

# Survive-to-Thrive

UDC: 005.51/.52

Jan Snoeij

Chair EMEA Manufacturing Enterprise Solutions (MESA)

Principal Consultant, Logica

*Given the current economical crisis, surviving seems to be first thing for many manufacturers. Too often their policies are limited to drastic cost cutting activities, without a clear vision how to thrive to operations excellence. Nevertheless, aligning the business and manufacturing processes, the organization and the supporting tools is the core of the strategy and activities of the surviving manufacturers, successfully thriving for operations excellence. This paper has been presented at the SPIN09 conference in Belgrade on November 5, 2009*

## Introduction

Survive-to-Thrive was the theme of the European Conference of MESA International, held on October 27 – 28, 2009 in Utrecht, The Netherlands as well. Attendees, including manufacturers/producers, solution providers and analysts, heard how companies on either end of the spectrum need to think, act and engage in today's and tomorrow's global economic realities.

## Trends and observations

Given the current economical crisis, surviving seems to be first thing for many manufacturers. Too often their policies are limited to drastic cost cutting activities, without a clear vision how to thrive to operations excellence.

In the last decade, before the crisis, trends like shorter product life cycles, globalization of the market, regulations and increasing price pressure, were influencing the policy of industrial companies strongly.

Today, it is even more important to be ready to take up the challenge of the market and the supply chain successfully for whenever the next upturn will end the current less prosperous situation

Globalization of the market will remain influencing everything. "Make or buy?" and "Where to produce?" decisions has to be made. Globalization is about selling more products to new markets as well. This might be done directly or by cooperating with international distributors.

Managers are being squeezed between shareholders, pushing for more revenue and higher profits, and customers; demanding more for less money and a quicker delivery. The regulatory requirements are expanded year by year. While the General Food Law [1] is about timeliness of information, deliver proof within four hours, Sarbanes-Oxley [2] is requiring reliability of information.

All this is leading to supply chain challenges like reduction of stock-outs, lowering inventory to reduce holding costs, reduction of transportation and order management costs, etc. Currently, for a manufacturing manager, Vice President and even the CEO, it is nearly impossible to keep control over all operations.

## Transparency and visibility

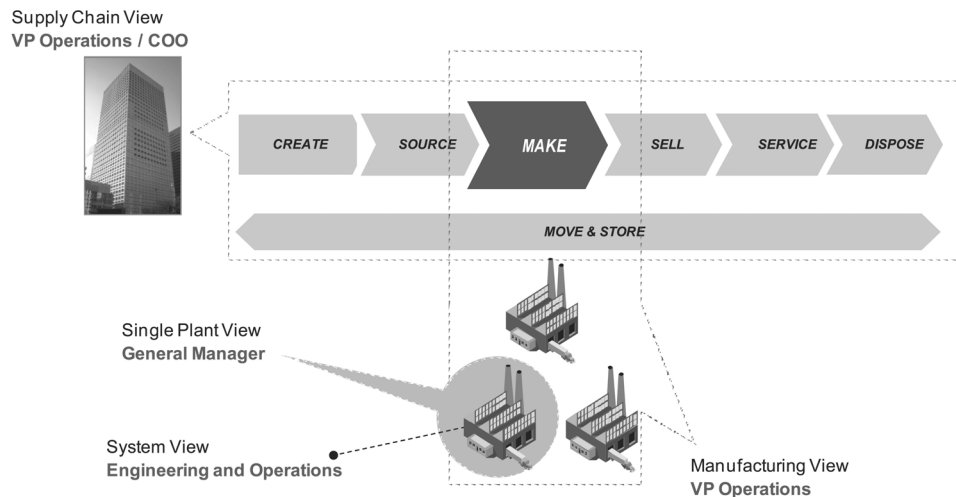
There is a clear need of transparency and visibility [3] in order to streamline production and other business processes and workflows. It implies the application of highly integrated information systems with rapid flows of accurate data. Integration of the plant and the enterprise are key for success.

To achieve transparency and visibility throughout the supply chain and manufacturing processes, a consistent (corporate) strategy and policy is required with clear strategic and operational objectives.



*Required alignment*

In this approach, business and manufacturing processes, organization and supporting tools, of which Manufacturing IT is just one, must be aligned. The objectives have to be communicated continuously to create and maintain sufficient support and involvement! The leading manufacturing companies see their factories, supply chains, logistics and procurement programs, inventory cycles and labor management as strategic assets!



### *Information need in supply chain & manufacturing*

The need for information is role dependent. The VP of Operations or COO is overlooking the whole supply chain or at least all manufacturing processes.

	VP Operations	Plant manager	Maintenance manager	Production manager	Planner/scheduler
<b>Metrics</b>	Return on assets	Manufacturing costs	Asset availability efficiency	Yield, cycle times	Changeovers compliance to plan
<b>Focus</b>	Across plants	Within a plant across processes	Within assets	Manufacturing process	Within supply chain
<b>Goal</b>	Profitability	Operational excellence	Reliable assets	Optimized manufacturing processes	Efficient fulfillment

### *Information need per role*

A plant manager is responsible for just a single factory, while engineering and operations are looking at the systems within that single plant. They have different metrics, focus and goals (see Figure 3).

To achieve improved profit margins, improved quality, improved compliance and reduce raw material costs at the same time is a challenging balancing act between operational planning and scheduling, asset performance and manufacturing execution. Everyone involved needs the right information in the right format at the right time. A real time multi perspective view at the complex reality of the manufacturing and other business processes is required.

