoe company can't be certain about the fate of their company's future, so their workers still won't know what to expect next time when they are gathered by the management for announcement.

To think further, as a member of the US wood furniture industry, while we still have 50% of the US market share, what do we expect next? Can we really just bury our heads working hard as usual and wishing we could be the last one standing? Or we should make damn sure we are doing something drastically different from the shoe industry, so that we do not follow their downward trend of continuing to lose market share.

## **OUR VULNERABILITY AND MERITS**

All woodworking industry including furniture (\$22 billion shipment), kitchen cabinets (\$12 billion), architectural millworks (\$2.5 billion), floorings (\$2.5 billion), etc. has its labor-intensive segments in their manufacturing. However, some products are more vulnerable than the others to the price competition from the third-world countries.

The difference in the vulnerability is mainly due to the levels of customerization in the products a retail store can offer, and the after-sale services required for the products.

For an example, after a customer pays a deposit for a wooden dining set she likes, what matters to her is how soon she can get the furniture. In other words, there is little customerization on the furniture and after-sale service involved.

When shopping for an upholstery sofa, on the other hand, after a style has been chosen, a customer can have hundreds of choices in fabrics offered by the stores; therefore, some customerization is involved in selling a sofa.

The extreme case of customerization in the mass-produced woodworking products has to be the factory-made kitchen cabinets. When purchasing kitchen cabinets, a customer has the choices in finishing, door styles, functions, hardware, etc. And the hundreds of combinations offered by the stores are backed by the manufacturers.

Another major difference between purchasing kitchen cabinets and buying furniture is need for after-sale-service. Installation of kitchen cabinets on the job site is a necessary after-sale service, for which the expertise is required. In addition, the speedy replacement of the damaged parts during shipping or installing is another after-sale-service feature necessary for the kitchen-cabinet manufacturers to provide.

Therefore, the reason should be apparent why the upholstery-furniture and kitchen-cabinet industries are under less pressure from offshore competitions than the solid-wood furniture industry at present time. But don't expect it to stay that way for too long. As long as the US remains the most lucrative market to the low-labor-cost third world countries, they will try aggressively to increase their sales here. Just what should we do?

## **PRECEDENTS IN OTHER INDUSTRIES**

Before plunging in deep to figure out a strategy to revive our furniture industry, we ought to examine the other traditional industries, such as shoe (\$38 billion), toy (\$20 billion), textile and apparel (\$120 billion), etc., to see any reviving strategy we can learn from them.

The US market shares of imported shoes and toys are 90% and 75%, respectively. With the quantitative restrictions on imported textile products by quotas from the US government for almost 30 years, the loss of US market share to imports still reaches 50%.

From these numbers in the market shares taken by imports, it is rather difficult to see whether there is any strategy in these industries maybe worthwhile for our furniture industry to learn.

Is there then any correlation between the capability of keeping market share by a domestic traditional industry and the academic supports the industry receives from universities that have related departments? There is no straight-forward answer to this question because there are many interwoven factors involved.

However, from the fact that no US university is known for its footwear or toy programs, comparing to 18 or more universities that have textile and apparel related departments to support or assist the US textile industry, I would like to think that these academic supports have some bearing to the market-share retention by their industry. (There are 8 universities that have forest-products related departments in the US).

Having academic supports or not, there will always be exceptional companies that could buckle the trend and do well to compete with the low-cost foreign producers. However, the reality is that a few exceptions just won't help the whole industry from being gradually eroded by imports or from fading away.

Therefore, instead of fighting alone as an individual company, it's time for us to think and strategize as a whole industry in order to combat with imports.

## **THINK RIGHT TO DO RIGHT**

If we want to attempt any breakthrough strategy as an industry, we need to start with viewing issues from different angles. The following conceptual factors are worthwhile reviewing.

### **What Is Fair?**

In the US woodworking industry, when time is good, we might have a hard time finding "reliable" American workers even paying \$10 an hour without providing health insurance. Their counterparts in China or Vietnam, however, are happy waiting in the line to get a \$0.50 or \$0.20 per-hour job, respectively. These low-cost and eager-to-work human resources can translate into many advantages in furniture manufacturing, such as low costs in indirect personnel, raw material waste and quality inspection, etc.

Some suggest that we can reduce our labor costs by automating more of our production processes to compete. The problem is that in China or Vietnam, they are more aggressive in building new factories with better automation than we are.

Therefore, we need to accept the notion or the reality that there is no standard for fair competition or an even playing field as long as the globalization stays, and standards of

living are different between countries or regions.

If we wish to rely on the government to bail us out in combating with the imports, then we are no longer resourceful businessmen in this globalization era and need to think about bowing out while we still can.

Why? Because we, as business owners or CEOs, have to believe in some direction or strategy so that we can make win-or-lose, do-or-die decisions to keep us going. However, once we leave our company's fate in the hands of bureaucrats and politicians, which are definitely not reliable, then we will be losing our direction and the control of our company's destiny.

Therefore, the proactive mindset we should have is to figure out an industry-wide strategy together in order to deal with this long-term problem in combating with imports. If we can reach a consensus about this direction, then we can keep working on it until we see results.

## **Is Protecting Jobs the Main Goal for Businesses?**

Certainly any good company owes its success to its employees and should be liable to protect their employees' livelihoods. In other words, protecting jobs should be both a business issue and a moral or conscience issue for any employers.

However, it doesn't matter how much we want to be politically correct. The reality is that companies are in business to make money, not to create jobs, let alone protecting jobs. Thus, when AT&T announced to lay off another 8,000 jobs early this year (2004) on top of the 14,000 layoffs last year, their stocks shot up right away for that day.

The causes for a business to run into hard times, besides the competition from imports, could also be an economic downturn, a misjudgment of the market, or complacency of the management. To reduce the loss, business might choose to close facilities or lay off workers as an easier way out. But blaming the loss all on imports without being inquisitive about the management's own deficiency only blurs the real picture about what we must do for the long-term good.

The problem is that some employers are just like some employees. Both might become complacent when things are all right. Especially if the businesses are used to cyclic or seasonal economic changes, they tend to ignore the warning signs on structural changes that are not familiar to them, such as globalization. When competitions are getting steadily worse from imports, some businesses might have a hard time dealing with the situation or even surviving. In other words, the employers can't even protect their own jobs, let alone protect their employees'.

Under certain extraordinary situations, domestic manufacturers could use some help from the government, such as imposing quotas or punitive tariffs on imports. Surely we will take whatever we can get from the government to relieve the pressure on our business. However, we must also know clearly while some of us are not ready for globalization, others are embracing globalization and taking advantage of it. For instance, the top ten companies exporting from China are all US companies.

Even in furniture, imports could never be prevalent without the help of American professionals, American companies and American consumers. After all, business is about making money. When we get in the way of other companies making money, we then incur a fight among American companies.

Petitioning the Federal Government for imposing high tariffs on imports to protect American jobs by some can be used as a tactic, especially in the election year, but by no means can it be the backbone for a long-term strategy to revive our furniture industry or to protect jobs.

## **Who Needs Help?**

In woodworking or any business, the owners or CEOs are all pretty proud and independent minded. They, especially small business owners, tend to resolve all problems on their own without resorting to outside help.

