What Happened to GM Can Happen Everywhere

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Highlights:

- The lack of focus on the burgeoning residential market translates to the same results as ignoring the small car market in the 1970s: encroachment and dominance by foreign competitors
- Productivity can only be measured at the system level, which requires segregation of work
- Industry-accepted benchmarks are in development and necessary
- Tasks need to be measured across multiple projects for any meaningful standard development

It's good to be here. Let me start, briefly, because we have such a time crunch to get through a lot of good information you can use and that is being used by more than 400 companies across the United States and Canada, actually across the globe. And, I'd like to thank David Skiven for everything you do for the industry, everything you have done, and you guys have done great work for the industry.

I don't know how you guys asked me to come here, but I guess even small lichen can contribute in moving our country forward. I picked this topic because we have many different industries and that's what we do, is that we see any specific data that are comparable.

Let me take you back in time. It's 1958. Right now GM, Ford, and Chrysler have about 85 percent of the market share. Toyota doesn't even exist in the United States.

Toyota enters the United States market with a car called Toyopet, which has about 55 miles per hour of speed and 27 horsepower. They entered Port of Los Angeles with two cars and the drivers get about 50 miles and the cars overheat, so within about six months they put it back on the ship to Japan. They recognize they have to be ten times more productive than United States in order to compete, because according to the calculations, Germans are three times more productive and Americans are three times more productive than Germans, so they had to be ten times more productive.

They keep working on their productivity, but they also recognize that productivity doesn't come from technology. Productivity comes from process improvement. They have recognized that what Ford did was separate the skilled trade activities from assembly workers. Wwhat is you called the segregation of work: to allow the skilled trade to not just build the cars, but actually design the process of production. So they're starting to look at the separation of the technology and process design; in other words, they start focusing on the process innovation, and you'll see the result. And you'll see the same thing happening in construction. About ten years later, they come back to the market with a car that sells for $2,000 and is now a 60 to 70 horsepower, does about 90 miles an hour, and they're still not a very significant part of the market, except a few things happen in the market. At the time we have a thing called EPA—some of you remember Ralph Nader—that starts the consciousness of the customers about the impact of the vehicle on the environment. So when Toyota comes back to the market, there is no such a thing as a small car market, but they literally created

it because of the oil embargo. Some of you might remember this: people used to shoot each other at gas stations back in the '70s when gas was 25 cents or 50 cents. But they're not sleeping; they enter the market, and each time they're continuously working on the process.

At this time, the norm for changing die in the United States and the world is about two weeks. So because of the die change requirement, every time you have to change the vehicle models, you had to stop the line or you had to dedicate another line for it. So what they worked on, they came up with what they called single-minute exchange of die (SMED). So they went from two weeks to one minute for the change of die. The first time in the history they're able to produce more than ten cars on the same line, so what that does for them is reduces their cost.

SMED then becomes the norm in the '80s, but we still don't see this. You still write it off. It's a small part to the point that Toyota considers their biggest risk in everything else in the United States market because it's one of the most unhomogeneous (sic) markets in the world. The rest of the world is more of a homogenous market; Japan, Germany, Italy, France, they're homogenous markets. The United States is considered to be about seven zones of homogenous, but that makes it an unhomogenous market.

That means they're very scared of it, while we're so not worried about a small car. As a matter of fact, we are so arrogant we give them the first factory in the United States. This factory closes in 1984 because of producing the worst-quality vehicles in General Motors with IBTs higher than 140. They reopen under the same union, with the workers and definitely the same tools. The only thing that changes is the management. They now produce the highest-quality car produced in Northern America.

You say, well, no big deal, it's small cars, who cares, they're not making any money on it. Just five years later, they introduced Lexus, the first luxury car people stood in line for half a year to buy, without any history. As a matter of fact, BMW and Mercedes sued Lexus for dumping because they were $15,000 cheaper. They didn't find anything.

What happened was that now there was a philosophy with them. When I studied Toyota, they put their best and brightest on the small cars, where GM, Ford, and Chrysler put their best and brightest on Cadillacs and Lincolns. What's the difference? The difference is the small car; they sell 2 million of them. $1 savings is $2 million. And besides, after that car part has been tested, they put it in Lexus where the customer is a lot more quality sensitive and price sensitive, and it won't break, versus the other way.

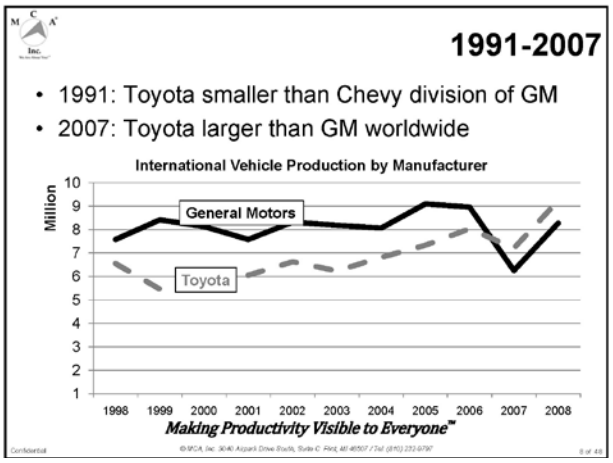

Figure 1

When you look at the history, what happens later, the car manufacturer, which was literally the biggest line in the—on the mountain, as you go forward, you'll see that where GM is—Toyota is still smaller than the Chevy division of General Motors in 1991, and by 2007, Toyota becomes the larger company (Fig. 1). Now, there are a lot of press releases that Toyota had a problem a couple of years ago and so on, but it doesn't hide the fact that the focus was not that much on the technology, but rather, the process innovation, and that's what the construction industry is facing.

