The Business Impact of Enterprise Asset Management

Acknowledgements

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IBM Corporation, IBM Software Group, Route 100, Somers, NY 10589, U.S.A.

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Contents

Foreword

We all have assets, at home and in our businesses. We have always had assets, but never quite so seemingly complex. Technology has become an integral part of our lives, enabling us to get products and services better, faster, cheaper. That's the good news. But if you've been on this planet for more than a few years, you know that there are no free rides – something has to give.

I think you'll find this book helps you sort out what the biggest trade-offs and challenges are in the world of asset management. As well, each chapter provides some practical solutions to consider, using Enterprise Asset Management software as an enabling tool. But most importantly, the book provides you with some answers to the "What's in it for me?" question you will no doubt hear from key stakeholders across your company, as you try to get them excited about what Enterprise Asset Management can do for them, and vice versa.

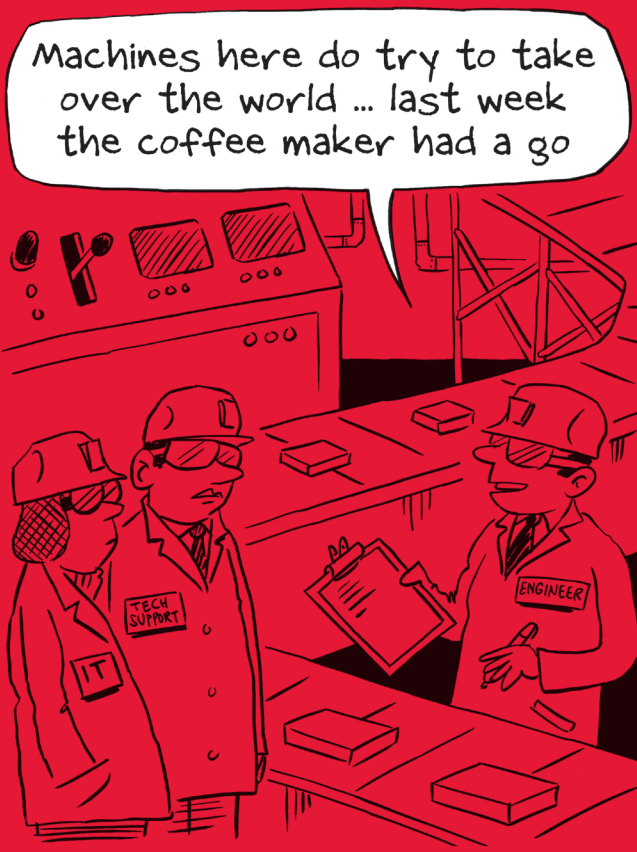
Like many of you, I enjoy a challenge. This book covers all the key ones that may have a significant effect on Enterprise Asset Management. For example, we are witnessing the growing complexity and risk associated with increased automation, as our need for better integration of technology increases. In terms of human assets, we have to figure out how to more effectively transfer knowledge from the heads of an ageing workforce into the hands of the next generation. One of the most difficult opportunities presented in this book, but potentially the most lucrative, is the challenge to grow

the bottom line through lower energy costs, reduced emissions, and so on, as regulatory pressures rise and the cries to save our planet intensify.

Roughly half of my career I've worked in industry, and half in consulting. One of the most satisfying accomplishments for me as an executive and a leader of people in industry, or as a consultant working with clients, is when the folks I work with experience an "Aha!", that is to say, when they get it and their whole attitude and behaviour shifts dramatically. It's when their face lights up and they are on a mission to make things better.

So as you read through this book ask yourself two questions. First of all, what can you do differently to better manage your assets, today and over the long-term. Secondly, what can you do to motivate, influence and convince others to behave differently. That's what leadership is all about. And that's what this book is about. Enjoy.

David Berger
Director
Western Management Consultants
david@wmc.on.ca


Machines here do try to take over the world ... last week the coffee maker had a go
TECH SUPPORT
IT
ENGINEER

Chapter 1

The changing role of the plant engineer

Taking over the new world …

If there is one lesson that IT has taught us in the last few years, it's that nothing stands still. Not the world of business; not IT itself; and definitely not your job.

Not that long ago, science fiction writers used to make up stories about the horror of robots taking over the world. But if they tried that now, they'd be laughed off the shelves. No one would be frightened – because we've all seen it happening.

One recent survey[1] showed that just over one third of all manufacturing plants in the US have at least 70 per cent automation and IT components on the plant floor. That figure is expected to increase to around 55 per cent of manufacturing plants in the next three years.

Another interesting statistic in the study was that the maintenance of those IT-enabled assets is no longer just the job of the IT staff. The majority of plant managers said the job belonged to IT, and to the maintenance staff. So in the new world we're in, managing the assets is no longer just for the IT specialist.

The robots may be taking over the world – but we are taking over the robots.

[1] Source: 'Plant Engineering' survey, November 2007

A whole new direction …

For the plant engineer, it's a challenging prospect. They're used to change, of course – their role has always focused on making things, making them well. There's been a clear trend over the last few years for anything that doesn't contribute to the manufacturing process – equipment or facility maintenance or energy management, to name a few – to be outsourced to other departments, or even other companies.

But today, managing IT-enabled equipment is a shared role between IT specialists and the plant engineers, and it demands people who have skills in both areas.

The statistics have been gathered in the US, but industry observers are convinced that they represent a global trend – and that it's a trend which will continue.

As the wider world of business becomes less hierarchical, plant managers are increasingly involved in discussions about new construction and plant expansion, about production scheduling and financial management. Finance departments are looking to them for tighter budgets and new efficiencies; they are becoming involved in the development of purchasing policy in every field related to the manufacturing process, from compressed air systems to IT components and software. They are full partners in the business enterprise.

It is this new relationship with the IT department that is most significant. In an area that was once the jealously-guarded preserve of the specialist, plant engi-

neers are being called on to use their experience and knowledge of how the plant works to provide important insight in drawing up the specifications for new Enterprise Asset Management (EAM) solutions.

Plant managers always had experience and expertise to offer, but now the vast majority of them have degrees – and nearly a quarter have an advanced degree as well. There is a whole new layer to their responsibility within the organisation: now they are seen as being responsible for cutting costs, improving performance, and driving efficiency.