However, when the market situation caused by the globalization gets worse, many business owners don't really know how to deal with this unprecedented problem. Although they may not mind getting some outside advice, they don't really know where to get it or how to apply it. Especially some of the advice may be too intangible to be practical. For example, "Develop a vision of what you want your company to be and where you want to go".

The reality of the situation is businesses without enough knowledge and information on offshore competitors or any experience to compete with super-low-cost offshore producers may have trouble distinguishing their visions from illusions or day dreams.

Woodworking manufacturers usually stick to what they feel comfortable doing and then expand from there. What woodworking folks feel comfortable about are wood material, machinery, and domestic competitions. When wood folks are ready to solve problems or to expand, it's natural for them just to think how to use better or more automated machinery to increase the production speed, improve the product quality, reduce the material waste, and save labor cost, etc.

However, when competing with low-priced (10% to 40% lower) imports, a domestic producer relying on hardware alone simply won't survive. By reviewing the auction flyers on the closed woodworking factories in recent years, it is obvious that the state-of-art equipment these companies had apparently couldn't keep them from closing their factories.

To compete in this era of globalization, every traditional business should search beyond its conventional domain for solutions to its problems. The place to start is admitting to ourselves that we all could use some outside help in knowledge as well as in information. If most of the US woodworking companies believe that we could use the knowledge of an industry-wide strategy to compete with imports, it is more likely that a strategy of this sort could be created. Then executing this strategy will become a convincing direction for individual companies to follow.

## **Can Woodworkers Be Cultivated for the Industry?**

Some in the woodworking community are concerned about where we will find the next generation woodworkers. The implication of the concern is that if not many high-school students are interested in learning woodworking then the skilled workforce will not be available in the future for the woodworking industry. Just how serious should this concern be?

To answer this question, first we need to understand that only the general knowledge or principles of doing things can be learned in school. The real skills, on the other hand, can only be obtained through on-job experiences due to training and practicing.

Furthermore, even if some technical schools offer good woodworking programs, it is simply unrealistic to expect that high school students can be motivated to learn woodworking skills just to look forward to working in a factory for the rest of their lives.

Therefore, the issue is not about the number of students enrolled in the woodworking programs or the worthiness of any training programs. The issue is whether these programs are cost-effective to achieve their designated goals.

Nowadays the skills needed in the woodworking industry are mostly related to using computerized or automated machinery. When a company is purchasing such machinery, however, the operating training always comes with the purchase.

If a company buys used machinery, then the dilemma would be between sending out their own employees to receive training or finding the skilled workers from outside. The former choice is usually better than the latter in the long run.

On the other hand, the employers in the woodworking industry have to be realistic about the labor market. Before we can find and keep good help and offer an affordable package in pay rate and benefits, we need to start by making ourselves more attractive as an employer by up keeping a good working environment, establishing a teamwork company culture, and demonstrating good growth potential, etc., although all of these are easier said than done.

After being a good employer already in the woodworking industry, the best wish we could have is to encounter some job seekers who have good work ethics or attitude. If they come with some solid high-school education, we will then be really lucky.

In conclusion, the availability of future skilled workers should be a lesser concern to the woodworking industry than the lack of reliable and quality workforce in general.

The way to resolve this long-term problem is to reengineer our manufacturing process to achieve a higher profit margin so that a higher wage rate is affordable. Most importantly, we need to better the image of our woodworking industry; thus, we will automatically attract a new generation of woodworkers to join and stay in the industry.

## **How Can We Bridge the Gap between Theory & Practice?**

Theoretically, academics offer the best no-cost outside source for which a business can get advice. Why? It is because academics have the analytical discipline to sort variables and see the big picture. They can also develop theoretical concepts, business models, or generate right ideas to tackle problems in the big picture.

The right ideas are critical because only right ideas can lead to the correct actions and good results. If comparing the generation of an idea to the execution of the same idea, the generation consists only as a small part in time consumption. However, this small part is critical to eventual success. Just imagine how detrimental it could be if a company puts in a lot of time and resources to execute a strategy that is based on an unsound idea or wrong theory.

There are plenty of examples of unsound theories being practiced even in the furniture industry. One such example is the bankruptcy of a well-capitalized furniture dot-com company. At a bare minimum, this company didn't have a sound theory in dealing with the returns when customers didn't like what they ordered through the internet.

Another example is a strategy announced in 2003 by a major furniture company that they invested \$15 million more in inventory to support their speedy delivery program. The increased investment in inventory certainly could reduce the lead time to satisfy some purchase orders, but it is also against the concept and practice of the just-in-time

(JIT) manufacturing that has been proven to attain tremendous benefits in the past 30 years.

Apparently, to this reputable furniture company, it is an easier task to throw more inventory money as a solution than to restructure their production process to adopt the just-in-time manufacturing. But why are there so many obstacles preventing woodworking companies from reinventing themselves? It would be a good challenge for academics to analyze what is behind this phenomenon and to come up with some realistic ideas or suggestions.

Although I can't over-emphasize the importance of the role that could be played by academics, i.e. their objectivity and analytical ability to point out the right theory or idea, there is a major disconnect between academics and businesses even in the technical matters, let alone the management issues that have more uncontrollable variables involved.

First, in the technical aspect, I can use a simple example to illustrate the gap between sound theory and actual practice. In the lumber-drying training classes, students have been instructed for many decades by academics to use sample boards (end-coated 2-foot pieces) to monitor the moisture-content changes in the lumber stacks. However, attempting to pick the right sample boards and have enough of them to monitor moisture contents in different lumber packs in a yard or in kilns is not only impractical, but also could cause annoying disruptions on the lumber sticking and packing processes.

Therefore, an experienced kiln operator with a high-school or technical-school degree would just use a needle-type moisture meter or other means to effectively monitor the moisture changes in the lumber packs. However, the kiln operator might never bother providing feedback of his private practice to his former academic instructor who holds a masters or even doctorate degree.

Secondly, in regard to the much more complicated management matters, the lack of communication between academics and industry is even more prominent. What is the main cause? Some academics might have the passion and the willingness to put time and effort into thinking, talking, and writing about new ideas and giving suggestions to the industry, but they seldom link their thoughts to the practicality of executing their suggestions. What is the end result? These suggestions are usually too abstract or too superficial to gain any weight in business owners' or executives' mind.

For an example, some suggest that because the US furniture makers are not producing what customers want, we are losing out to cheaper imports. My own retailing experience tells me that most consumers would like to have a Mercedes Benz, but are only willing or can afford to pay for a Kia.

So the truth of the matter is that I don't know of any business that will not try their best to attract customers. However, whether they have the know-how or capability to achieve certain goals is another matter.

Also, there are academics in the forest-products field that may have close contacts or even have work experiences in the industry like I had before I became an entrepreneur. Nevertheless, those kinds of exposure are not nearly enough to prepare the academics to have all the perspectives in how the major business decisions are made and the impacts of these decisions on the profit-and-loss or life-and-death of the business.

Case in point, from the big picture, some academics suggest the following strategies for the US furniture to move forward: (1) Understand your competitors. (2) Determine your competitive advantage. (3) Develop a competitive cost and marketing strategy. Others suggest that companies should develop strategies to enhance competitiveness at the factory level, at the enterprise level, and at the policy level, etc. These are all good points because these principles always apply in all business situations and in all times. However, how can any company take this advice and run with it?

