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IT Integration

Two into one will go

Integrating systems used to be an expensive, technical, detailed and ultimately inflexible business. But life and technology have moved on, writes Brian Tinham

It's a changing world out there. Customers are increasingly using the web, not only to browse and purchase products, but also to read the reviews before they do so. It's all about social media, smartphones – and managing opportunities. And while that might not directly impact manufacturers a few steps removed from the retail world, it sure is impacting the way supply chains work – because the pressure on costs, timeframes and service levels is greater than ever.

For the vast majority of manufacturers that have to live with multiple systems – having necessarily evolved their IT estates over time – this fact translates to a paramount requirement to get those systems talking. Islands of information can no longer be tolerated: they're just too slow and inefficient. They can lose you contracts.

Just as important, however, the new world order also maps to a need for flexibility, both in terms of what we might describe as the integration layer and the systems being integrated. Today's and tomorrow's manufacturers must be fleet of foot, so their infrastructure – no matter how heterogeneous – needs to be an enabler of change, not a millstone around their proverbial necks, tying them expensively to the status quo.

Getting heterogeneous systems to behave as one has been hard and costly enough for as long as there have been systems. The name of the game has been tight integration, mainly point-to-point, and, although

increasingly standards- and web services-based (remember SOA, services orientated architecture?), essentially inflexible. Making that approach alive and responsive to the probability of change – particularly at the business process level and especially across different applications – has been even harder and even more expensive. And hence the big names, smart suits, luxury cars and Rolex watches that still dominate the integration industry.

But change is underway, most publicly following the introduction of a 'lightweight' middleware (integration platform) package that deals at the business document level, rather than the detailed data level – and, critically, is founded on loose, not tight, coupling. And the developer of said package? Infor, which, faced with an acquisitive management team and significant financial backing in recent years, had to change the way its burgeoning systems portfolio communicated, if the development team was to take advantage of the economies of scale.

That's essentially the Infor marketing machine message, and it does stand some scrutiny. Infor business consulting director Phil Lewis describes Infor ION – which, by the way, is billed as Infor's most successful software package ever, in terms of sales – as benefiting from two clever bits. On the one hand, Infor's applications have been imbued with the intelligence to publish and subscribe to information services using the OAGIS (Open Applications Group Integration Specification) standard. On the other, ION provides an ESB (enterprise service bus) that enables 'lines' of connection to be drawn and undrawn between those applications.

So far, so good, but ION also provides a bunch of generic technology connectors for third party applications not using OAGIS to connect via web services or APIs (application programming interfaces). "Even legacy applications that just work with flat files, CSVs [comma separated variables] or text-based documents can connect, without worrying about message formats. There may be some mapping to an acceptable format required, but it's all XML-based and, again, loosely coupled. So you can just visualise what messages you want to go between systems, draw the lines on our graphical modelling tool and make changes whenever you need to," says Lewis.

Apart from the technicalities of integration, ION also provides functionality at the business level. Most notably, that includes: workflow to support cross-application business processes; event management to reinforce business rules centrally; dynamic reporting and business intelligence, through its so-called Business Vault; and, most recently hooks into Infor's social business platform Ming.le and its mobility platform Motion.

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Supplement cover: Andy Baker / Ikon Images / SuperStock

That's a lot more than might reasonably be expected of a conventional middleware hub. It's also a far cry from what Lewis sees as the traditional 'heavyweight' alternatives, mired in code, database scripts and APIs.

But is that a fair characterisation? Yes and no, according to Erik Johnson, vice president of technical strategy at competitor Epicor. While agreeing with the points about tight versus loose integration, he believes that Infor and others (including Epicor) are simply riding the wave of technological development. "What we're seeing is a natural and longstanding pendulum swing between entity-driven and API-driven integration," he states, observing that in the old days, almost all 'ERP' systems used document-based APIs and store procedures for inter-application operations – until database technology couldn't keep up.

