

Response to Questions submitted by University of Illinois Senior Class Engineers

In between working with clients and seminars, we had the privilege of addressing the Chemical Engineering Senior Design Class at University of Illinois. Before talking with them we asked for questions which they would like us to try to answer. They provided some excellent questions. We have summarized the answers made during the presentation.

Please take a look at the answers and if you can provide more information or a better answer, we would be happy to share them with the next generation that is going to lead our manufacturing companies over the next several decades.

- What is the difference between Japanese and American Manufacturers?
- What is the difference between Chinese and American Manufacturers?
- Can we compete?
- What manufacturing blunders did the US do to get us into this economic mess?
- What to do career wise during this economic downturn? How to create a recession proof career?

What is the difference between Japanese and American Manufacturers?

In general, the Asian manufacturing culture has embraced and been more successful in implementing continuous improvement for both products and processes. This drives a different balance between long term and short term goals. Japanese culture has a high emphasis on asset management. We recently learned that Honda has not laid off at this time of economic downturn, but instead are investing in training of their associates and in maintenance activities to prepare for the turnaround of the economy.

This focus on the long term drives short term activities and will improve their competitive advantage in the market. American manufacturers are often generalized as managing performance on a quarterly basis and

annual basis. This is not true of all companies, but currently is how American Companies are characterized.

Is there a difference between Chinese and American Manufacturers?

Yes, China is an emerging market and typically has lower labor costs and favorable:

- Government Regulation
- Product Patent Laws
- Environmental and Safety regulation and control
- Tax Laws

Government, industry and the educational system are partnering to grow manufacturing, and educate Engineers and Technicians to supply the demand that an emerging market creates. The United States is a more mature market and the economy is based on service rather than Manufacturing, Mining and Agriculture. China's economic growth is because they are a large emerging market with the Government and Society focusing on an economy built on Mining, Manufacturing and Agriculture. These are the three tenets of an economy that are required to create wealth.

Why can't we compete with them?

We Can. Toyota and Honda have built over twenty facilities in the United States and are being supplied by many companies within 100 miles of the plant. American workers are producing automobiles and parts that are being sold around the world. The second point is many companies are starting to bring operations back to American shores. They are finding that the total cost of production is higher because of transportation, cost of defects, warranty issues, product safety issues and a need to manage their Intellectual Property (IP).

What manufacturing blunders did the US do to get us into this economic mess?

The biggest change over the last thirty years is changing the focus from a Manufacturing, Mining and Agricultural based economy to a service economy. However, no matter the basis of the economy, there are three things that management must manage well:

- Capital
- Skills and Knowledge
- Assets

For management to be effective, these three management responsibilities must be in balance. Currently, companies have been putting a higher emphasis on capital and cash. This has led to an imbalance that has resulted in a decrease in sound asset strategy and a depletion of technical skills to operate and maintain the assets. As future leaders of these companies, you will need to work on bringing these three management categories back into balance.

What to do career wise during this economic downturn? How to create a recession proof career?

Since my career started in 1982 when interest rates were 17.5%, I could relate to this question because 27 years ago I faced the same issue.

Long Term Activities

- Set a Goal
- Develop a Plan
- Organize to meet your plan
 - Identify Resources
 - Develop Network
 - Develop a Budget
 - Set up Metrics and Milestones
- Do activities to meet short term needs
- Develop competency and resources for long term goals

Short term Activities

- Review progress to the plan and adjust activities
- Focus on Industries that are not as impacted by the recession
 - Food, Utilities, Government
- Do what you got do!
- Know Reliability and Asset Management
- Get certifications and become a Professional Engineer
- Join Professional Organizations ask for fee waivers as students: Project Manager Institute, Society of Maintenance and Reliability Professional, Industry Specific

- Learn a trade
- Eliminate Debt
- Don't be afraid to leverage people in your network and to serve them
- Do not over capitalize as you come out of college
- Barter your skills for pay, experience, and to gain more skills
- Get a primary job and use your education in a second employment until the economy turns around
- Stay in contact and network with other graduates and professors.