In other words, a disconnect between businesses and academics exist mainly because academics are not operational minded and not motivated to pursue closing the gap between theory and reality. Businesses, on the other hand, always under the constraint of limited time, money and talent, will be turned off by any suggestions from academics that are not realistic for them to relate or to execute.

If academics do not put extra effort in listening and gaining insights about how businesses operate, or speak only in abstract terms on issues, they will have a hard time getting the ear of business owners or executives. Thus, no real communication or joint research projects that are mutually beneficial can occur.

If academics are not operational minded enough to provide the pin-point research needed by the woodworking industry, is it feasible then for business folks to give advice on what research subjects academics can do to help the industry? This question is not an easy one to answer because businesses do not consider their own problems a public research subject. If business has a pressing problem, they want to resolve it right away, even imperfectly, due to the time and financial constraints.

Therefore, in theory, academics could be a no-cost source to businesses for information or help; nevertheless, unlike a paid consultant, they are not accountable enough for a business to really rely on them seriously.

If there is any way we can pool the resources together between the business and academic sectors, we have to start with a specific goal, such as crafting an industry-wide strategy, for academics and business to work together. In other words, in order to

achieve the specific goal, the areas that require academics' analytical and research ability should be identified first, and then the prospective academics can be requested to join in to work with the industry task force.

## **How Can We Attract New Blood?**

Human resource and its quality are definitely the determining factor of making or breaking a business, an organization, or even an industry for that matter.

I often hear small business owners complain, "People don't like to work any more". In a way, there is some truth to this statement because there are some jobs most Americans just don't care to take or keep, such as lumber pullers at the green chain in sawmills.

On the other hand, small business owners are seldom inquisitive about why good workers would want work for and stay with them, or what they have to offer to their employees in the long run.

By the same token, when we wonder why there is a low-level of interest for college students to enroll in the woodworking or forest-products programs, even it means good job prospects after graduation; we also need to be inquisitive about what the wood industry has to offer as compared with other trades.

From the students' viewpoint, there are at least three main reasons why the wood industry is not particularly attractive to them. First, the wood industry is usually perceived as antiquated and lack-luster. Few students like to picture themselves working in a dusty and noisy factory environment after four years in college.

Second, the technical aspect of the forest-products curriculums are usually designed to be pretty close to those of the engineering programs. Therefore, there is little incentive for students to go through many demanding science and engineering courses, but end-up with a little known wood degree.

And third, few faculty members in forest-products department may have hands-on management experience in the industry. Therefore, they don't really have enough insight about the industry to glorify its challenge, fun, and opportunity and to enthusiastically motivate students to develop their own passions toward the wood trade.

Due to the lack of interest in pursuing higher education in forest products by high school students in general, the end result is the closures of forest products departments in some universities such as Michigan State University and University of California at Berkley, and the downsizing of forest-products programs at some others. The over-all

student enrollment in the forest- products programs in all forestry colleges continues to diminish.

Is there any possibility this trend can be reversed? It is not likely unless we can change the image of how the outside world perceives the woodworking or forest-products industry. If we can execute a worthwhile industry-wide strategy and highly publicize it, we can then have a good start toward projecting a positive image of our industry.

## **How Can We Become Young Again?**

If we ask the question, “What will the US furniture industry be like in 10 to 20 years?” The answer is obvious. The industry will lose another 10 to 20 percent market share to imports which amounts to a conservative projection of one-percent loss per year.

Why is the projection conservative? Detroit’s big three auto manufacturers have been losing 3 to 5 percent market share (now only having 56% of the US market) to foreign companies every year since 2001. Regardless, GM and Ford each invested around \$7 billion annually in research and development in recent years compared with Toyota’s \$14 billion annual bill.

Since our wood industry hardly invests anything toward manufacturing innovations, just what can exempt us from following the same losing market-share path as Detroit’s big three manufacturers or even at a faster deteriorating rate?

While furniture making is a 100-year old traditional industry in the US, it is still a young and energetic industry in the third-world countries. The competition is just like a boxing match between young and old boxers. Although with less skill in the beginning but much more ambitious, the young boxers will keep after the old until they prevail. It doesn’t matter that old boxers have tried to keep up by using the state-of-art boxing gloves or not (similar to just adding modern machinery in old woodworking factories), the disadvantages of aging just can’t be easily waived.

Being an old industry already, just what can we do? In theory, the only long-term remedy to revive the US furniture industry is to become young again.

In theory or in practice, the only way to get a company or even an industry to become young again is to identify a new goal that is undisputedly worthwhile for companies or the whole industry to pursue.

Just how can we identify such a new goal? It is very apparent that in the long run we could have only one advantage in “manufacturing” over the offshore producers. That advantage is the short-lead-time attainable in putting customerized products in

customers' hands. In other words, if there is any way we can maximize this short-lead-time or speedy-manufacturing advantage, then we should pursue it no matter what it takes.

Luckily there has been such a well-known manufacturing system in existence called just-in-time (JIT) production system, which was created by Toyota Motor Company and has already been adopted by different industries for over 30 years. Presently, Toyota's most efficient plant is its new facility in Valenciennes, France. The plant can crank out one compact car every minute.

How can pursuing the practice of JIT make the industry young again? It is because JIT is entirely new to most woodworking companies and will give them hope, and because the result will be rewarding, thus, every company indulging in JIT practice will look forward to achieving even more improvement. When there is a clear goal for many companies in an industry to pursue diligently in order to assure them a better position to combat with imports, the industry will become young again.

Certainly it would be any company's dream to be in the position described above. But is it possible for us to ever get there? In other words, the million-dollar question is, "How do we get there?"

To contemplate a major undertaking such as adopting the JIT manufacturing, the decision maker of any business would want to know the answers to the following fundamental questions:

- 1) Where to get advice or help?
- 2) What are the basic qualifications or requirements?
- 3) Where and how to start?
- 4) How bad would it mess up the current production?
- 5) How long does it take to see the initial benefit?
- 6) What are all the costs? Because without being able to pass the initial investment stage financially, no benefit can ever be realized.

Unfortunately, in the woodworking trades, there are no standard answers or no answers at all to the above questions.

Why not? First, no woodworking or furniture company has the resources in research and development, nor the personnel to formally look into those answers. Second, to implement the JIT manufacturing is equivalent to a revolution. It seems such a long shot to get benefits that few CEOs would sacrifice the short-term comfort for the intangible long-term good. Thus, the immediate incentive is not there for the CEOs to search for the answers to the above questions.

Furthermore, maybe not many CEOs in major woodworking companies possess strong manufacturing backgrounds that lend them to search for long-term answers in overhauling their manufacturing system, especially while there is no particular talent or convincing voice inside their organization advocating doing so. That is why the productivity improvement in the furniture industry is only a meager 1.3% annually (compared to 30% plus in computer manufacturing) from 1997 to 2003.

Nevertheless, the US woodworking community will keep facing the same dilemma about whether we should and could put in unprecedented efforts for a proactive change in manufacturing. Or we just hope to maintain the status quo which really means losing a few percentages of market shares to imports every year.