Ted [Kennedy] was absolutely right [in a statement during Introduction]; it is not as bad as we think it is. It could get worse, but innovation has to come on process and segregation of work. We are still not segregating work. We are still trying to get the work done by the skilled trade. So one of the other indicators we saw in comparing the two industries is that the United States car market used to be about 25 percent of the world market, and when the technology is no longer the driving factor, the rest of the world picks up, and our car market as a part of the world drops. So when you look at these symptoms, there are a few things that are very common.

For example, markets are shifting, so markets shift from luxury cars to small cars. The small car is very interesting. Small car market size is the same

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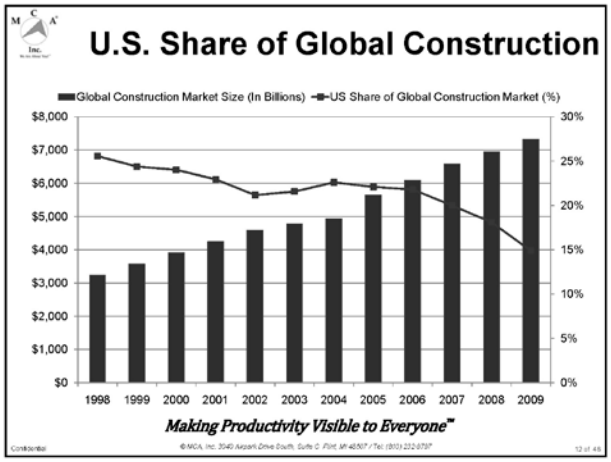

Figure 2

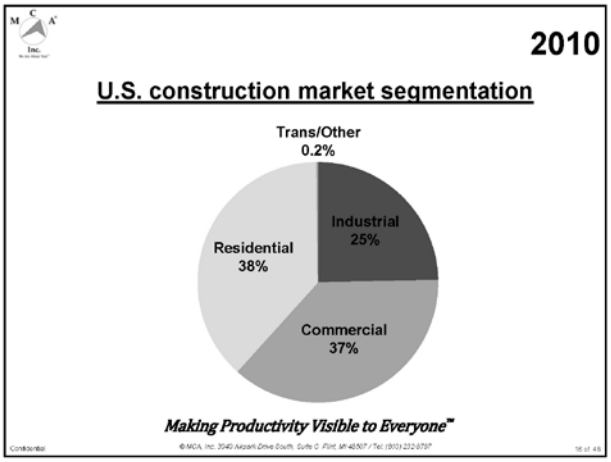

Figure 3

size as residential market size in construction, 38 percent, and we blissfully neglected it. We said we don't want it, it's somebody else's. And that's what you'll see later, that the same thing is happening. Less specialization was required, unionization was declining, types of markets were changing, and the system productivity, not individual productivity, becomes critical. As a matter of fact, all the studies we have done in the last couple of years, it is almost impossible to measure individual productivity. So anybody who tries to measure individual productivity, you have to have the exact same conditions, exact same data, and exact same job to measure productivity at the individual level. The only way productivity can be measured is at the system level, which means segregation of work, how much work is actually being wasted, how much time is being wasted, and changes in productivity.

Let's go to construction now and you'll see the same story.

United States construction used to be about 25 percent of the global market (Fig 2). Because of this and because of reduced productivity—again, a debatable issue—the United States construction market is a very lucrative market, and the less productive you are, the more lucrative it becomes, just like the car markets. Just like the fact that you were focusing on two-week die exchange, somebody came and took that two-week die exchange to one-minute die exchange, then they were able to increase the system productivity by literally tenfold.

When you go farther, what is happening in the industry is that the GDP is changing. GDP over the last three decades has shifted from manufacturing to more service and entertainment. The majority of our export in the United States is no longer manufacturing products. It doesn't mean manufacturing has not increased. It just means that the manufacturing is not increasing as fast as the rest of the GDP, which means the type of construction work we do is changing.

We developed a method to measure market size and market share for union and nonunion back in 2005. The construction market shifted from over 50% industrial to less than 50% size of the market because industrial construction dropped below 50 percent back in late 1958 or so, same time as Toyota came here, and then commercial and residential picked up.

As a matter of fact, the projection is more than 75 percent of the construction market in the United States is going to be commercial/residential by 2025 (Fig. 3). That breakdown shows a clearer picture and that, as of 2010, the construction market breakdown at the high level was only 25 percent industrial, 37 percent commercial, and about 38 percent residential. However, but the majority of the research focus in the construction industry of the work we have done in anything we do in construction, which is very small activity, is focusing on the 25 percent industrial.

Let's start with lessons learned from what we are learning here in this industry. Let's make a comparison. Some of you might have seen this. [Video plays] We have a 16-story building being built in China. It will take us approximately 9-12 months to build this. Pay attention to the clock at the bottom. It took the Chinese six days. You may write it up and say, well, yes, there's nothing that is going to stop it from putting this on the back of the ship and building this in San Diego or Europe. Why can't Michigan do that? Why can't we be the Chinese of the United States?