New challenges …

That is good news both for the plant managers and for their companies – latest figures show their 2007 bonuses up by nearly 46 per cent from 2006, the second time in two years they have shown sharp increases[1]. Obviously, that's good for the plant managers – and good for the companies because it shows that their productivity goals are being met.

But it's a competitive world, and a chilly economic climate. It's not enough to improve over one year. You have to keep doing it. And that's where the picture gets a little gloomier.

It's not only the plant managers who have new roles and new responsibilities – their staff, too, have to adapt to the changing global business world. There are also new challenges to face throughout the company, as responsibility spreads downwards.

[1] Source: 'Plant Engineering' survey, November 2007

The trend in the manufacturing sector is towards sharing responsibility for predictive maintenance of assets between full-time maintenance staff and the operators of the machines in question. That's the logic of increased IT-enabled equipment.

But at present, many firms – 40 per cent or more, according to one study[1] – don't even have a predictive maintenance program in development, let alone up and running. And what's more, the IT functionality of many assets simply isn't used to its full potential.

The plant manager's own IT competence isn't enough. To get the real benefits of the technology, he needs to be able to improve the level of training among the operators of the equipment and throughout the organisation.

That's where the extra cost savings and the efficiency improvements, that he is being asked to produce, are to be found.

The technological solution …

Technology isn't the problem – it's the answer.

The pace of competition means that assets are being run more aggressively, with less room for forgiveness, and in an unpredictable regulatory environment.

Increased automation throughout the asset management process has the potential to free the plant engineer and his whole department. New developments such as wireless sensors and activators – "smart dust" technology – will eventually load sensors, power supply,

[1] Source: 'Plant Engineering' survey, November 2007

circuitry, and microprocessors onto a mote the size of a speck of dust, and the growth of broadband and VoIP technology will revolutionise management and maintenance of sophisticated manufacturing equipment.

Handheld devices, rugged PCs, automated data entry, and satellite tracking systems mean that both fixed and mobile assets can be monitored, tracked, and maintained from a single computer platform.

These technologies aren't only being used in the manufacturing of hard goods either. In pharmaceuticals, petrochemicals, food and retail industries, these technologies are finding acceptance. They are driving productivity gains at every stage of the enterprise, from procurement of raw materials to delivery of finished goods.

Taking control of the revolution …

Globalisation; new technology; soaring energy prices – the pressures on global manufacturers is intense, and the result has been nothing short of a revolution. It's almost impossible to remember what life was like in the simpler days of only a few years ago.

But any historian knows that it is impossible to take control of a revolution in full flood. This time, with the available technology and the experienced plant engineers to drive it, it might just be different.


ERROR
!!!
NOT
COMPATIBLE
!!!

Chapter 2

Convergence

The KISS of life

Short. Straightforward. Blunt – even vulgar. But that makes it easy to remember. KISS – Keep It Simple, Stupid – is the acronym that should be carved on the heart of every business manager. Look for the straight way; cut out the complex.

The simple answer is usually the right one.

The triumph of complexity?

It sometimes seems that the pressure of technology is all in the other direction – all towards making things more complicated. As IT insinuates its way into every corner of the organisation, more and more of the assets that are in daily use are equipped with chips, IP addresses, and computer technology.

The access keys that let you into the car park; the lift that carries you up to your office; the monitors for the production process; the lighting, heating, and security systems. Whether you are in a manufacturing plant or an office, whether your business is producing fast-moving consumer goods or selling theatre tickets, it relies on a vast array of different computerised systems.

It may be the PC on your desk, running 40 million lines of code in Windows** XP, or the new Airbus 380 with over one billion lines of code – but computer

code is the new, unspoken universal language. By 2010, according to industry predictions, the car you drive to work will be running around 100 million lines, and you will never even notice it[2].

Working well enough …

In most organisations, the technology has been left to technologists and engineers to implement and maintain. Asset management – if it is considered at all – is seen as a departmental function. Each new addition to the technological network has been bolted onto the system – and, since technologists and engineers tend to be good at their jobs, it generally works.

Or at least, it works well enough. But "well enough", in a successful company, is not good enough. What might have worked smoothly in the old days, when the various individual assets operated on their own, becomes less and less satisfactory as the whole system becomes more interdependent.

Instead of complementing each other, and providing the best working environment possible, the different elements of the system simply rub along together – until something goes wrong.

So what hope is there for simplicity? Complexity has taken over the world.

[2] Source: IDG News, ITworld.com

Making the complex comprehensible …
Except that it hasn't.

However many different classes of assets there are, whether they are electronic access keys, automated production lines, delivery vehicles, or power management systems, they all have much the same requirements. They need careful procurement, dedicated management, and consistent and reliable supply.

However many IT applications are running in the company, whether they are used within a single department or across the whole organisation, they, too, need much the same care and attention.

All those different assets have to work together, interdependently; there is no room any more for distinctions between different classes of assets, for treating equipment, buildings, and IT equipment separately.

Every organisation today works in a single, interdependent ecosystem of assets.

And the pressures from outside – globalisation, regulation, the need to meet external standards of transparency and accountability – are going to keep it that way. IT, in fact, is not the problem – it's the solution.

The weakest point in most business processes is when the product, whatever it is, is handed over from one stage of the process to the next. That handover point is when communication breaks down, when the system fails, and when things go wrong. Cut down the number of handover moments, and you will increase the efficiency and effectiveness of your organisation.

But the complexity is more apparent than real. That multiplicity of different assets – some static, some mobile, all with their different IP addresses and chips, some focused on production and others on facilities management – can most effectively be managed from a single platform.

That is where IT comes in. Different components and different maintenance regimes can be handled from a single platform; each user can have a screen designed specifically for the job that has to be done, and the system can follow the process seamlessly from one stage to the next. Each individual user has the information that's needed, in the form that's needed, and at the time it's needed.

IT, in short, can make the complex comprehensible.

Coming up to date …

McCarran International Airport – the gateway to Las Vegas – had nearly 50 million passengers passing through it last year. It has over 1,400 employees, and is in the middle of a $4 billion capital improvement programme[3]. It is a typically complex business, with a vast range of different assets to manage – and the way it managed them, too, used to be typical of many other companies.

A patchwork of old legacy systems ran work orders, financial and operational operating systems, and asset management. The fact that none of it was integrated made it expensive, unwieldy, and unreliable.