Regrettably, this is the same dilemma we were talking about 10 years ago and will still be talking about it 10 years from now. However, soon or later, this dilemma won't be an issue any more because we will be just like the US toy, footwear, or consumer electronics industries, in which it is only natural to import whatever they sell in the US market.

If some of us in the woodworking community still believe that it is a worthwhile fight to keep a strong and revitalized production base here in the US, we need to move forward from just providing lip service and start taking action. The place to start is to advocate and participate in forming a consortium to craft and execute an industry-wide strategy to provide a blue print, which will facilitate individual companies to implement the just-in-time manufacturing operation in the US furniture and kitchen-cabinet industries.

Hopefully, the major furniture and cabinet companies will be the main driving force behind this industry-wide strategy, because they will have to be the immediate beneficiary. As the locomotive of the woodworking community, if these major companies can lead the way to support this industry-wide strategy, we just might become young and attractive (to new blood) again.

## **Who Should Take the Initiative?**

Assuming that the only possibility for the US woodworking industry to be revived would result from the close cooperation between the academics and the industry, which side needs to take the initiative to make this close cooperation happen?

My insight about business is as such, when things are good, business people tend to feel that they are doing everything right already and are on top of the world. To satisfy the demand of the market, naturally they need to incur more long and short-term debt to expand the facility, purchase equipment, increase inventory, and hire more people, etc. Under the circumstance, few of them would be in the mood to concern themselves with

preparing for possible future setbacks, such as an economic downturn or the competition from imports. In other words, business people don't listen very well when times are good.

How about when times become bad? Since business people in traditional industries are so used to seasonal changes or economic cycles, they are slow believers in trend or structural changes such as globalization. When they start to realize that the negative impact of globalization to their businesses is ever-increasing instead of seasonal, the unprepared businesses are not only short of ideas, but also short of time and money to implement any major remedy to deal with the situation.

In other words, it doesn't matter if times are good or bad, most business folks usually don't have the time to contemplate abstract subjects or concepts, such as an industry-wide strategy, which could be the specialty that academics are good at.

Academics, on the other hand, have their own baggage to carry as well. First of all, forest-product programs cover a very broad area from technological aspects such as wood identification, wood chemistry, drying, preservation, machining, etc. to non-technological aspects such as marketing, industrial engineering, manufacturing, etc. There are not enough academics in both the universities and the research stations (USDA Forest Service) to cover all the topics needed to be looked into.

Secondly, the performances of academics are evaluated mainly by the number of research papers they have published. Working in a lab to come up with research papers is certainly a whole lot easier than solving the real-world problem in an uncontrollable environment.

Thirdly, the sources of research funding for academics are derived mainly from the federal government. Some of the funding could come from the industry. Although getting federal research funding is very competitive, it is still relatively more attainable than getting funding from the industry. Therefore, there is little motivation for academics to approach the industry aggressively.

Judging from the above factors, which side should take the initiative to develop closer cooperation between academics and the woodworking industry?

Objectively, it is the academics that should take the initiative. Why? Because industry is actually the market for academics' products, i.e. the research papers they publish and the students they graduate. If the wood industry contracts further, the role of forest-product programs in colleges will be diminished even more. Therefore, it should be in academics' own interest to see a revived wood industry, especially if they can help to make it happen.

Furthermore, compared to the folks working for companies, academics can work more independently and are more likely to accept challenges without worrying about the risk of losing their jobs.

In other words, if academics take the initiative to contact the woodworking industry, they have nothing to lose but a lot to gain. On the other hand, if the woodworking companies could embrace the intrusion of academics to observe their operations willingly; then academics, with their analytical ability, usually could pin point problems objectively for the industry.

In order for academics and business executives to work together closely, they will need to be able to communicate. To explore the extent that academics and business executives can communicate in a free-flow forum, I put together a brain-storming conference entitled “Bridging Gaps and Pooling Resources” between some academics and wood-industry executives on November 18, 2003 at Scottsboro, Alabama.

Eleven participants (four business executives, six academics, and a trade-magazine editor) were invited to attend the full-day meeting. The only conclusion out of the meeting; however, was the admission by some academics about their disconnect to the industry.

From a practical perspective, this type of brainstorming session between academics and business executives is a good start for them to get acquainted, to communicate, and to develop opportunities to work together. However, such a session offers little return on investment in time and effort, if no action plan can come out of it in a timely fashion.

Therefore, in the following sections I will be proposing an industry-wide strategy in concept as well as in action plan for the woodworking community to discuss, debate, and hopefully to implement.

If this industry-wide strategy can ever be implemented, we will be on the way to reviving our woodworking industry in general and the furniture industry in particular.

## **DARE TO DREAM**

Before I propose an industry-wide strategy that can revive the US furniture industry, let’s analyze briefly how furniture or kitchen-cabinet companies operate, compete, and make a profit.

Beside financials, there are seven major aspects for furniture manufacturers to operate on in order to compete and make money. The aspects include design, manufacturing, marketing, distribution, sales, after-sale service, and outsourcing. In all these aspects

for a company to stay competitive or profitable, there are costs to be reduced or values to be added.

When domestic furniture makers sell their products in the US market, most of these companies are not really competing with Chinese producers directly; instead, they still mainly compete with American companies that bring in imports, such as from China. In other words, the domestic producers can readily see what their competition (who also import) is doing in design, marketing, distribution, sales and after-sale service in the US market; hence they can react to it.

What these domestic producers can't readily see or benchmark is how furniture is produced 10% to 40% cheaper in China (cheap labor is definitely not the only factor) or how aggressively Chinese producers can progress. Thus, it is very difficult for the uninformed domestic producers to compete with intangible opponents. The end result, they are surprised constantly by a diminished market share.

Since this white paper is about establishing an industry-wide strategy to compete with imported products, and not about competing between American companies, the concern here is only about manufacturing.

Utilizing import programs or not, any long-term oriented American furniture producers always know that they can't and won't totally give up their own production bases in the US. Henceforth, they would lose their flexibility or options in the future. If there is a realistic industry-wide strategy that could preserve or even revive our manufacturing bases in the US, then all US furniture producers should benefit from it.

## **An Industry-Wide Strategy**

**Definition** The definition of an industry-wide strategy as outlined in this white paper is “Advocating, crafting, and demonstrating a proven manufacturing system by a designated consortium so that the system can be adopted and prevail throughout the US woodworking industry”.

**Criteria** In order to qualify for an industry-wide strategy, the following criteria should be met:

- 1) Size doesn't matter---It should fit the needs of domestic woodworking companies in all sizes, especially the furniture and kitchen-cabinets makers.
- 2) Crafted by a consortium---It should be a strategy crafted by a consortium of academics, consultants, designers, managers and professionals mainly from woodworking community to ensure an impartial and well-thought-out blue print.

- 3) Operation to observe---It should have a production facility that can be observed in operation and be a learning center to the middle and upper-management personnel in the woodworking industry.
- 4) Exit strategy in place---It should be a non-profit operation for no more than one to two years, and then turned into a for-profit OEM production operation afterwards for its sustainability.