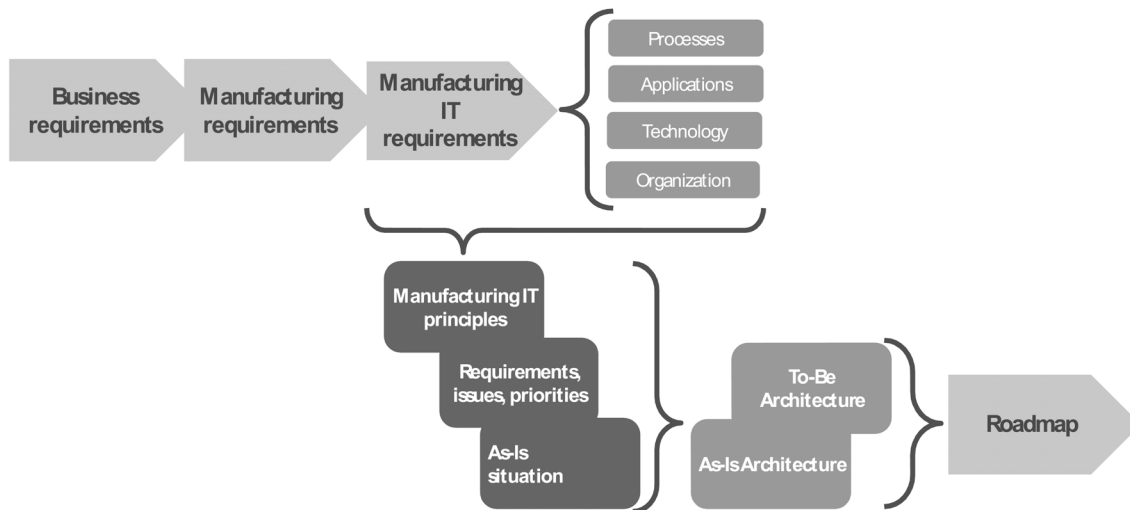
Today's portal technology with dashboards are helpful in presenting metrics and other relevant information to show what is really happening and how well we perform. That information is increasingly event based, providing information when something happens. The next step will be predictive metrics, full of intelligence and location independent, warning the responsible

people in time on their mobile device that something is expected to go wrong. Could this mean, that we can leave the factory and switch to 'unmanned' manufacturing or production?

An important prerequisite is that the production process is completely understood and that we really know how to control it. If that is the case, then the processes are not the restricting factor anymore, neither is the technology. It is all about how we make use of the information provided by the systems. Are we really consistent in our ways of working? It is up to the people to make it happen.

### **Blueprint and roadmap**

The business objectives, strategic and operational, are starting point for developing an architecture blueprint. From there the manufacturing and the manufacturing IT requirements can be derived with respect to processes, applications, technology and last but not least organization (see Figure 4).



*Proven approach to Value Adding Roadmap*

By a fit and gap analysis between the current and the desired future architecture, a step-by-step roadmap can be developed. The scope of the manufacturing IT architecture typically comprises the inbound logistics, make and outbound logistics functions of a manufacturing company. In accordance with the ANSI/ISA-95 standard, it covers all manufacturing operations and control activities (level 3) related to the material flow from supplier to customer [4][5].

In order to enjoy the full benefits of investments for business planning and logistics (ANSI/ISA-95 level 4), e.g. SAP and other ERP systems, the manufacturing operations management processes and applications (level 3) must be mature and harmonized.

### Other challenges

It is obvious, that 21<sup>st</sup> century manufacturing will have to face other challenges, like volatile raw materials markets, lack of well-trained workers and rising energy costs. Base metals and other raw materials are becoming very scarce. Actually, if the developing countries want to level with us in Europe and the USA, they need by far more raw materials than currently are available in the whole world. Instead of competing, we better focus to develop products and processes based on the use of other and new materials. The developing countries are competing with us for machines and tools as well. There is an explicit need for more efficient and effective way of working with respect to both processes and products.

Labor shortages will provide another challenge. By 2020, there will be only two workers to support the pensions of each retiree in Japan, Germany, the United Kingdom, and France - down from three and a half workers per retiree in 2000 [6]. In nearly all European countries, this is about the same! It will be

quite a challenge to find enough sufficiently good skilled employees. The consequences will be dramatic, as illustrated in the following example [7].

A tube and fitting manufacturer in northern Italy had enjoyed double-digit revenue gains from expanding sales in China. But when product demand jumped, the company could not find enough trained welders in the region. Eventually, it imported a contingent of Romanian workers, but unless conditions change, even those welders may soon prefer to work for Starbucks. And who can blame them?

### Conclusion

Investing in Manufacturing IT is not (only) about integration of systems and applications. It is about full integration of the plant, the enterprise and the supply chain. All aspects of the complete architecture are important and must be aligned: business and manufacturing processes, organization and people, applications, data and technical infrastructure.

This is the core of the strategy and activities of the surviving manufacturers, thriving for operations excellence.

### REFERENCES

- [1] Official Journal of the European Communities, "Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety", February 1, 2002

- [2] One hundred and seventh Congress of the Unites States of America at the second session, "An Act To protect investors by improving the accuracy and reliability of corporate disclosures made pursuant to the securities laws, and for other purposes", January 23, 2002
- [3] Mathijs Philips, Jan Snoeij and Lorenzo Pengo, "Plant Floor Visibility, a joint Logica - Microsoft Whitepaper, November 2006
- [4] Instrument Society of America (ISA), "Enterprise-Control System Integration, Part 1: Models and Terminology", July 15, 2000
- [5] Instrument Society of America (ISA), "Enterprise-Control System Integration, Part 3: Activity Models of Manufacturing Operations Management", June 6, 2005
- [6] U.S. Census Bureau's International Data Base, online access: [www.census.gov/ipc/www/idb/](http://www.census.gov/ipc/www/idb/)
- [7] Kaj Grichnik and Conrad Winkler, "Manufacturing's 'Make or Break' moment", strategy+business magazine, May 8, 2008