

Reprint

The Wire Harness Industry: Three decades of change

As featured in the
November/December 2012 issue



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Wiring Harness News



By Loren M. Smith

I got into the Wire Harness Business In the late 70's, leaving a job as CEO of a Connector Company, moving to rural Iowa to acquire a small (under \$1M) wire harness manufacturer (MWC). After running my own Wire Harness company for 20 years, I sold the majority to an investment firm, and stayed on to execute the acquisition strategy I had planned. I helped found the Wire Harness Manufacturers Association (WHMA) in the 80's, and I continue to be an active member. After MWC I launched an M&A Firm, Blue Valley Capital, primarily to serve mid market (\$2M-\$50M) manufacturing companies.

With a view of the Wire Harness Industry that spans over three decades. I've observed how the industry has changed, and perhaps more intriguing, how it has not changed over this period of time.

The profile of the wire harness industry today is almost indistinguishable from the way it looked several decades ago. It is still comprised of over 1000 small harness manufacturers, serving niche markets, with a few dozen medium size harness companies, and a only handful of very large harness companies serving high volume markets. Because many Wire Harness manufacturers are also in other businesses, such as PC Board Assembly, Box Build, and Distribution, typical analysis (such as SIC codes) can't provide a complete and meaningful picture of the industry.

The basic fundamentals of the Wire Harness business remain unchanged. Wire Harness manufacturers are converters of customer designs. It's still a labor and material intensive business, utilizing components specified by cus-



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tomers who constantly exercise substantial leverage.

Some might even think a business model such as this makes it was nearly impossible to bring in a respectable bottom line. However, in my experience, there are many Wire Harness manufacturers who defy these odds and produce a bottom line on the very high end of the spectrum for manufacturing companies. The secret is the exceptional degree of mutual dependence that exists between a Wire Harness manufacturer and their customers.

Several decades ago it was predicted that all USA harness manufacturing would move to Mexico, and that a dramatic industry consolidation would take place. Neither happened. The industry is still very fragmented, and a significant amount of Wire Harness manufacturing still takes place in the USA

Movement to low cost labor markets continues to be a fluid situation. Factors such as lead time, order size, frequency of revision changes, cycle times, shipping times, shipping costs, work force training, and inventory levels are some of the factors that drive this equation.

While most very high volume Wire Harness Manufacturing, and some medium volume is now in Mexico or other

low cost labor markets, there is still movement in both directions as customer priorities shift constantly.

As Wire Harness customers undergo management changes, occasionally a new purchasing regime will engage in an analysis that projects huge savings by moving Wire Harness sourcing to a low cost labor market. It's not unusual for the next regime to do the same analysis that refutes the savings, subsequently moving harness sourcing back to the US.

Some harness users who calculated savings from sourcing wire harnesses in China and other low cost labor options, have moved their sourcing back to the US, based on their experience. At the same time, industries whose volume historically did not warrant moving to Mexico, are now considering the Mexican option.

Movement to low cost labor markets will continue to be a fluid situation but in my opinion, we will continue to see a significant number of Wire Harness manufacturers in the USA.

What has changed over my several decades has occurred very gradually, and varies by market served; in this business one thing is clear, the degree of difficulty has increased exponentially. Performance standards (quality, delivery, engineering capability) have tightened over the years, while at the same time Wire Harness customers want to deal with fewer vendors.

Several decades ago many of the companies who now demand a zero defect Wire Harness, measured their Wire Harness vendors by defects per thousand. Wire Harness customers who had more than a dozen harness vendors, now might have only 2 or 3 or even in some instances a single harness source. Delivery windows have gone from weeks to days, and many users of Wire Harnesses now require their harness vendors to have a Cad Cam design capability to enable a co design effort.

One of the more favorable changes that has occurred in the wire harness industry is the purchasing practice know as "partnering"

Wire Harness customers who employ this purchasing strategy are companies who have the foresight to seek out worldwide industry "best practices" and the discipline to utilize these practices.

Here's how it works, rather than picking the lowest quote from 3 or 4 vendors, partnering requires that a harness manufacturer "cost share" with his customer. The harness manufacturer and his customer agree on a harness gross margin (what's left after you pay for material, labor, and overhead) and then work together, starting with the design process, to

drive down all of the wire harness cost components (cost of goods sold). Over time this process will result in a declining harness cost curve for the harness user, while preserving gross margin for the harness manufacturer. This provides the harness manufacturer with a level of security not present when his life was 3 quotes and a cloud of dust, and it provides the harness user with preeminent quality and service at the lowest possible cost. This change has been very gradual, and at present it is utilized by a relatively small percent of total harness users, it's not theory, it's being done increasingly, and where I've observed it first hand, it works well.

In the past, wire harness manufacturers vendors had to buy their harness components from the manufacturers of those components, and distributors were for emergencies only because of their pricing. As harness components have become available from distributors at a competitive price, this change eliminates what for many harness manufacturers was a true nightmare; not being able to get reliable delivery from a supplier of a component specified by his customer. When a harness manufacturer shuts down a customers line because they can't get delivery of a component specified component, life gets ugly. As unfair as it seems, when this happens, the customer has zero sympathy/understanding for the reason, their line is down because the supplier can't deliver, and you can be the bad guy overnight. Thankfully the availability of these specified components from distributors at a newly competitive price has almost completely eliminated what was once a huge headache for harness manufacturers, and it can virtually eliminate the cost of carrying large inventories as a hedge against non-performance.

As the cost for computer hardware has come down and the accessibility of good software has evolved, management control systems previously available only to large companies are now within the reach of small Wire Harness manufacturers. The accessibility of hardware and software that enables harness manufacturer to control all elements of a manufacturing business has leveled the playing field enabling small companies to do every thing that medium or even very large harness manufacturer can do with information technology. The one exception to this is the software that enables a harness manufacturer to automatically convert their customer's electronic prints to bill of material (BOM) and routings. Many wire harness customers now use software that enables them to automate/streamline the harness design process resulting in an electronic harness print. It's possible for harness manufacturers to convert this electronic print when received from their customers to BOM's and routings by

using a software product (sometimes called middle ware) that enables this conversion to occur instantly, thus eliminating the lengthy process of doing this conversion manually. This essentially automates the front end of the Wire Harness manufacturing process. Currently, this so-called middleware is not commercially available from software providers, but most large and some medium harness manufacturers have created this middleware for their own use. Given the huge benefit that this middleware provides, I believe we will see this middleware available to the entire industry in the future.

In summary, the Wire Harness business is still very much a service business, comprised of primarily small US manufac-

turers, serving niche markets. In my opinion, the next few decades will not see consolidation on a major scale, but the number of wire Harness manufacturers will be reduced somewhat as wire harness customers shrink their supplier bases based on tightened performance criteria. For those Wire Harness manufacturers who stay ahead of the technology curve, and who know how to take care of their customers, the future looks bright.

In the next edition of Wiring Harness News, the title of my column will be "Six ways Wire Harness companies fail"

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