## **The Concept behind the Industry-Wide Strategy**

How do we compete with the imported furniture from China? With the way we have been manufacturing furniture for the past 50 years, we really can't and shouldn't want to compete, because it could only mean just trying to survive as long as we can. And just surviving is a bad mode to be in when trying to run a business.

In order to compete with imports and make money, does it mean we have to give up some segments of the furniture market in our thinking or planning? My answer is yes. Because we will have a difficult time holding on to some of the mass produced medium and low-end furniture where prices are very critical to the consumers. Therefore, we need to see the reality that even if we could produce a piece of furniture that looked somewhat different from the imports, a 20% cheaper import will have a substituting effect to most of the customers in a retailer's showroom.

Thus, the way we ought to think is to make sure that we can hold on to some medium to high-end market first. Once an ideal manufacturing process has been identified, adopted and practiced by individual producers; then, we can work our way back to recovering market share from the imports.

Just what kind of manufacturing process can a company adopt to really make such a difference? Why does it need to be an industry-wide strategy?

In many ways, the production of higher-end wood furniture and kitchen cabinets is almost like producing automobiles for the following reasons: (1) Both are capital goods (expensive) and bulky (can't ship too many in a container load); (2) Finishing and assembly are the final steps in their productions; (3) Both need to emphasize new styles or fashions every year. Therefore, if a strategy that is good for automobile industries should be applicable to wood furniture and kitchen cabinet industries as well.

## **The Origin and Merits of the “Just-in-Time” (JIT) Manufacturing**

Right after World War II (1945), the CEO of Toyota Motor in Japan believed that if they couldn't catch up with the US automotive industry in three years, there wouldn't be any Japanese automotive industry. At the time, the Japanese were also told by General McArthur that their productivity was about one-eighth of that of US's.

Inspired by the determination of top management at Toyota to catch up with the US automotive industry in three years, an engine plant's superintendent, Taiichi Ohno (with a technical-school degree), figured that there was no way the Japanese could increase their productivity eight-fold to equal that of the Americans. The only way to catch up to the Americans, Taiichi Ohno believed, was to eliminate wastes. He further determined that the most wasteful practice in manufacturing cars was to produce not for purchase order but for inventory.

With the support of top management at Toyota, Taiichi Ohno was determined to try something revolutionary—produce no parts or cars until the purchase orders had been received. It took Toyota 25 years from the start of implementing the just-in-time (JIT) concept until they were ready to extend the JIT system to their suppliers.

Why did it take such a long time for Toyota to achieve a comfort level in applying the JIT system? Just imagine the challenge of producing different models of cars and trucks in the same assembly line with hundreds of variations in the customers' specifications and over 3,000 parts for each car produced.

The average number of man-hours to produce a car at Toyota is presently around 19. Nissan Automotives, however, can manage to improve from Toyota's system and produce a car around 17 man-hours on average. Nissan's Smyrna, Tennessee plant requires only 15.74 man-hours. In comparison, GM is averaging around 24 and Ford is 26 man-hours to build a car.

While the JIT system is at work in Toyota's factories, only the final assembly line knows what kind of car or truck to produce next. Production can be as speedy as every single minute a car is coming out of an assembly line. In other words, all the upstream work stations, which hardly have any stocked parts on hand, have to satisfy the needs from the downstream work stations with very little notice.

At present, when Toyota Motor receives purchase orders from their dealers all over the world, their production factories only know what exactly to produce until one day before the cars or trucks are ready to be shipped out. With this kind of capability to produce cars just-in-time and their endless efforts to reduce wastes, no wonder Toyota Motor has been the most profitable company in the world for a long time.

Wouldn't it be nice if a customer could order a suite of furniture, or a set of kitchen cabinets, at a retail store, and the salesperson could promise the delivery of the merchandise within a week because the domestic producer could back up the promise? If most of our furniture producers could gradually achieve this, we could then start to recover the market share lost to the imports.

When I use the success of Toyota Motor to illustrate the merits of adopting the just-in-time production system, the first reaction I expect to get from some woodworking companies is, “We are not Toyota”. Meaning that we don’t have the resources like Toyota does.

Responding to this mentality, we need to know that Toyota Motor was almost bankrupt right after World War II or a few years before they started to try on the JIT concept.

Most of our woodworking companies are not like Toyota Motor is mainly because we are not determined enough or willing to sacrifice the short-term comfort by insisting on accomplishing something for the sake of long-term good like Toyota was.

On the other hand, woodworking companies are definitely not comparable to automotive companies, because we don’t have over 3,000 parts to go into any finished product like car companies do, maybe not even over 300 components. Therefore, it is not too far out to say that the woodworking manufacturing should be a hundred times simpler than producing cars.

Therefore, it can’t be the complexity or the rocket-science part that prevents the woodworking industry from following in the foot steps of the automotive industry in the JIT application. It has to be our 30 years of falling behind in production-management concepts and practices or simply our lack of vision or will that is in the way.

Maybe some of us still feel that we have been improving steadily already or that we can afford to take more time to improve because we still have 50% of the remaining market share to give. The only reason that some can have this complacent mindset is because they just can’t or won’t imagine how fast or bad the worst can hit them.

## **The Obstacle of Implementing the JIT Concept**

Articles on “lean manufacturing” are more prevalent in wood working related magazines than ever before. Apparently, many industry observers also believe that “lean manufacturing” is the way to advance if the US furniture companies want to keep market shares.

However, if some companies and their employees read trade magazines and are exposed to “lean manufacturing” concepts and cases, just what prevents the companies from implementing the ultimate of lean manufacturing, the JIT concept, in their own factories?

Besides physical and financial constraints, the major obstacle furniture companies will face in implementing JIT concept is that the practice is going against conventional wisdom. For an instance, if a total number of 120 identical tables are on order to be produced and shipped to different customers for the next month, instead of producing all

the 120 tables in the beginning of the month but just shipping out only 30 tables in each of the weeks in the month, a JIT factory will only produce 30 tables each week to keep the inventory of the finished tables to a minimum number at any moment.

In other words, in order to implement the JIT concept, major changes must be made in the way how people think and do things. Since making major change in people's habits is such a difficult thing to do, it hinders or even prevents furniture companies from looking for solutions in the direction of JIT. Especially, there are always easier, short-term alternatives such as outsourcing or importing.

Therefore, the only feasible way to get furniture companies to move toward implementation of the JIT concept is for some organization to gradually make the JIT related principles common knowledge and to remove the fear factor from the learning process.

To provide the orientation required, a symposium on the JIT application in the woodworking industry for business owners and industry executives could be sponsored by a university such as North Carolina State University, Virginia Tech or Mississippi State University, which already have pretty extensive woodworking programs. The objective of the symposium would be to enlighten these business leaders about the concept and content of JIT manufacturing in order to initiate an industry-wide effort.

## **JIT Manufacturing in Woodworking Industry**

Just what is the status of the just-in-time manufacturing in our woodworking industry?

A well-known case is at Henredon Furniture's upholstery factory at Mt. Airy, North Carolina. According to their site manager, Mr. Bob Cleary, who spoke at the Greensboro Expo (2003), the plant offers 2,000 fabrics and 30 custom options for each sofa. The manufacturing span for 64% of their products is reduced from 14 days to 5 days. Seventy percent of their frames are produced just-in-time. The practice resulted in a 15% cut in costs and a 6-10% pay raise.