[3] Source: IBM Case study, McCarran International Airport

But now, the management of all the airport's assets, including terminal, landside, and airside operations, network components, servers, and PCs, is run from a single software solution. An online portal means that virtually every office has access to work orders and inventories, technicians in the field can consult the airport's global information system through portable handheld devices, and purchase orders for necessary parts are triggered automatically.

It has saved money, increased efficiency, and changed the way the organisation works. The passengers don't notice a thing – which is the mark of a well-run airport.

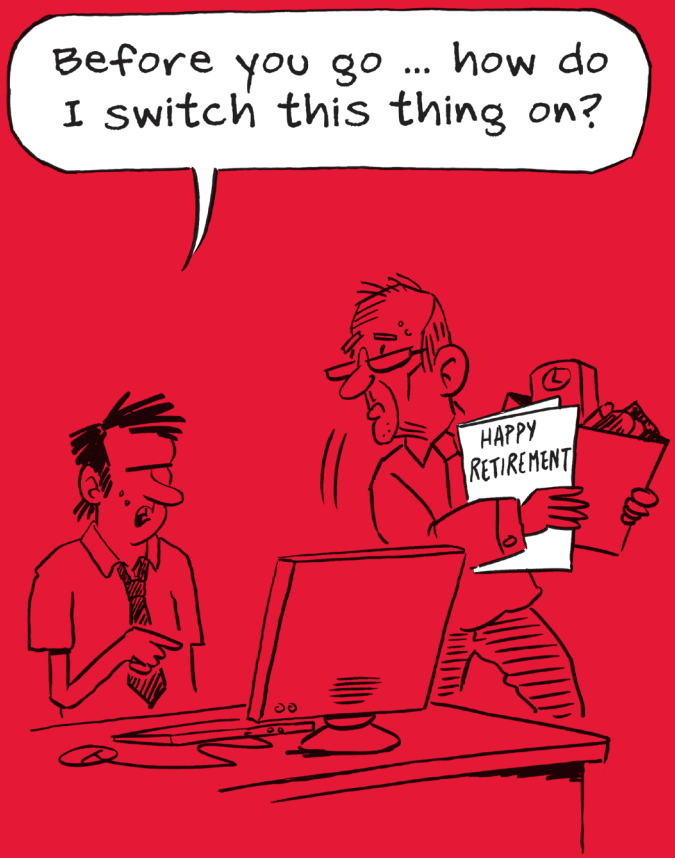
And no-one notices …

And that is the key feature of simplicity: nobody notices it.

People pay attention when something goes wrong – eventually. In the old days, someone would have attended to an empty ink cartridge or a faltering production line – sometime. Asset management could be a hit-and-miss affair, and how efficiently a problem was solved often depended on the employee who was using the equipment when it went down.

Today, all that has changed. A single software platform can provide a planned, reliable, and automatic management and maintenance service. And nobody will notice, because there's nothing to notice.

Simple.


Before you go ... how do I switch this thing on?
HAPPY RETIREMENT

Chapter 3

An ageing workforce

Heading for an iceberg?

It may be a bit of a cliché, but it's still true.

For senior company executives, it really is the case that the most important asset in their organisation is the people who work in it.

But a well-trained, experienced, and highly motivated workforce isn't just the most important asset that a company possesses – it's also one of the most easily lost. What else is there that a company relies on that can just get up and walk away and never come back – taking with it skills, knowledge, and expertise that may have taken years to build up?

Well, if you didn't believe it, you may have to think again – because that is what's beginning to happen. All over the world. As the members of the baby-boomer generation start to think about retiring, relaxing by the sea, and playing with their grandchildren, they are going to start leaving work.

And the worry is that there aren't enough skilled workers coming up behind to fill the gaps. One of the big business challenges of the next few years is how to hang onto the knowledge and experience that is starting to walk out of the door.

It's a problem that everybody knows is there – just like the Titanic, steaming straight for an iceberg.

A worldwide problem

So far, the problem has been seen particularly in the US, Italy, and Japan, and observers are in no doubt that the issue of knowledge transfer is set to spread through the international business world – particularly those sectors such as oil and gas, utilities, and aerospace which are most asset-dependent.

A few statistics make the point: by 2010, some 60 per cent of the experienced managers now working in the US oil and gas industry will have retired[4]. In the utility industry, over 14 per cent of employees are eligible for retirement now; by 2010, about half of the experienced linemen who keep the power supplies running will be drawing their pensions[5].

High profile energy companies in the Middle East are desperately trying to find ways of passing on the expertise of their experienced expatriate staff to their young and ambitious nationals. In Europe, too, there is a growing awareness of the skills shortage.

All over the world, this isn't a problem that may happen. The figures are there already, and unless people stop getting older, it's a problem that will happen.

A matter of life and death …

And it isn't just a theoretical game about the future – failures in knowledge transfer can have serious implications not just for long-term efficiency and profitability, but also for safety and compliance.

[4] Source: Clark J and Pobulan S, 'Managing Data and Knowledge', Oil and Gas Journal, 10 December 2001; [5] Source: Hylko, Jim, 'Thanks for the Memories', Power, May 2005

Fatal explosions have been caused in the oil and gas industry, for instance, when information was never passed on about faults in equipment; an experienced worker may notice abnormalities in the way a machine is working that a younger colleague would miss; a driver who has taken a truck on the same route for fifteen years will know the hazards better than the new recruit who comes in to replace him.

It's all knowledge which is there within the company, in other words – today. But unless there is an effective mechanism for passing it on, it will be lost tomorrow. It will never reach the people who need it.

Death and taxes …

So what's to be done? After all, as Benjamin Franklin said, death and taxes are the two certainties you can rely on. Taxes your accountant might be able to do something about, but death – and its rather more cheery young friend, retirement – can't be avoided.

So is it best simply to lie down and wait for it to happen?

That's the counsel of despair – and one thing business can never afford is despair. Companies can increase their efforts to recruit workers, and develop new working arrangements to make it more attractive for the ones they already have to stay with them. They can provide more opportunities for their staff to update their skills, and make it easier for different generations to work side by side.

So the experienced staff may stay longer – but eventually, the company will still have to deal with the central issue of knowledge transfer. Most important of all – technology can be used to preserve the business-critical knowledge that is spread among the experienced staff before that knowledge walks away.

Fighting back with technology …

If the workforce really is the most important asset in an organisation, then it follows that it is an asset – and that means that it can be managed like one. Technology – EAM software – can help an organisation to meet this problem, just as it would do with any other asset.

