# Small Manufacturers Are Not Little Versions Of Major Manufacturers

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Have you ever wondered why manufacturing process improvement programs are introduced with great fanfare, but eventually fade away? A good example is Six Sigma, which is the answer to process variation. It was originally developed by Motorola and then General Electric (GE) and Honeywell adopted it for all of their divisions. Now, GE and Honeywell have backed away from Six Sigma, as have hundreds of other manufacturers.

When manufacturers back away from one of these systems or abandon it because they don’t achieve results, consultants usually say the problem is that:

- The company simply couldn’t change their culture or decision making to achieve the goals
- The company failed to implement and use the whole program
- The implementation was turned over to a specialist team who did not get the job done, etc.

I think there may be other explanations as to why many of these process improvement programs fail.

- Management perceives that the cost of implementation exceeds the expectant results.
- Tools and program are viewed as too complex and requiring extraordinary amounts of indirect labor hours.
- The manufacturer is told they must swallow the whole banana bunch (continuous improvement program) to achieve results rather then get incremental results.
- Smaller manufacturers are told they can use the same program used by Toyota or Caterpillar, no matter what shape their systems or resources are in.

To better understand why many manufacturers back away from these programs you must first understand that manufacturing companies in the U.S. are not a homogeneous group. From more than 30 years of working with manufacturing companies of all sizes, I suggest that there are at least four distinctly different types, and there are logarithmic differences between these types, in terms of

resources, knowledge, experience, staff, and the where-with-all to deal with change.

THE COLLINS CLASSIFICATION OF MANUFACTURERS

| TYPE-1 | TYPE-2 | TYPE-3 | TYPE-4 |
|---|---|---|---|
| MICRO | FAMILY OWNED | PROFESSIONALLY MANAGED | GIANT PUBLIC |
| 1-19 EMPLOYEES | 20-99 EMPLOYEES | 100-1,000 EMPLOYEES | 1000+ EMPLOYEES |

A Type-1 micro-manufacturer might be just a few people managing a small shop, with little operating capital and a day to day fear of generating enough cash flow to keep the doors open. About fifty percent of these companies do not last beyond five years.

A typical Type-2 manufacturer is a family-owned business with less than 100 employees, a few known customers, and decent cash flow. However, Type-2s, are generally very good technically, but very weak in terms of the accuracy and sophistication of their systems. For instance, they generally mix up fixed and variable costs, which means they can’t compute break even sales or establish a contribution margin. In addition, few of them have up to date cost accounting systems that show accurate costs and margins and I have found that very few compare their quoted costs to actual costs. This makes their ability to compete in the new marketplace very suspect and dangerous when they are pricing a large volume order.

Type-3 manufacturers are midsize companies from 100 - 1,000 employees that are usually managed by a professional staff and have well-developed systems.

I also need to mention the Type-4, publicly held manufacturers, who have the power to control entire industries and supply chains. They are the companies that generally pioneer all new processes and continuous improvement systems, such as Lean Manufacturing from Toyota and Six Sigma from Motorola.

These four types of manufacturers are so different in their knowledge and resources, that one solution seldom fits all four. Hence, suggested solutions and strategies need to be tailored to the type of SMM.

The following chart on the total number of manufacturing establishments clearly shows that 92 percent of all manufacturing companies are Type-1 and -2 companies that have less than 100 employees. The problem is that most of the process improvement systems were originally designed for the 861 Type-4 companies, and are pushed down to Type-1,-2, and -3 manufacturers.

| | Total Establishments | 308,934 | |
|---|---|---|---|
| Type-1 | 1 to 4 | 115,521 | 37.39% |
| Type-2 | 5 to 99 | 168,899 | 54.67% |
| Type-3 | 100 to 999 | 23,653 | 7.66% |
| Type-4 | 1000 or more | 861 | .28% |

To explain the problems of process complexity, I would like to suggest that small

manufacturers are not small versions of large manufacturers. One of the most popular approaches to helping SMMs is the assumption that the same theoretical concepts or solutions pioneered by giant manufacturers will also work for SMMs.

When I was a General Manager, I needed to implement a better quality system, and was approached by some consultants who wanted to sell me ISO 9000. None of my largest customers cared if we were ISO 9000 Certified. Their contracts simply stated that the production line machines had to reach 99 percent uptime in a given period. We built machines that were engineered for each customer plant with different specs, different purchase parts, and a lot of new engineering.

A consultant suggested that we should implement the same version of ISO 9000 used by the auto companies. They had little understanding of the one-off nature of our parts, and the great variability of our machines and labor hours. I admit that some of the basic concepts in ISO 9000 were very useful, but the consultant could not explain how the process could be adapted to our type of manufacturing, where every order was very different. I saw this as a paperwork nightmare that would drastically increase our indirect hours and slow our production and delivery times. He would not offer pieces and parts of the system, and wanted me to accept the whole thing. I wanted something that could fit our resources and systems. I needed a simpler process that could be implemented slowly with incremental results.

The second point is that all small and midsize manufacturers are restricted by resource limitations. "FACTS" is an acronym that best characterizes the reality of the small manufacturing environment, described as:

F - Fear of making a wrong decision

A - Limited Access to capital.

C - Cash flow problems

T - Time constraints

S - Small or no Staff.

Consultants selling continuous improvement programs don’t seem to recognize or acknowledge the dilemma and resource problems of small manufacturers. The assumption seems to be what is good for Toyota must be good for ABC FABRICATION. The complexity of using these processes is often too difficult for smaller manufacturers. They need the processes chopped down into bite-size steps that fit their resources.

If the solution does not consider “FACTS” and the “TYPE” of company, it can harm rather than help SMMs. In a medical analogy, one must be careful that the dose of medicine does not kill the patient or make the symptoms worse. A Hippocratic Oath must be observed in helping save America’s SMMS – Do no harm!

SMMs are often sold as a system that is so complex that it ends up defeating its

original purpose. A good example is the SEMCO Company, which is featured in the book “Maverick” by Ricardo Semler. Ricardo took great risks to remake his company into a new organization that was driven by the customers and employees. Semler began by eliminating all types of structures, rules, and top down policies.

After investing in an IT department with a mainframe computer and all of the necessary programmers to run the equipment, Ricardo found out that it had become a priesthood of people who made systems more complex, harder to use, and more very expensive. When he found out that they could not get all of the invoices sent out each month because of the limitations of the equipment, he fired the entire Information Technology department. Semler says “we no longer have all those programmers or keypunch operators; we have dismantled our information systems department and thrown out the systems master plan.”

Most small and midsize manufacturers have neither the staff nor resources to adapt Type-4 manufacturing continuous improvement programs. I think that continuous improvement programs tend to slow down once the 861 giant companies have tried them, and it tends to grind to a halt when they get into the Type-1,-2, and -3 companies. To be useful, these programs need to be scaled down to fit the manufacturing type, understanding resources, existing systems, and staff of the company.

*Mike Collins is the author of "Saving American Manufacturing" and its companion book, the "Growth Planning Handbook for Manufacturers." To learn more about the author or these titles, visit* http://www.mpcmgt.com/ *[2].*

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