I toured Toyota Motor's and Karimoku Furniture's (the leading Japanese furniture company) factories in Japan 20 years ago to observe their JIT operations. I also made an effort to visit Bob Cleary's plant last November (2003). Cleary, a 35-year veteran with a technical school diploma proposed the JIT idea to the management of the company and started to implement it in 1980. It is apparent that this factory is on its way to excellence.

From the facts about Taiichi Ohno and Bob Cleary are proof that the dream, imagination, vision, determination, action, and persistence, not necessarily the higher-

education, degree, or rank of the individuals in a company are needed for innovation and success.

Besides Henredon Furniture's upholstery factory at Mt. Airy, North Carolina, I have only heard of less than a handful of US woodworking factories that are totally dedicated to implementing the JIT concept or the "lean" process.

Here, from my perspective, I would like to differentiate between "lean" and "JIT" manufacturing. "Lean" is about reducing the production wastes to the minimum in labor, material, time, and space, etc., which has been a common practice or routines for any good manufacturers in the past 50 years.

However, if a company considers that any part or finished product manufactured just for inventory is a waste to be eliminated, then the company will eventually be reaching the status of JIT manufacturing, which can be achieved only after the culture of a company has been totally changed and is a breakthrough.

Our woodworking companies should be aware that they can improve their production costs considerably by simply applying the general industrial engineering principles alone, such as effective plant layout, the time-and-motion study, etc. However, they also must recognize the reality that by reducing production costs alone still wouldn't be enough for them to compete with the imports from China.

In other words, we can't just rely on applying the basics of industrial engineering to win this war against imports. We must achieve a breakthrough. Therefore, the goal for all the long-term oriented furniture companies has to be that of reaching the status of the JIT production to ensure speedy deliveries to prevail over imports.

The problem is that after we learned that it took Toyota Motor 25 years to master the just-in-time system, it is intimidating to think about exploring the JIT concept on our own, especially we don't have 25 years to get there.

Therefore, the only option we have is to pool our resources to explore the JIT manufacturing practice together.

## **Criterion for an Industry-Wide Strategy**

To advocate adopting the just-in-time manufacturing as an industry-wide effort, the following criterions need to be met:

**Size doesn't matter** I believe that adopting the just-in-time production system as a "goal" is good for companies of all sizes. However, the process of realizing the JIT application should be divided into 3 to 5 stages to fit the needs of various company sizes.

For smaller companies in some niche markets just being “lean” alone, but short of reaching the JIT manufacturing status, might be enough for them to be competitive.

**Crafted by a consortium** Although the just-in-time production created by Toyota Motor has been known to the world for over 30 years and hundreds of books and articles have been written about its applications and merits, the extent that it could be applied to producing furniture and kitchen-cabinets, especially in solid-wood forms, is yet to be studied and understood.

Since no single or even multiple companies in the woodworking industry can have enough talent and financial resources to craft a complete JIT system suited for manufacturing “solid-wood” products, a cooperative effort has to be the answer.

I believe that a consortium of researchers, consultants, designers and industry managers, who have expertise or even special interest in the JIT manufacturing, should be summoned together to craft a blue print for this industry-wide strategy. Most importantly, a tight time constraint should be placed on the consortium to come up with an action plan to implement this industry-wide strategy.

By no means is this gathering of intellectuals to form a consortium a one-time or short-time deal. Focusing on manufacturing is just finding a starting point to revitalize a company or an industry. In reality, adopting the just-in-time concept and really making it work have to be a matter that involves changing the culture of an entire company. In other words, this strategy goes beyond just taking care of the manufacturing function.

Thus, once the first-stage result is obtained from the contribution of this first consortium, then new consortium with different focal point could be formed again. To identify new focal points and new consortium members, annual symposium on the subjects of JIT applications in the woodworking industry can be held to serve the purposes.

**Operation to observe** There are three ways to get our industry familiar with the JIT manufacturing practice: namely by advising what to read, by using class instruction, and by demonstrating---which is by far the most effective.

In order to make JIT prevail throughout the US furniture and kitchen cabinet industries, I propose to combine all three ways for the industries to learn about the JIT manufacturing.

To incur the attention and interest, this industry-wide strategy should be publicized right from the planning phase. Thus, not only the work and contribution of the consortium can be known and appreciated, the members of the woodworking community can also read and learn about the progress of the project and prepare for receiving the results coming out of it.

To teach and demonstrate the just-in-time manufacturing system to the woodworking industry, I propose to have an on-going production facility to serve those purposes.

This demonstration facility, which would be operated by a newly formed organization, should eventually but quickly be turned into a for-profit production operation, thus, ensuring the sustainability of the continuing education of the JIT manufacturing system to the US woodworking companies.

I can't over-emphasize the importance of this real-life workplace showcase. Because without proven results in this facility from product designs to manufacture and delivery of the products day in and day out, there won't be any JIT system to be demonstrated.

**Exit strategy in place** There could be many problems associated with establishing a new organization that has a public interest in mind such as developing a just-in-time manufacturing system for the entire woodworking industry. Accountability, effectiveness, sustainability, etc. of the new organization are just a few problems that could be encountered.

Therefore, I believe the only way to make this project work is to plan it as a business venture right from the beginning. I propose to combine the best brains and experience in the woodworking community to build a showcase to demonstrate the JIT manufacturing. In order to validate that the just-in-time manufacturing is the best strategy for our woodworking industry to pursue, this showcase has to prove itself to be a very profitable production facility.

In other words, there ought to be two stages to execute this project. In the first stage, the priority is to publicize and to demonstrate how the JIT manufacturing is set up and operated, and it needs to be non-profit oriented. In the second stage, however, this operation has to turn into a for-profit operation to have the sustainability and to demonstrate its ever-improving merits.

Just how can a JIT demonstration and/ or production facility be turned into a profit center? The logic is that if an operation masters the JIT manufacturing concept, it can then become an outsourcing center to produce OEM furniture or kitchen cabinets for the major furniture and kitchen-cabinet companies.

Is this idea too far out? Not really, because the commercial practice of this nature has been realized in many other industries already. One of the prime examples is a company called Magana Steyr in Austria that does engineering and production of cars for BMW and Mercedes. The concept behind it is that Steyr doesn't concern itself with marketing and sales. BMW and Mercedes, on the other hand, outsource some of their complete car models for Steyr to produce, so Steyr can limit their capital expenditures mainly in production-related facilities.

Compared with the automotive industry, the woodworking industry is certainly much smaller and less consolidated. However, we shouldn't let the size limit our imagination or falter our determination. If the automotive industry can do it, so can the woodworking industry.

## **Merits of the Industry-Wide-Strategy Concept**

If we choose to pursue the JIT manufacturing practice as an industry-wide strategy, it will have the following short- and long-term merits:

**Bridging the gap between academics and the industry** If these two sides can work closely together for a period of time in a project, not only can the communication gap be bridged, but also the resources from both sides can be pooled to achieve some unprecedented goals.

**Creating a networking medium for designers and consultants** To produce solid-wood furniture just-in-time, new angles to design the products have to be considered to make the JIT manufacturing feasible. Also, the role played by consultants is critical to the success of making JIT prevail throughout the woodworking industry. Because once any company is convinced that the JIT manufacturing is the way to go, they still might need someone accountable such as consultants to help them with the implementation.