The technology to gather information about particular assets – the maintenance schedules of production lines, for instance, or the timing of necessary software updates – is already widespread in many companies. The next step will be to gather such information across the organisation – to use technology to pass on skills and knowledge about the care, maintenance, and management of existing assets from experienced employees to the less experienced ones who will eventually have to take their place.

Instead of the company losing expertise with every new retirement, its expanding knowledge bank will improve efficiency and help to build morale.

Fingertip knowledge …

Gathering the information is crucial. Knowledge is power, and employees may be unwilling to pass on the fruits of their experience. It makes sense to offer financial or other incentives to encourage them to feed what they know into the system, and there has to be a simple interface so that they can do so without difficulty or inconvenience.

Once that is done, dedicated IT applications can order and codify the insights they provide so that they can be accessed readily and efficiently through a variety of platforms, either on desktop computers, factory-floor monitors, or on mobile handheld devices.

Reports of incidents, malfunctions, and changes in performance can be recorded; so can investigations into what went wrong, and suggestions for how things could be done better.

What it all adds up to is fingertip knowledge – information gleaned from experience of working with the organisation's various assets, now available at the touch of a button or the click of a mouse. Knowledge that was once scattered around the company, limited to a few experienced members of staff, is now part of a resource that can be drawn on at any time, by anyone.

That not only assists in solving immediate problems, but it also helps to improve performance overall. The younger, less experienced employees who need this sort of help to enable them to manage the organisation's assets effectively, tend to be highly computer literate

and at ease with the electronic handling of information. Passing on information in this way plays to their instinctive strengths and empowers them in the workplace.

Bring on the Titanic …

The benefits are obvious – a keener, highly motivated workforce, improvements in the management of both plant and product leading to fewer shocks and less downtime, and protection against the threat of information, knowledge, and technical know-how leaking out of the organisation.

But is it all happening? Not yet, or at least, not widely enough. The problem is generally accepted – it's no longer a question of "Will my organisation be facing a crisis?" but of "Are we ready for it when it happens?" And the answer, in all too many cases, is "No."

With the rapid development of technology and the growth of global competitiveness, getting new employees up to speed quickly is taking on a new priority. The ability to transfer knowledge from one generation to the next is becoming a critical factor in medium-term business planning.

It's not that they don't see what's happening – a recent study[6] of utility management and supervisory staff in the US showed that 92 per cent of them believed that the loss of unique and valuable expertise over the next five years would cause them problems – it's that they aren't doing anything to counter it. In the same survey, just 30 per cent said they had a plan in place to

[6] Source: Hylko, Jim, 'Thanks for the Memories', Power, May 2005

capture knowledge from experienced staff.

So many companies are still not ready to adapt to the radical changes in the workforce that the next few years will bring. The experience and knowledge on which their companies depend more than anything are getting ready to walk away; they are about to lose their most valuable asset. They can see the problem coming, but, either because they think action can wait, or because they are distracted by more pressing concerns, they haven't taken action to deal with the situation.

No doubt the captain of the Titanic thought much the same – but he found out the hard way that it was a false economy.


what's your thinking... ERP or EAM?
ERM ...?

Chapter 4

ERP v EAM

The last battle …

Long, long ago, in the days of mainframe computers and mobile phones the size of half a brick, the IT department was a breed apart. They tended to think the rest of the organisation was staffed by people who didn't understand what they were talking about, while the rest of the organisation thought of them as white-coated geeks with no business brain.

Those days are gone – today, it's a rare business executive who doesn't have at least some IT understanding, and a healthy respect for people who know more than he does. And IT managers play a full part in decisions on business planning and strategy. They are all part of the same team.

So why is it that the two sides often don't see eye to eye when it comes to Enterprise Resource Planning (ERP) and Enterprise Asset Management (EAM)? One-stop-shop or best-of-breed?

A distinction without a difference…?

For those not involved in the argument, it can sometimes seem like a distinction without a difference. Everyone accepts that managing human, financial, and physical assets is a high priority for most organisations. ERP systems were originally built around finance, HR,

and supply chain modules, but they claim now to have developed enterprise class asset management tools that go in the same ERP toolbox.

From an IT standpoint, that single toolbox is a tempting prospect. There are financial savings to be made, and operational efficiencies to be enjoyed from having all the company's applications on a single system.

Best-of-breed EAM systems, on the other hand, which have developed out of work management and asset maintenance and management, have extended their range to include the whole range of the organisation's assets, whether those are the human assets of the workforce, the IT equipment that increasingly drives the company's operational assets, or the mobile assets such as trucks, cars, delivery vans, cranes, or mobile plant that carry the goods and services to the customers.

But the efficiency with which these assets are deployed often makes the difference between a successful company and one which comes second – and there are no prizes for second place in business. From a business standpoint, the best-of-breed providers offer not just a single toolbox, but a whole collection of integrated tools. They all work together, so they offer similar efficiency savings – but they have the advantage of each being designed for the individual job that they have to do.

But in the end, the IT specialist will tell you, both best-of-breed and ERP systems claim to do much the same thing. So is there a real choice to be made?

What are the differences?

Increasingly, managers on the business side – the ones who actually have to deal with all those assets – are pointing to long delays in implementation of ERP systems. By the time the consultants and the IT staff have worked through the financial, budgetary, inventory, and manufacturing applications that are at the heart of an ERP system, it may be as long as six or seven years before they reach the asset management functionality.

For companies faced with fast-changing technology-enabled assets, time is of the essence. Their systems need to be upgraded to cope with new assets and to offer the improved functionality of the latest versions, or they will quickly start to lag behind the opposition in productivity, efficiency, and profitability. Typically ERP systems have long upgrade cycles – again, up to six or seven years in some cases – delaying still further the eventual implementation of a fully functional asset management system.

It's no good being able to talk about how good your systems will be once they are operational – you need to see them in action and get the business benefits for your company.

So that's the first question: can the organisation afford to wait? Is the management of its various assets central to its operations, and will the delays cost money, reliability, and safety? Will they compromise profitability?

And if the idea of a comprehensive asset and work management system that the ERP vendors describe

seems attractive, it has to be genuinely comprehensive. It has to be integrated with everything that the organisation does, with all the IT-enabled assets, and with mobile equipment such as trucks, cranes, or in-the-field handheld devices. For ERP vendors, asset management is a tiny piece of a very large business; for the best-of-breed suppliers, on the other hand, it's the area of business that they were designed for.