Johnson argues that we've come out of the SOA age, which standardised the way APIs work. Even going into SOA, he says, most IT professionals realised it wasn't going to solve the coupling problem. It made tight integration easier, but any change on either side still broke the integration. "Now that SOA has matured, and the industry is moving on, people are coming back to running integration around entities or data, not APIs – and there's your loose coupling. We've had that for years as a foundational aspect of our system. We didn't give it a name. We just used document-centric APIs and business activity queries. You can create any kind of updatable data integration through that [mechanism]."

That, of course, was then and this is now, but Johnson insists the technology revolution, enabled by internet standards, has modernised the concept. "You can get and put a URL, which serves as a label for what a message is and what to do with it; there is the underlying http protocol; there is REST [representational state transfer], now the dominant web API design model; and we have Odata [open data protocol] for creating and consuming APIs."

And so we have 'Restful' [new age client-server] applications and integrations: as long as developers and business analysts follow Postel's law of robustness – be liberal in what you accept but conservative in what you return – then you get flexibility and robustness. As Johnson says: "Put those together and you can create powerful integrations without the tight coupling that caused the fragility."

Hence his pendulum assertion. Hence also his claim for Epicor's hitherto unsung business activity queries. "Today, if I want to integrate with a supply chain partner that's doing some outsource work for me, I would create a business activity view that's updatable and right click and publish it to a web service or website. Then they can pass it back, with whatever values and update my system. And that business activity view can automatically drive a dashboard, a mobile view and an integration point."

What about workflow and business process management? Epicor's solution is Service Connect, which Johnson describes as like Microsoft MizTalk but aimed less at developers and more at business analysts. "So this orchestrates our services and those from others' systems – such as approvals, escalations, conflict resolutions and quality management workflows that may be continuous. And we also have a business process management tool that defines the high-speed logic of the ERP system itself."

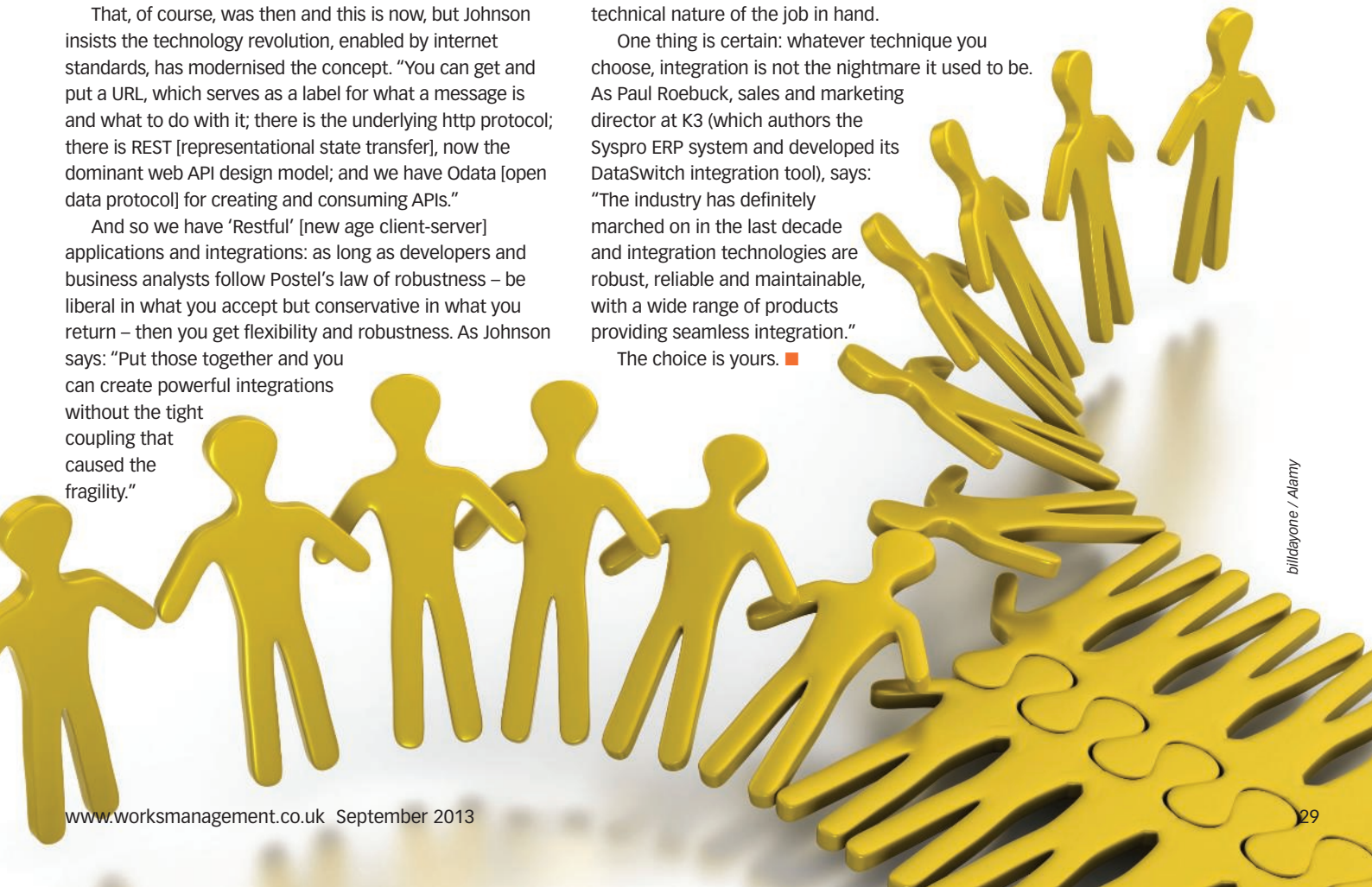
All of which perhaps begs the question, why the continued use of object broker systems such as Websphere, Tibco and the rest, which have long since enabled virtual single-systems, using IP architectures?

