Looking to the future of ERP
Preparing for the new industrial revolution in IT

One are the days of IT in the “support” role. Today, overall IT performance is measured not in bits and bytes, but by how it facilitates overall competitiveness and growth.

To stay competitive in any fast-changing environment, according to industry analyst firm Gartner, businesses must now re-imagine the IT organisation to maintain and “amplify” IT’s contribution to enterprise strategies and operations through integrated technologies, processes and information management capabilities. IT systems must support innovation and business transformation. To this end, businesses are capitalising on technology to support “digital transformation”.

The onset of IT automation is having a deep-rooted influence on manufacturing and engineering organisations around the world. IT automation is the linking of disparate systems and software in such a way that they become self-acting or self-regulating. The first industrial revolution in IT occurred in the late 1990’s with the widespread implementation of ERP systems to manage departmental tasks and workflows. The second revolution is currently taking place within IT’s infrastructure and operations organisations.

For the remainder of this article, I would like to explore the exponential adoption of automation practices in relation to Gartner’s ‘Nexus of Forces’ theory, ‘Big Data’ and the implications for the future development of ERP systems. According to Gartner, the Nexus of Forces is the convergence and mutual reinforcement of social, mobility, cloud and information processing solutions to drive complex business scenarios. The ‘Nexus’ is the basis of the technology platform of the future and will continue to disrupting outdated business models.

Social business applications and Web 2.0 technologies

Social is the most accessible of the four Nexus forces. Social business platforms provide an enterprise a “visible” social network in the same manner that consumer social networks like Facebook do. These social business platforms provide the basic social business framework for collaboration.

To meet customer force users to figure out how to map isolated pools of information and functions to their tasks and processes. And they force IT professionals to spend too much of their budget to keep up with evolving business models and requirements.

Adding collaborative Web 2.0 technologies, such as enterprise search, presence, and mashups to business applications is increasingly seen as a way to address the challenge of collaboration and evolving business requirements. Yet while many business users are familiar with these technologies, personal use, they remain uncertain about how these new capabilities can support their business strategies.

The value of Web 2.0 technologies is that they bring capabilities to business users that were not possible previously. These include:

- Enabling users to securely access structured and unstructured information across the enterprise in a single search
- Enhancing collaboration both internally and with partners, suppliers and customers
- Boosting the usability of business applications
- Improving the ability to customise and integrate applications and
- Simplifying application upgrades and maintenance

Web 2.0 technologies can be used to support business strategies by improving efficiency and productivity. IT can also deliver knowledge to employees through collaboration. They also reduce IT costs by simplifying integration and improving IT administration and maintenance. Increasingly, software vendors and businesses are bringing Web 2.0 capabilities from the consumer realm to business applications to address end-user and IT challenges. As the consumer realm, businesses must control who sees critical business information. Therefore software vendors have been infusing these technologies with the security and management features found in traditional software applications.

Web 2.0 makes enterprise information more easily discoverable in a number of ways. It enables users to search for all types of data in a single search; it improves the relevance of results through a Google-inspired link structure and allows content categorisation to arise organically through tag clouds; it augments returned search results with additional data, as well as updates users about new content automatically through real-simple syndication (RSS).

Enterprise Mobility: Supporting agility and flexibility

The Internet and mobility play an essential part in the daily lives of the information-hungry global economy, but how do you make ERP mobile? Furthermore, how do you use mobility to the benefit of those in manufacturing?

The image of the traditional ERP system doesn’t match with today’s powerful mobile devices and flexible, scalable software solutions. The traditional image has become outdated. There is a new set of technology which enable ERP with “Enterprise Mobility”.

Mobility in the workforce has become a competitive necessity rather than simply offering a competitive edge. The vast majority of manufacturers and engineering companies already utilise the benefits of an enterprise resource planning (ERP) system to optimise and improve organisational processes and cut costs.

Enter enterprise mobility, which is all about flexibility, provides easy access to information and processes to employees wherever they are located. It can encompass everything from the integration of mobile phones into a corporate telephone system to vertically oriented solutions involving the quick delivery of productivity enhancing information to people in the field, the factory and in the warehouse.

Enterprise Mobility improves employee performance and increases productivity by ensuring employees access to data from your ERP system at all times and in all locations. Inventory tracking is improved by labelling and scanning inventory to achieve optimum traceability and to make immediate adjustments during counting, leading to improved confidence in your enterprise data; you know your stock levels are accurate and can therefore make better business decisions when buying and selling products.

Mobile ERP offers organisations the option for lightweight access and ability to work with information within their ERP system through untethered wireless Web browsers, on a variety of common mobile devices like laptops, iPads or smart phones.

With the rapid expansion of mobile devices, you should make sure that your ERP solution can handle deploying information and transactions to these devices seamlessly by using technology that allows ERP applications to run as smart clients or Web clients, or on mobile devices, all from the same source code. This will ensure that customisation and user personalisation remains intact, whatever the user interface.

Leveraging information: Big data and analytics

Big Data is the rapid growth and evolution of business data. Organisations must find a way to collect and make use of the large amount of data gathered. They must overcome the challenge of speed requirements for the capture and increasingly complex analysis of data and install strategy around the many ways to leverage an expanding range of data format.

The challenges associated with leveraging Big Data and fully capitalising on the benefits it can bring is continually pushing manufacturers to keep their ERP strategies up to date and make the most out of their investment. Manufacturers are using business intelligence and analytical tools embedded in their ERP solutions to take the large volumes of data gathered and held within their system, and make it more easily consumed for fact–based decision-making.