So, it's another choice to be made – EAM systems have a clear advantage here, particularly when dealing with asset-intensive organisations such as utilities or large manufacturing companies, which have dispersed workforces and assets spread over wide geographical areas. That's where the best-of-breed supplier comes into his own.

Then, how specifically are the ERP systems targeted on individual firms and industry sectors? Generally, they deal with traditional, largely production assets. Facilities, buildings, or transportation assets can be included in the system, but there is no extended functionality to cope with the management of these different types of asset. If getting the best from your company's assets is a priority, that question can be crucial.

And some companies have particular requirements – in the oil and gas industry, companies typically require ISO standards to be built into their management systems; pharmaceutical and other manufacturers in the life science sector are likely to need the capability to document their activities to comply with strict regula-

tory auditing and reporting requirements.

For the best-of-breed suppliers focused on servicing a complex and varied market, such differences between various customers are not a problem. With ERP, the customer may be referred to a third party for modifications to the system, or he may even have to design his own customisations. Avoiding delays like that is one of the big attractions of a best-of-breed solution.

An agile solution for an agile company

To keep up with the modern business world, organisations need to be able to react quickly. Perhaps they need to acquire companies in an aggressive market, or perhaps they need to be able to spin off companies to respond to favourable market conditions. They may need to modify their business processes, introduce new features or support new reporting requirements in response to unexpected business or regulatory requirements.

In a fast-changing environment, the company that stands still is left behind. So how do the ERP and best-of-breed systems match up? Again, the crucial difference is one of time. Some ERP customers have found that after the long wait for the implementation of their ERP system to be complete, their requirements have changed. Now, they require additional customisations, and then a costly upgrade, which will take still more time. Changes, which might take several IT specialists months to get started on an ERP system, can be com-

pleted much more quickly on a best-of-breed system.

But that fast-changing environment isn't a threat, it's good news. Advancing technology brings new opportunities to your company, and helps to solve your problems. Look at service-oriented architecture (SOA), which has redrawn the boundaries of what is possible in the world of IT – its capabilities mean that the old one-size-fits-all argument simply doesn't apply any more. With SOA, there are no fears of complex problems when you come to integrate different systems: it's possible to have the depth of functionality of a best-of-breed system alongside the agility and flexibility that all companies are seeking.

In the world of SOA, the long-term business advantages of a system built on best-of-breed software are even more marked than they were before.

An interim proposal…

But if these business advantages are clear across much of the organisation, many IT specialists still point to the elegance of the "one toolbox" approach. It's not taking us back to the old stand-off between IT and non-IT – but it is a source of tension in many companies.

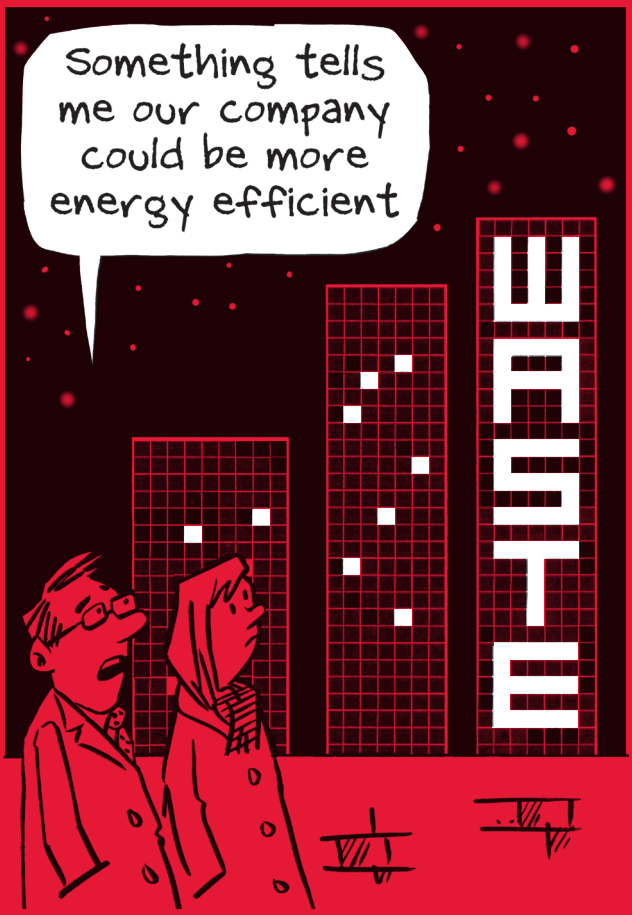
One answer that has been tried is to go ahead with ERP – but to cover the time-lag before it can be applied to the management of the company's assets by installing a best-of-breed solution as well. A best-of-breed implementation can start immediately and typically be carried out much sooner than the ERP's asset management

component. That is, you will be up and running on your asset management years before your ERP gets to it.

Use it for five years or so, while the consultants are gradually working their way through the other applications and getting around to asset management in the ERP system, and then take a look at the option to change over to a full ERP system.

Most business managers, bearing in mind the depth of functionality you will have been enjoying, and the speed, scalability, and flexibility that you will have got used to with your best-of-breed system, say that you won't want to make the change.

But don't tell that to the IT department.


Something tells me our company could be more energy efficient
WASTE

Chapter 5

Green

Being good and being clever

From our earliest years, we are taught that there is a straight choice between merit and money – that you can't be righteous and rich. Most of us muddle along somehow – but when someone offers you the chance to do both at once, to do the right thing and the profitable thing at the same time, then it's hard to turn it down.

That's what the environmental movement is saying to the world of business.

For years, thinking about the planet has been vaguely uncomfortable. You may get a warm glow inside from driving a smaller car than you'd like, but it doesn't ease the discomfort of having your knees pressed up against your ears. You may feel good about avoiding the airliners, but the back yard doesn't match Barbados as a holiday destination.

But now it's different. The greener your organisation is, the less money you waste; cutting your carbon footprint is cutting your costs. Your Chief Finance Officer will be just as pleased by the result as the Friends of the Earth are.