The answer: it's all about serving the now massive community that's grown up with SOA-based code-wrapped legacy systems. It's also about understanding that there is more than one way of skinning a cat. And the choice of approach often depends on preferences, skill sets and the technical nature of the job in hand.

One thing is certain: whatever technique you choose, integration is not the nightmare it used to be. As Paul Roebuck, sales and marketing director at K3 (which authors the Syspro ERP system and developed its DataSwitch integration tool), says: "The industry has definitely marched on in the last decade and integration technologies are robust, reliable and maintainable, with a wide range of products providing seamless integration."

The choice is yours. ■

"...an enabler of change"

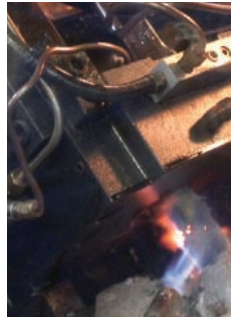


As easy as one, two, three

Integrating existing and new systems with your ERP needn't be the expensive game it used to be – if you choose the right software, argues Guy Amoroso

When several manufacturing companies in entirely different industries, and with dissimilar business and production issues, all make the same software choice, it's time to sit up and take notice. Particularly when that software concerns extended ERP, and each says it has been comfortably able to integrate the suite with existing and/or subsequent project software. And even more so when we learn that the software choice involved isn't quite what you might expect – certainly not from any of the big boys.

So it is with bespoke batteries producer Creasefield, canopies manufacturer C&J Marine, precision zinc die castings and assemblies firm FisherCast UK, and carbon fibre composites specialist Reverie. Each selected the 123insight subscription-based ERP system. Each has seen substantial and sustainable growth since going live. Each believes it has made hefty savings over the conventional alternative of an on-premise, costs-plus ERP solution.



Satisfied customers include FisherCast (above), Reverie (main pic) and Creasefield (inset)



And, most importantly, all have grown their systems to support additional functionality, but without recourse to system developer 123 Insight and without incurring significant development or integration costs.

Take Ilminster, Somerset-based Creasefield. Managing director Jason Holt explains that the company had been considering upgrading its existing system – which he describes as stripped down MRP – but was looking for



The 123 Insight way

Guy Amoroso, managing director of 123 Insight, believes that there is no place for ERP systems that historically have cost manufacturers vast amounts of money – along with blood, sweat and tears. That's why the company set about delivering a radical alternative, more than a decade ago, based on an easy, pay-as-you-go subscription method of buying into, implementing, using and growing ERP.

