

## Organizational Conflicts in Implementing New Manufacturing ERP Systems

A White Paper by Peter and Eric Green



### Introduction

In this White Paper, Peter and Eric Green describe how inherent organizational conflicts can cause the implementation of a new manufacturing ERP system to fail in its goal of improving the production processes which are at the heart of most manufacturing enterprises.

Legend has it that there are no scarier words for a production manager in a manufacturing plant than when the CFO says **“I just bought you a new ERP system to help with your production operations”**.

According to Gartner Research, up to 75% of ERP implementations fail to meet expectations and 17% fail outright. In this White Paper, we look at why many manufacturing ERP implementations fail to come close to meeting their original objectives, especially in the area of improving manufacturing operations.

At the core of an ERP (Enterprise Resource Planning) system is an accounting/finance system to which is added materials requirements planning (MRP). MRP does planning of materials purchases as well as scheduling of manufacturing operations, based on sales forecast, and also includes tracking inventory status. Sometimes other functions such as Customer Relations Management (CRM) are also included.

The premise of implementing an ERP system is that it will provide a single system which will meet all of the information technology requirements of an organization provided that the organization is willing to reengineer its operations to be compatible with the methods used by the ERP system.

Most ERP systems are sold on the basis that, by adopting the methodology embodied in the ERP system, the organization will dramatically improve its operating efficiency and thus justify the cost of implementing the ERP system.

Most of this cost comes in the form of the team of consultants who will spend many months studying the organization's requirements, assisting the organization to reengineer its operations so they fit the methods used by the ERP software, and then train and support the organization's employees to use the ERP software.

A fundamental premise of most ERP implementations is that the organization will change its operations to meet the requirements of the ERP system, which is where the fatal flaw often lies, especially for mid-sized manufacturing organizations in the USA.

This stems partly from the need to have standard ERP software which can be used by thousands of different manufacturing organizations and partially from the belief of its developers that the ERP system embodies the best operations management practices for thousands of different organizations.

## Road to Failure

Most ERP systems are purchased by CFOs (Chief Financial Officers) on the basis that it will make their job a lot easier by providing rolled up financials across multiple manufacturing plants and warehouses, possibly in different countries with different currencies and tax structures.



Most implementations start with a group of young MBAs, who know little about the complexities of manufacturing, studying how the organization currently works and mapping out how the manufacturing organization, and its production operations, will need to be changed to meet the needs of the ERP software.

Implementation almost always starts with the accounting/financial core of the ERP system, which is almost universally successful with a high level of buy-in by the people in the accounting/finance departments.

Then comes the time to reengineer the manufacturing operations, which are at the core of most manufacturing organizations. Here, the buy-in by the production organization rapidly drops to zero after they discover that they will have to totally change the processes that they have successfully developed over many years of operating experience, all the while still working flat out to ship customer orders.

Not infrequently you will have freshly minted MBAs from a systems integrator trying to tell experienced production managers, with many years of experience, how they should now run

their manufacturing operations, in order to use the ERP software. This is where most ERP implementation projects quickly run into trouble and stall out, after much conflict, which can quickly destroy corporate cohesion.

There are typically several outcomes from this:

1. Senior management forces the changes through. As a result, the manufacturing operations, which made the organization uniquely competitive and efficient, are reduced to the standard lowest-common-denominator operations model, of the ERP system, often with disastrous results. One notorious example was when Hershey's Chocolate was unable to ship over \$100 Million worth of products, just before Christmas.
2. Integrating production operations into the ERP system is abandoned and the shiny new ERP system becomes a glorified accounting system. All data input into the ERP system is submitted as paper forms from production to accounting, where office staff enters the data which they need into their ERP system.
3. An attempt is made to modify or extend the ERP software to meet the operational needs of the production staff. Often this costs a lot of time and money and comes with its own pitfalls. One local one manufacturing plant, with a headcount of 35 people, was forced by its acquirer to implement an SAP ERP system. It cost \$600,000 to modify the ERP software to meet the needs of production organization (to replace their \$35,000 BellHawk operations tracking system) and took two years. By that time SAP was now on a later version and the customizations had to be redone at a further cost of \$400,000. Usually, such attempts are abandoned due to cost over-runs and lack of support (or outright opposition) by the production staff over the extended software development time.
4. A belief emerges that the organization chose the wrong ERP system and/or systems integrator, typically resulting in the CFO pursuing alternate career opportunities elsewhere and the eventual purchase of another shiny-new ERP system by the new CFO. Rinse and repeat.