Keeping the money men happy …

So let's be honest – the main reason most organisations are interested in going green is because it makes sound financial sense. Energy costs have risen, are rising, and are going to rise some more: in the IT budget alone, the cost of energy is expected to rise from 10 per cent of the budget today to around 50 per cent in the next three years[7]. Anything that can cut fuel bills without compromising efficiency has got to be worth looking at.

And there are other business reasons as well: companies are always looking for growth, and many of them have already filled their IT data centres to capacity. There is no more power available for them to draw, and if there was, the heat created by all the equipment would be too great for the computers to work. So their choice is either to put their growth plans on hold, or invest in a new data centre.

But if an effective asset management system could cut energy use by up to 50 per cent – which is what is claimed – then that expensive decision could be postponed for several years. The sums are startling: capital, like energy, is expensive. For each year that investment of around £45 million for a 50,000 square foot data centre can be postponed, the company has saved nearly £4 million[7].

Similar calculations could be done throughout the organisation. Fleets of trucks, a plant full of production equipment, office photocopiers, or heating and lighting systems – until the energy requirements of all the assets

[7] Source: Gartner; Chris Dittmer, IBM consultant

can be properly measured and monitored, it's impossible even to start to make savings.

Polishing the company's image …

But the incentives for adopting a green asset management strategy go beyond the simple cost savings to be made, significant though they are.

It's clear that in the future, government or local taxes and other charges will exact a direct price from companies that waste energy. Carbon taxes are firmly on the political agenda, and the UK government, for example, has announced that it plans to cut greenhouse gas emissions by 60 per cent by 2050[8].

And in the present, with the dangers of global warming in the news and increasing numbers of customers looking for green products, many companies are seeing the benefits to their public image of cutting back their carbon footprint. A company that can demonstrate that it is taking a responsible attitude towards the environment and the use of energy can both save money and improve its public image.

So reducing the overall carbon cost is important throughout the organisation. Chief Information Officers will see gains to be made in the provision of an effective IT infrastructure; Chief Finance Officers will see reductions in costs and the avoidance of tax liabilities; and Chief Executives will see a significant enhancement of the organisation's brand. Green asset management makes sense all around the boardroom.

[8] Source: IBM–Defra study, May 2007, 'Cutting the Carbon Footprint of IT'

Seeing what's really happening …

Managing assets means monitoring their performance in use, not just taking the manufacturers' declared figures. For instance, though the manufacturer can tell you that flat-screen monitors will use just over half as much power as conventional models – a significant energy saving when you consider the number of desktop computers in a medium-sized company – they can't tell you how those computers will be used. A desktop PC may use 60W when running a screensaver programme, compared to 40W when the normal Windows desktop is displayed, and less than 2W in hibernate mode[8].

But those figures again are only estimates. To know the actual figures, you have to turn to your asset management software, which can tell you not just how much energy a particular piece of equipment should use, or might use, but how much it does use, which is often a very different figure.

It can produce a comprehensive picture of energy use across the organisation, supplying a graphic map of the workplace to show where the energy hot-spots are, or it can zoom in on a single piece of equipment to monitor and display its actual energy consumption. It can check on which assets are efficient, and which need attention; it can provide an automated preventive maintenance schedule, so that assets are kept working at optimum efficiency, and it can keep a constant check on temperature, humidity, and airflow in the working environment.

[8] Source: IBM-Defra study, May 2007, 'Cutting the Carbon Footprint of IT'

Effectively, it can highlight every plughole in the organisation down which energy – and money – are trickling away.

Being good by being clever …
With that information, senior management can take firm control of energy use and develop a coherent strategy to manage and control it. They can budget and plan growth – remember the £4 million a year that could be saved by postponing the construction of a new data centre – and they can be confident that all their equipment is properly maintained and running efficiently.

So the organisation's current spending is reduced, its potential for growth is improved, and its image is improved among a public that is increasingly concerned with environmental damage. And at the same time that it's achieving all that, it also has that agreeably smug feeling that it is being virtuous and doing the right thing. It really is being good by being clever.


I think we need to take another look at your risk management strategy

Chapter 6

Risk management

Happy days …

A child thinks that nothing will ever go wrong; an adolescent lies awake at night worrying that it might; and a grown-up does something about it.

In an ideal world there would be no need for risks to manage – but in the one we're in, risk management needs to be efficient, effective, and automatic. There's no room for chance, delay, or inefficiency.

In an ideal world, every piece of equipment would work perfectly all the time, no employees would make mistakes, and even if they did, customers would just smile and shrug their shoulders. No-one would ever sue, accidents wouldn't happen, people wouldn't get hurt, and there would be no sudden unforeseen business shocks.

And of course, that being the case, there would be no need for laws, rules, and regulations to govern the way that companies did business, so compliance wouldn't be a problem either.

If you live in such a world, then congratulations – and you might as well skip this chapter.

But then again …

Welcome to the real world …

Risk management, on the other hand, is about dealing with the real world – the risk, for example, in the manufacturing industry, of catastrophic breakdown in either equipment or process; or the risk that you may just have to find out what has been done, who's done it, and when – and how you can stop it being done again.

It's particularly important today. Companies need to optimise their assets, cut costs, and reduce the danger of upsets, outages, and downtime to a minimum.

And at the same time, the growing complexity of the manufacturing process and supply network means that breakdowns somewhere in the system are increasingly likely. The more complicated a process is, the more likely it is that some component will fail. The more there is to go wrong, the more will go wrong.

But risk management, particularly in asset-intensive industries such as oil and gas, chemicals, plastics, automotive or industrial equipment manufacturing, is more than just an insurance policy. It's a business-oriented strategy which enables managers to take control of problems at an early stage. It can cut costs across the organisation and, by integrating the engineering and manufacturing processes, significantly reduce the time it takes to get a new product to market.

And those are not just the concerns of asset-intensive companies or big multinational organisations: throughout industry, risk management is increasingly seen as an important driver of increased long-term profitability.

Settling on a strategy …

Risk does exist, particularly in business. It's a part of life.

We're not adolescents, though, we're grown-ups. We don't lie awake and worry about possible problems, we do something about them.

And the first thing to be done is to work out what specific risks there are, and how they can be mitigated. Whereabouts in the organisation's systems are the risks of failure greatest? Which is most likely to happen? Which would cause most immediate damage? Which would have the most devastating long-term effects? The possibilities have to be assessed, quantified, and prioritised: before there is a problem, the organisation needs to have a coherent risk management strategy in place.