Since the consortium could be an ideal networking medium, there are major incentives for the right designers and consultants to participate in the consortium.

**Retraining the displaced woodworkers** It is simply unrealistic to think that the displaced long-time woodworkers can be re-trained to use computers then become programmers and high-tech workers. If this were the case, then what could the displaced computer programmers or high-tech workers be re-trained to do? Especially there are plenty of displaced computer programmers around already. The displaced woodworkers, on the other hand, can be easily re-trained to work in a JIT woodworking environment.

**Creating a new image for the woodworking industry** If the woodworking industry endorses the adoption of JIT manufacturing as an industry-wide strategy and thus implemented by its constituents, soon these companies would be able to manufacture their products more cost effectively, with better quality, efficient delivery and a better profit margin.

Henceforth, these woodworking companies could afford to pay an above-average wage rate to their workers to change the less-skilled and low-pay image of the woodworking industry.

## **Dare to Dream---Reviving the US Woodworking Industry**

If we look back through history, the facts will tell us that once any traditional industries started to go down hill, none had ever been revived. Why would the US woodworking industry be any different?

If there is any possibility that we can ever alter this downward spiral in our furniture or woodworking industry, some drastic changes have to be accomplished.

In other words, if anyone agrees that the industry-wide-strategy concept discussed here is a bit far out, but still makes sense, then this must be the drastic change that we should dare to attempt.

### **DARE TO DO**

If analyzing why it is unprecedented to revive any traditional industries in the US that are labor-intensive in nature, such as footwear, toys, textiles, apparels and consumer electronics, etc. we can resort to three main causes.

First, it is due to our inherited cost disadvantages. If compared with the third-world countries, it is our ever-increasing disadvantages in labor and regulatory related costs (such as FICA, property tax, sales tax, workman's compensation, property insurance, medical insurance, OSHA and EPA regulation-related expenses, and legal fees, etc.) that keep us from running a competitive production base in the US.

Second, it is due to our difficulty of attracting quality labor to join in our industry. Quality means fair educational level and decent work ethics. It is difficult for business owners wanting to make long-term investment in training workers who don't have possibility to stay or potential to grow with the company. Without trainable workers, businesses have no chance to rise to the next level, such as implementing the JIT manufacturing.

The third obstacle in reviving a traditional industry has to be the "already-done-my-job" syndrome that prevails both in our private and public sectors. If any employees believe that "Do eight-hour work for eight-hour pay" is a natural doctrine to live by, then they have developed the "already-done-my-job" syndrome.

Just what's wrong with the above doctrine? We know even as parents that we can't expect our children to become top students by just attending schools without trying hard on their homework after school. What then makes adults so different on doing their jobs? In other words, if the laying-back job is all we care to have but oversea competitors are not like that, we then have to pay the price.

The cause of developing “already-done-my-job” syndrome in employees is mainly due to the lack of fun, challenge, or reward in their jobs. Pretty soon they would lose their enthusiasm or even passion, and then there goes the productivity and creativity.

The remedy for curing the “already-done-my-job” syndrome is leadership. It takes leadership to provide a vision or goal and to create the right culture in a family, company, or organization to change things for the better.

Our business owners and industry executives must know that while we are planning the next vacation, golfing, fishing, hunting trips, our Chinese counterparts are only concentrating on how to make their products cheaper and better, so that they can get more orders to fill their newly expanded production lines.

No, we don’t need to give up our standard of living in order to compete with the Chinese. However, instead of playing by the year, individual companies have to have a goal or clear direction to concentrate and dedicate their resources for the long-term good. In other words, having a long-term goal, such as adopting and perfecting the JIT manufacturing, is the only way to create a challenging working environment and eliminate the “already-done-my-job” syndrome at the work place for woodworking companies.

For the future of entire US woodworking industry, we especially need visionary business leaders who have both the desire and resources to make things happen for the industry.

If there are such leaders in our woodworking industry, I would like to suggest to them to make things happen through the following steps.

## **Steps to Take**

There are only a few steps involved to get the planning part of this industry-wide strategy underway. The eventual success of the strategy is, however, mostly dependent upon proper execution.

**First step: Get the idea endorsed by AFMA and KCMA** This industry-wide strategy is mainly for the companies in wood furniture and kitchen-cabinet manufacturing, which need to assemble their finished products before shipping. A good portion of these companies are in turn represented by the American Furniture Manufacturers Association (AFMA) and Kitchen Cabinet Manufacturers Association (KCMA).

Therefore, it would be more meaningful to attempt this project if these two associations could discuss the needs within their organizations and agree to the benefits of prevailing

the JIT manufacturing throughout their industry, then endorse the idea discussed in this white paper.

It is the trade association's mission to look after the welfare of their members. If, however, neither AFMA nor KCMA endorses this idea, then the detailed or further planning of this industry-wide strategy won't be worthwhile.

On the other hand, if either or both AFMA and KCMA encourage or endorse an industry-wide effort (it doesn't have to be the strategy suggested in this white paper), then any interested party should be welcome to propose ideas or plans to revive their industry.

Once these associations' endorsement is in place, a reputable consulting company which has expertise in JIT manufacturing should be hired to do the organizing and leg work from this point on.

**Second step: Form a consortium** Because of time and resource constraints, it is an impossible task for any single organization to consider all the angles and factors needed to craft an industry-wide strategy. Therefore, it is critically important to form a consortium to pool the knowledge and experiences from the designers, consultants, academics, and industry managers inside or even outside the woodworking community to craft the contents of this industry-wide strategy and come up with an action plan.

**Third step: Draft a business proposal** A detailed business proposal that focuses on how to set up an organization to profitably produce solid-wood furniture and/or kitchen cabinets by applying the just-in-time manufacturing concept should be drafted by the hired consulting company.

The proposal should include: the management team, market analysis, plant location (most likely in North Carolina or Mississippi), plant equipment, plant layout, employment, sales projection, and financial analysis, etc. is similar to a regular business proposal to potential investors.

However, the major difference between this proposal and a regular business plan is at the demonstration part in the early phase of the project.

**Fourth step: Form a board and obtain funding** Since the objective of this project is to demonstrate the application of just-in-time production in making solid-wood furniture and kitchen cabinets, a board of directors consisting of mainly industry leaders should be invited to oversee the progress of this project.

The sources of funding should be Federal and State grants, private contributions, and donations of non-monetary assets such as building and equipments, etc. The key is to

have a plan to complete the production facility cost-effectively. Later, this start-up cost will be a part of overhead costs for the for-profit company. That is why the start-up cost should be kept as low as possible.

**Fifth step: Complete the facility, hire workers and start the operation** The prospective facility could best utilize a closed furniture factory. The displaced woodworkers would be hired. The products to be manufactured would be the OEM furniture or kitchen cabinets from the major companies.

**Sixth step: Start the demonstration programs** The teaching and demonstration programs would be open to all interested parties and should include categories such as: product design, plant layout, equipment setup, personnel training, production process, and cost-and-benefit analysis, etc.