Meanwhile, the sales person(s) who sold the organization on buying a new ERP system are long gone, having handed over the several-year implementation process to an implementation team. As a result, these sales people suffer no personal penalties from any implementation problems that subsequently arise.

## **Inherent Conflicts**

The failure of most manufacturing ERP implementations results from inherent conflicts:

1. ERP systems need to sell tens of thousands of copies of the identical software to justify its development and maintenance cost whereas manufacturing operations in the USA are very diverse in what they make and how they make it.
2. At the core of most mid-sized manufacturing organizations is a set of manufacturing processes that provide a unique competitive advantage for the organization. ERP systems, by contrast need to standardize those operations to fit the standard operating processes embedded in the software.

3. ERP systems, having accounting systems at their core, need to be standardized to meet the needs of GAAP (Generally Accepted Accounting Principles). This directly conflicts with the need to customize the software to meet the requirements of a diversity of manufacturing practices. For this reason, most ERP systems no longer allow customization so they produce provably accurate accounting results and insist, instead, that the production processes be changed to fit the ERP system.
4. ERP systems typically have to be upgraded on an annual basis as taxation rules change. This then requires changing the production tracking system as well, as they are part of one system, often with significant disruptions to operations, especially if customizations and work-arounds have to be redone.
5. Most ERP systems are inherently designed for long run manufacturing, with its classic materials requirements planning (MRP) algorithms, designed to plan and schedule operations for months ahead, whereas most manufacturing plants in the USA run on a quick-turn, short-run, just-in-time basis.
6. At the core of the premise for implementing a new ERP system is the goal of reengineering the manufacturing operations so that they are much more efficient. This is often being done by people with limited knowledge of the specific manufacturing processes being used, with the outcome that one would expect.
7. Many ERP system sales people make most of their money from commissions on system sales and, when the sale is complete, hand over the customer to an implementation team, before moving onto other sales situations. They suffer no penalties personally if the ERP system fails to live up to the vision painted by the sales person.

## **Commentary**

Most ERP systems were designed for standardized long-run manufacturing operations, such as those used at Toyota. They are a poor fit for most mid-sized US manufacturing operations, which specialize in quick-turn, short-run manufacturing using specialized processes.

This is why we recommend that our clients use separate accounting, materials planning, and manufacturing operations tracking systems, each of which is best suited to the needs of the specific manufacturing organization.

This has a number of advantages:

1. Typically, this is far less expensive and far less disruptive than purchasing a new ERP system
2. It can provide the same, one system feel as an ERP system, when a systems integration tool such as KnarrTek's MilramX is used to move data automatically between system components.
3. The Accounting system can be upgraded annually for tax changes without disrupting production.

4. Operations Tracking systems, such as KnarrTek's BellHawk are designed to be configured and customized to work with a wide-variety of different manufacturing operations, without requiring reengineering of those processes.
5. Materials planning can be done on a just-in-time basis using a decision support system, such as KnarrTek's KnarrOps system, with real-time scheduling being done dynamically by an operations tracking system such as KnarrTek's BellHawk.

Often clients have an existing ERP system, which can be used as a perfectly good accounting system in combination with other system components, such as those provided by KnarrTek. Alternately, if the ERP system needs replacing, because the operating system on which it is running is at or beyond end-of-life, then an inexpensive accounting system, such as QuickBooks Enterprise, can be used instead of purchasing a new and very expensive ERP system.

## **Authors**

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Dr. Peter Green serves as the Technical Director of KnarrTek Inc. Dr Green obtained his BSC (Hons) in Electrical Engineering and his Ph.D. Degrees in Electronics and Computer Science from Leeds University in England. Subsequently Dr. Green was a senior member of technical staff at Massachusetts Institute of Technology and a Professor of Computer Engineering at Worcester Polytechnic Institute.

Dr Green is a Systems Architect who is an expert in using real-time artificial intelligence methods to implement real-time Inventory Tracking and Operations Management systems for Industrial Organizations. He has led the implementation of over 100 such systems over the past decade. Dr Green also led the team which developed the BellHawk job and materials tracking software, the MilramX intelligent information integration software platform, and the KnarrOps EDS software platform.

### ***Eric Green***

Eric Green serves as the Director of Support of KnarrTek Inc. Eric Green obtained is bachelor's degree from UMASS Dartmouth in Operations Management and Management Information Systems. Eric has been a part of 40 plus implementations of operations management systems over his 8 years of experience in this field. This includes receiving, production, inventory management, shipping, order management, as well as integrations with a number of ERP systems and a range of different manufacturing equipment.

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