One common compromise is to manage only those risks that are part of a company's financial systems – but today, that is no longer a sensible option. Increasingly, the focus is on the manufacturing process as well. Operational disasters can cripple a company in hours, leading to lost production, lost revenue, and lost reputation.

For a multinational company, an asset failure can bring damaging worldwide headlines; a severe safety or environmental incident may incur costs measured in hundreds of millions of dollars.

The strategy in action …

The test of the strategy will come when the inevitable happens, and then quick action is the key. If you can respond quickly and efficiently – that is, before there is operational or financial loss to the company – then you can prevent an incident from turning into a problem.

Once it has become a problem – once the production process has stopped, for instance – then the next priority is to keep downtime to a minimum. Again, fast information, alerting the correct staff, and getting the work in hand to correct what has gone wrong, are the vital elements of the risk management strategy.

And it doesn't have to be the sort of incident that makes the machines stop. The effect of other problems can be harder to spot, but just as damaging. If the calibration of sensitive equipment is slightly out, for instance, it can mean wasted energy as they run at less than peak performance, or even wasted production if the goods they produce prove to be faulty. Once again, fast information from a system that can monitor all the assets in the organisation is vital.

And what then? Once the problem is sorted and the production line is running again, once the equipment is running again exactly as its designers intended, the risk management process still isn't over. A mistake is only a mistake, a wise man once said, if it happens twice: the first time, it's a learning opportunity.

So the next phase of the risk management strategy is to see that managers and department heads are provided

with the information and the analysis they need to see that what has gone wrong doesn't happen again. Data has to be gathered, assessed, interpreted and circulated.

Perhaps products need to be recalled; perhaps there are warranty issues to deal with. In either case, it is essential to have the record available so that the precise phase of the production cycle where the problem has occurred can be highlighted, and the batch of goods which may have been affected can be identified.

Throughout the process, speed is crucial, whether to get the production line moving again, or to limit damage to the company's reputation by getting faulty goods exchanged as quickly as possible. The surest way to handle all these different phases of the process – the development of a strategy, the immediate response, and the action to see that the incident isn't repeated – is to automate the whole process.

Such an automated process, if it is properly integrated with the organisation's asset management system, can alert the necessary staff, manage the workflow as they put the problem right, and produce a clear and unambiguous paper trail to show what has gone wrong. Then it can archive the information so that staff will have a clear idea of the best solution if there is a next time, and keep the damage to a minimum.

Sticking to the rules …

But there is an additional reason to implement a risk management strategy: in this real world that we're stuck with, government regulations have to be observed, international standards complied with, legal liabilities met. It's no coincidence that the industries that are leading the way in risk management are those such as motor manufacturing, aerospace, oil and gas, and pharmaceuticals, which are among the most heavily regulated.

The risk of legal penalties and the damage to the brand, and the company's reputation that comes with them, means that they can't afford to run the risk of non-compliance.

But once again, the need for compliance isn't limited to those high-profile sectors. In the US, there is the Occupational Safety and Health Administration, or in the UK it's the Health and Safety Executive – but whatever the name on the brass plate, everyone has to obey health and safety legislation.

Then there's the International Organisation for Standardisation (ISO), or the IEEE's international technology standards. Virtually every industry has its own regulating body with its own requirements.

And these rules matter. An automated and integrated risk management system that monitors every aspect of the performance of an organisation's assets can guard against the possibility of involuntary non-compliance, keeping the organisation on the right side of the law and out of the headlines.

Protection from disaster

If you're not convinced by the arguments, maybe Winston Churchill – a good man to have on your side – may be more convincing. "If I had my way, I would write the word 'insure' upon the door of every cottage," he once said. "For sacrifices so small, families and estates can be protected against catastrophes which would otherwise smash them up forever."

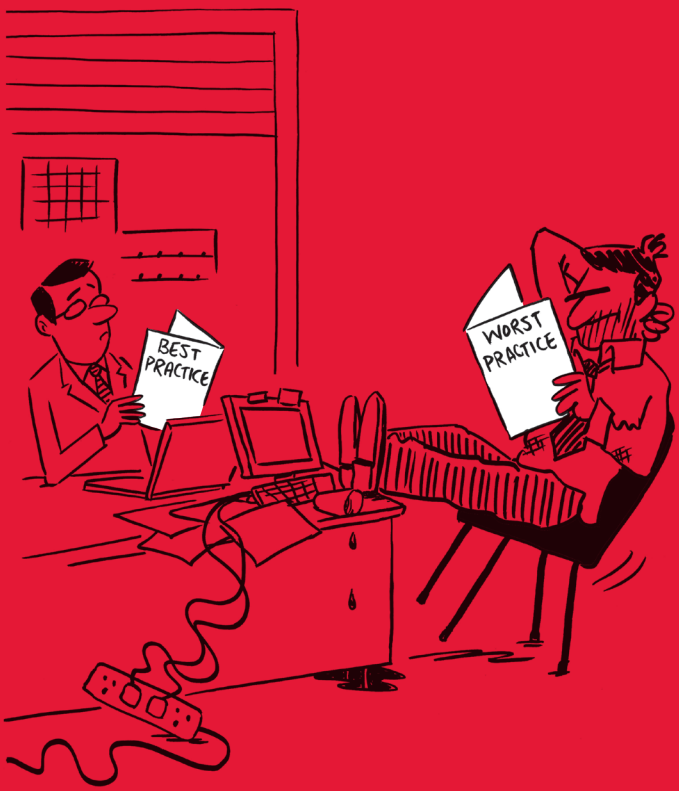
He was talking over forty years ago, of course, and thinking of private households – but there's little doubt that if he'd lived in the age of risk management, he would have thought much the same about the protection it offers to companies.

And if Churchill isn't persuasive enough, then a revealing statistic might do the trick. Recent research[9] shows that in the manufacturing industry, "best-in-class" companies are 55 per cent more likely than others to have their senior management involved in organisation-wide risk management initiatives.

Protection from disaster and building a long-term reputation; keeping costs down and driving long-term profitability – and all from the same risk management strategy.

Perhaps it is an ideal world after all.

[9] Source: Aberdeen, December 2007


BEST PRACTICE
WORST PRACTICE

Chapter 7

Best practice

Getting it right …

We all want to get it right. For most of us, it's one of the first things we can remember, that applause from an adoring mother as we finally manage to pile three bricks on top of each other.