The full-time demonstration period should be ended within one to two years of the starting date. Then the primary function of this facility should be manufacturing for profit just like a regular business. The demonstration purpose would become secondary.

**Seventh step: Convert into a for-profit operation** The JIT manufacturing is an ever improving process. In other words, once an organization is engaged in the JIT operation, they will automatically and continuously seek out better solutions to improve their manufacturing processes, and thus recoup rewards through the increased profits for the organization. Conceivably, only a “for-profit” entity can keep up with this kind of ever-improving effort.

## **CONCLUDING REMARKS**

The objective of this white paper is to propose a plan about how to revive the US furniture industry. The key concept of the plan is to have the furniture industry and academics work together to create and implement an industry-wide strategy that can prevail the just-in-time (JIT) manufacturing practice throughout the industry.

Prior to 1990, I spent ten years as an academia teaching industrial management in universities, doing furniture-industry-related researches, organizing activities between private and public sectors, and advising woodworking-industry executives on management matters and long-term strategies. From the experiences, I have learned that academics as well as bureaucrats can be motivated to go out of the way to perform their duties if there are just causes. I have also learned that the industry will participate in public programs earnestly if they see incentives.

From my perspective as an academia, I know academics are capable of analyzing the big picture and giving businesses sound advice in principle and in theory. However,

academics never need to subject themselves to the constraints in cost, urgency, resources and responsibility like business owners or executives do. Without considering these constraints, even the best advice in principle still won't be taken seriously by businesses.

The truth of the matter is a spectator or academia can only figure so much about how business should and could be run and can only do so much to contribute effectively to real businesses. After ten years being a spectator, I have chosen to sit at the other end of the table to experience, as an academia-turned business owner, how I would make business decisions and take offerings from the academic side.

During the past 15 years as I have built a business from scratch ([www.HardwoodCenter.com](http://www.HardwoodCenter.com)), I experienced no difficulty analyzing the big picture or envisioning the future of my company. However, whether I could prepare my company to advance or not is largely limited by and dependent on my company's financial and human resources, which in turn is reflective of my own ability. Nevertheless, due to my academic disciplines, I can observe clearly the advantage I have over most of my peers or competitors in many business aspects.

Actually, after being an academia-turned businessman, I detect that so many educational programs and research projects that could have been designed and offered by the academic institutes to satisfy the real needs of the wood industry, if the academics were motivated by the industry to do so.

On the other hand, our self-righteous industry executives and business owners (including me) wouldn't even bother to do the simple math. If we maintain the status quo without the definitive and helpful outside inputs, the future of our furniture manufacturing industry will only have one direction to go and that is down, just like the rest of the other traditional industries.

Therefore, what I propose in this white paper is calling for our woodworking industry to give out a consensual signal that we can use some serious outside input from the academics. The definitive area where we need input is an industry-wide strategy about how to help individual companies learn the just-in-time (JIT) manufacturing process, and then prevail the JIT practice throughout the woodworking industry.

In order to effectively utilize the outside input, such as the intellectual research power of the academic community, we need to be clear about how and where they can have input, and then we will give them support and work with them throughout the whole process to create and implement this industry-wide strategy. What we will end up having is an extensive knowledge base on the JIT practice applied mainly to the woodworking industry. Drawing from this JIT knowledge base, individual companies' learning process on JIT can be greatly facilitated.

I certainly don't have all the answers for the many problems that we encounter in the woodworking industry. However, at least I have the heart to look beyond my own company's business for the good of the woodworking community and put my time, effort and money (printing and mailing this white paper) where my mouth is. Why am I doing this? It is the pride or the disbelief that we can't do anything as an industry to turn the tide of failing to compete with imports effectively.

I am also sure about one thing: If we don't have visionary leaders in the woodworking industry to advocate and support actions for the long-term good of the whole industry, no strategy can ever be implemented to revive the industry.

Unfortunately, this could very much be the case for our woodworking industry. Because the ones, who do talk the talk about long-term industry concerns are mainly trade-magazine editors, consultants, academics, equipment and information-technology suppliers, are still spectators, though they all have long-term stakes in the industry.

On the other hand, the ones who need to walk the walk, such as the furniture companies, usually do not participate in the public discussions about what the whole industry is supposed to do to improve. Since many companies are only out for themselves, it is conceivable that few if any leaders in woodworking companies will ever step forward to advocate improvements needed for the whole industry, even though their own companies can use some help in understanding the complete picture of the JIT application.

As a member of the woodworking industry, I have some insight about how my fellow business owners or industry executives handle business. I understand fully the immediate problems that overwhelm small business owners. When we become the heads of leading companies in the industry, it is much easier to show results by increasing sales volume through acquiring another company, outsourcing or expanding the hardware rather than overhauling the company's culture by changing the work habits of the employees. After all, we need only answer to or respond to the shareholders---not public opinion.

However, from an objective viewpoint by applying my academic disciplines, I also know that woodworking companies in general are making very slow progress in many aspects. Given time, we will have to pay for our maintain-the-status-quo mindset. As I recall, about 20 years ago, the employees at Delta Airline were so pleased with their company that they bought a new Boeing 737 on the company's anniversary. Look at the situation that Delta Airline is facing today. If this number two domestic airline can stay out of bankruptcy court after United Airline and U.S. Airways, they will be lucky.

Are our leading woodworking companies really any better than Delta Airline? I am not going to pass along my judgment here. However, I am confident that without an

industry-wide effort, a breakthrough to revive our furniture industry or keep the kitchen-cabinet industry ahead will be impossible. Therefore, I have spent nine months writing and editing this white paper to express my opinions and call for response.

However, no matter how much I want to contribute my insight or wisdom on how to shape up the future of our woodworking industry in writing, it is still just talk. Hopefully, our industry can use my suggestion in this white paper to initiate some serious actions.

To take the initial step, we will have to rise above the “already-done-my-job” syndrome and do something extra for our industry. Even if we just start with something simple, such as letting our voices be heard through trade magazines or through trade associations about our support of creating an industry-wide strategy.

On the other hand, if we continue to procrastinate in taking actions such as attempting what I have proposed in this white paper, in another 10 to 20 years when we only have 25% or less market share left, this white paper will serve as a testimonial that “Where there was a way, there was no will” in our generation of the US furniture industry.

Just a last reminder: “If we are not willing to become doers and take action, we can never be winners.”

## **AUTHOR**

Spencer Lei is the founder and president of Global Forest Corporation (DBA Hardwood Center), a nine-member consortium incorporated in Scottsboro, Alabama since 1990.

Besides building a business from scratch, creating niches, and taking care of the day-to-day business, Lei's main area of interest lies in researching the inter-phase variables between theory and practice in raw material utilization, manufacturing, marketing, retailing, and in management.

Lei received his bachelor degree in Taiwan, master degree from Virginia Tech, and Ph.D. from Oregon State University all in forest-products related programs. Dr. Lei's career experiences include production foreman with the Willamette Industries, Inc. in Oregon as well as a professor, research scientist, department chief of forestry extension, trade-magazine chief editor, and special advisor to business owners and corporate executives, etc.

He has been awarded honorary titles as Advisor to the Taiwan Furniture Manufacturers' Association and Honorary Alabama State Forester for his relentless efforts trying to promote and upgrade forest-product industries.

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