When every employee is provided with a timely source of information and understands the mission-critical objectives, less time is spent gathering data and more time is spent planning and taking action. Key to this type of active
The future of manufacturing

I'm often asked how I see the future of manufacturing shaping up. While I don't have a crystal ball, I do have a well-rounded picture gleaned from my contact with various experts, reports, studies, my overseas trips, and day to day contact with manufacturing firms.

There are some clear trends emerging, as are evident when looking at some smart Kiwi manufacturers. A high performance, high quality, innovative, product-service-system offering is the way forward. The latter is a key differential – it's about more than just manufacturing a product to sell and that's the end of it.

The "servitisation" of manufacturing, as referred to by world leading expert Professor Göran Roos, is making companies more competitive. It goes beyond simply providing customers with a product, by also offering them a service element too. Basically, the more services a manufacturer sells, the higher its productivity.

Tait Communications is a good example of leading the way in this type of manufacturing in New Zealand. It doesn't just make radios, but also offers design services, training and deployment services, support services and Service Management Centres located around the globe.

Professor Roos has shared some other useful insights with us – many of which have been gained from studying the performance of mid-sized manufacturers across Europe. These lessons are highly successful, despite the fact that they are not manufacturing in a low cost environment. These lessons from Europe are equally applicable to New Zealand.

In a nutshell – the mid-size European manufacturers are successful because they:

- focus at the high value, high quality end of the spectrum
- are highly specialised in a niche market which they aim to dominate globally
- focus on innovation and investment in R&D to keep ahead of the competition
- aim to serve their customer better than anyone else - profit is an inevitable consequence
- have a very high level of management-skills
- stay away from large, price-driven volume markets
- compete through superior value not cost
- are obsessed with leading edge technology.

One of the simple messages Roos also conveys is that in a high cost manufacturing country you need to innovate, in a low cost country you compete on price.

As wages increase in low cost countries, there is also an increase in on-shoring, as opposed to the traditional offshoring of manufacturing to cheap labour countries. This means R&D can be kept close to production, therefore decreasing the costs of outsourcing and offshoring.

A competitive advantage we have in New Zealand, if we choose to use it, is the ability to think laterally or "outside the box". This is something some of our competitors in Asia and India may not have. Finding a problem that matters to somebody with the ability to pay equates to higher margins.

What else can Kiwi manufacturers do to remain competitive into the future?

One of the opening speakers at the conference I attended in Dubai – the Global Federation of Competitiveness Council – shared some valuable tips on competitiveness. Dr Stephen Garelli, Director of the IMD’s World Competitiveness Centre, said "complexity kills competitiveness" – a good mantra to remember.

Looking to the future, he said:

- the globalisation of domestic brands will be critical to the competitiveness of developing economies e.g. Haier has taken over as the number one appliance maker from Whirlpool (US).
- you can have huge success as a company but not create jobs in your country e.g. Apple, designed in the US and made in China. Note – they are bringing some manufacturing back to the US, and there was more talk about “on-shoring” in the UK.
- a competitive advantage we have is our ability to think "outside the box".

The “servitisation” of manufacturing, as referred to by world leading expert Professor Göran Roos, is making companies more competitive.

The necessary information already exists in your business systems. Use business intelligence tools to unlock it and provide deep business insight, rich decision-making capabilities, and improved collaboration among teams.

Two tools that are critical to leveraging information and data analysis and a crucial part of every advanced ERP system are Business Activity Query Reports (BAQ) and Dashboards. Both tools provide an important function in decision making and accessing large amounts of data in an easily consumed format. These tools can be described as follows:

- Business Activity Query (BAQ) – A dynamic query engine and graphical orchestration tool, used to create personalised or standard queries that can be used throughout the application to generate reports, quick searches, support portal views, or dashboard views. BAQ reports allow organisations to quickly generate their own indicators. This allows businesses to see the exceptions in their business based on their unique needs by creating detailed or summarised indicators that are focused on a particular record such as a customer. A business can see related information by linking multiple components together and publishing based on the selected record. Advanced components can be generated while adding sheets or tabular tabs to existing components.
- Dashboards – An application that allows an organisation to easily publish updateable dashboards of user-specific information. Built directly into all your ERP system, dashboards permit the combination of multiple capabilities such as inquiries, ad hoc reports, workbenches, graphical analyses, tactical business intelligence, alerts and business monitoring—all in a single dashboard. They provide a robust one-stop interface that replaces traditional menu systems with personalised role or context based views and links into configurations of the system. In addition, they put the visual indicators and functions you use the most right at your fingertips. Topped with unique flexibility, dashboards enable users to develop their own workbenches using a series of online views of information such as a tracker. From a tracker, "open with" technology is deployed to drill into any part of the system, whether it is to enter a new order, modify an existing one, or update a customer record.

Previous technology revolutions have tended to come from business – top down – but what we are currently experiencing is that a much greater role is being played by users. Some call it the consumerisation of IT, and there is no doubt there is a much greater feeling of empowerment and entitlement amongst today’s users which in turn is changing the way technology is delivered and consumed.

The challenge for traditional IT is that this brave new world renders many existing architectures and strategies obsolete. The best thing to do is to work out a strategy that protects and enables your business to thrive.

– Maggie Fox

– Catherine Beard

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