The challenges get bigger as we get older – but then, so do the rewards. Get it right in running a business, and the prize is profitability, growth, and a successful company. By that time, though, we've learned a bit about problem-solving, and instead of simply trying and trying again until the bricks stay in place, we know it's a good idea to watch and learn from the way other people have tackled similar challenges.

That, put simply, is the theory of "best practice". We decide the goals – what we want to achieve, and the business strategy we're going to adopt to get there – but if someone else has trodden a similar path before us, it would be foolhardy not to profit from their experience.

So why doesn't everyone do that …?

That proposition is so obvious that it almost doesn't need saying – except that, since companies often don't follow that rule, it clearly does. To take just one example from the manufacturing sector, one recent survey suggests that around half the maintenance work that is done

is unnecessary. That's an awful lot of wasted time and money.

So why don't companies follow the best practice rule in managing the assets on which they rely? Industry observers say there are three main reasons – they aren't aware of what the current best practices are; if they were, they wouldn't know how to put them into effect; and even if they knew how to do that, they wouldn't have the motivation anyway.

Best practice rules may vary from industry to industry, even from company to company, but it's important to describe the possible benefits, and to consider ways in which they can be implemented.

Taking control …

Automation is a tool, an enabler. Nothing less but certainly nothing more.

It isn't enough simply to install an EAM system and let it do the work. One of the key messages of this book has been the potential of automation to drive efficiency and profitability throughout the organisation, but it's also important to remember that it is the manager who remains in charge. He is the man using the tool, and it's his responsibility to use it skilfully.

An automated asset management system can identify areas where easily achievable savings can be made and procedures improved quickly – in the management of inventories, for instance, where correct and consistent item descriptions can rapidly reduce duplication and

make individual items easy to track across the organisation.

It can establish priorities – by tracking how and when assets fail, it can flag up persistent problems and analyse them. Then the system can automatically start the actions that will control them and prevent them recurring. Similarly, it can help to develop a green business strategy, by scheduling inspections for individual assets where failure might result in environmental damage, or by establishing a programme of preventive maintenance to concentrate on reducing the environmental impact of the operation.

Or it can track the progress of a business plan, and measure actual performance against the targets set out in the plan.

The cost implications of all these examples are fairly obvious. But the onus is still on the organisation's management to take advantage of the information that they are provided with, and to create a business environment where the implications of that information are reflected in behaviour throughout the company, right down to the mechanic on the production floor.

And before the managers can do either of those things, they have to decide exactly what it is they want the automated management system to measure.

A business tool …

So that's the first example of best practice. The organisation has to decide what aspects of its performance are most important – what are its key performance indicators – and how they are to be measured. They may be set against similar data from other companies, or they may be compared with the company's own past performance or its business plan.

The automation solution may be modified to reflect the company's specific key performance indicators – the benchmarks against which progress will be measured. It's never too late to implement them – but the sooner that job is done, the better return the company will see on its investment.

It's about taking control: from the very beginning, the automated asset management system is being used as a business tool rather than as some sort of sophisticated magic talisman.

From then on, the success of the implementation of the system depends on the organisation and culture of the company – on how automation is supported, and on how much effort and commitment is invested in the best practice strategy.

For instance, manufacturing companies are traditionally not very good at tracking detailed information about their assets. The information given on the name plate of the item, for example – its age, its power consumption, details of its manufacture – can all be used by an automated system to trace individual pieces of

equipment, identify similar items, and rationalise their deployment anywhere in the organisation.

That's another example of best practice – and once again, it's the company managers who are in control.

Once the company's performance has been measured, then it's possible to draw up a strategy to close the gap between the present performance and the business plan; the whole purpose of gathering the data is to use it in making management decisions.

To help make results visible, every company should have a member of staff who can write good report specifications in order to turn information into policy and progress – one more example of best practice.

The motivation…

The other reason that we mentioned for not putting best practice into effect – the motivation – has, quite simply, been the subject of the whole of this book.

Best practice is about getting the best out of an automated asset management solution – which means the best cost savings, the best improvements in productivity, the best efficiency, the best profitability.

This is the next generation of IT that industry has been waiting for, offering companies profitability in the present, and the potential for growth in the future.

That, surely, should provide all the motivation needed to ride this revolution.


It's time to embrace new technology!
I'm not hugging you until you get these sticky notes off me...

Conclusion

In the bad old days, the non-IT specialists on the business side of the organisation were scared of the technology. Today, when the grumpiest technophobes have more computing power in their desktop PCs than was used to power the first moon landing, when their mobile phones, their cars, and their washing machines are driven by computer, those days are history.

Everything in business is changing rapidly – the workforce, attitudes to risk and opportunity, environmental awareness. And the economic environment is changing fastest of all. Globalisation, increasing competitiveness, and the drive for profitability – anyone who stands still today is likely to end up watching the backs of their competitors as they vanish into the distance. Inertia isn't an option.

In a cut-throat world, you need to be able to play to your strengths. You need to know what assets you have available – people, IT services, production equipment, technical equipment or whatever – and you need to manage them and deploy them quickly, efficiently, and effectively. Management of assets throughout the enterprise is about using what you have to the full – squeezing as much as you can from your investment. To do that, you need the technology.

But if people in business are no longer scared of the technology, many of them still don't really trust it – and if this book has been about anything, it's been about why they should. It's not just a matter of coming

to terms with it, but of embracing it. At every level of the organisation, the new generation of IT can enhance the lives of the employees and revitalise the company.

In the previous chapters, we've seen how technology can bring the maintenance of sophisticated equipment within reach of the plant operator; it can take control of the company's entire asset management process onto a single platform, with all the benefits of the simplicity that it involves. It can help to build a knowledge bank, preventing vital expertise and know-how from draining away; it can provide the basis of a green strategy; and it can enable the organisation to implement a coherent risk management policy.

More than anything, it's a question of attitude – of accepting the benefits technology can bring, of welcoming it into the organisation, and then committing investment, assets and time to see that it runs efficiently. But keeping in control of the technology and deriving the maximum benefit from it is also a question of knowing where you can go for help when you need it.

That, of course – finding someone you can trust, with the experience and the commercial and technical knowledge to be able to help you, and the track record to show that they'll do it – is a business decision. And whatever else the technology can do, it can't make the decisions.

That's up to you.