Turning that idea into reality, he says, was about making the entire system, and its associated methodologies, simple and transparent at every level. Sounds unlikely? Well, for the now hundreds of manufacturers who wanted something different, liked what they saw and stuck with it, 123insight has been very real and very successful.

What's more, all appear to believe they won hands down, compared with going the conventional ERP route. The vast majority say they have saved significant sums of money, yet gained all the benefits of integrated, extended ERP. And they have been able to grow and evolve their systems in step with business requirements. Adding licences and extra capability is easy – as is linking to third party systems, using 123insight's SDK, which Amoroso describes as

ensuring that there is "never a blind alley".

How do you get started? Amoroso explains that interested manufacturers are invited to a free two-and-a-half hour evaluation workshop. If what they hear doesn't suit them, they walk away. But if, as most find, it's precisely what they always wanted but didn't believe existed, they put their project teams on training courses at £3,000 per person for six days, or £500 per day.

Even at this stage, money doesn't change hands unless and until they move on to system implementation. "When customers register to use the system, it's just a low monthly fee, without any binding contract," explains Amoroso. "And payments are only for licences actually in use. So during the early days of implementation that might only be a few."

What about the price of that SDK? Amoroso explains that you're looking at £100 per month all-up. "Some manufacturers use it to link in their websites, but if they want to work with Apple or Android devices – for stock control purposes, for example – the SDK supports those, too. And if we come across something we haven't done before, we'll do that, too." Now that is almost too good to be true. Almost.

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corrupting the 123insight SQL database. "In some cases [other software firms] said, 'You can't link a website directly to your database: there needs to be a database or software to take the information from one system to another'. But with 123insight we can involve a third party web developer that can take information in and out of the system directly."

Dave Ashford, production manager at Welshpool-based FisherCast, agrees. Having successfully implemented 123insight as its core ERP system across all departments, he reports using the SDK to effect integration – for example, with its automated production weigh scales. That was critical for this company, which has to contend with fluctuating zinc prices.

Customers, he explains, often order tens of thousands of components weighing less than half a gram each, so FisherCast needed the system to accurately reflect material consumption on the fly. Now operators simply scan works order barcodes and the quantities for each line item are displayed. As components are placed into clients' packaging, an on-screen counter shows the number in real time, based on weight, and updates 123insight immediately on completion. The CRM module then closes the loop, updating customers as prices change. "We've been able to link costs to customers so that we can change pricing automatically, where relevant, as the raw material cost changes."

And, if you need any more confirmation of this system's ability to support growth, look no further than Reverie, which managing director Simon Farren says is on track to double its turnover within three years. For him, part of achieving that involves using 123insight's SDK to integrate its new e-commerce solution, allowing customers to place orders indirectly on to the system, while the latter also automatically populates the site with its information and images.

For him it was a similar story when Reverie migrated to Access Dimensions accounts. "Due to the integration between the two products, we could view customer files and see immediately current and future orders, account information, etc, from both systems... Also, we know that there will be further integration in the next version [of 123insight], which goes further to cement my decision."

But the last word goes to Creasfield's Holt: "A few years back, we reassessed all of our systems, including 123insight, to make sure that we were aligning ourselves with the right vendors. We came to the same conclusion – that 123insight was the best fit for our business. Moving forward with Version 9 will help develop the way we record production data and inspection records. The advanced serial number tracking will be a massive improvement for us. 123insight is a great way of spending money on your business. It's cost effective, reliable and provides a great breadth of functionality." ■



C&J uses 123insight's SDK to integrate with third party SFDC, accounts and e-commerce systems

something else after it had been quoted tens of thousands of pounds for the privilege. Having gone through 123 Insight's evaluation workshop process, he took the plunge, attended the training course and went live across most departments within a few weeks.

"One of the refreshing changes was that we could have access to all of the modules without continually bolting on additional costs. It gave us all the functionality that we could grow into, which was a huge factor in the decision-making process," states Holt. And he explains that, while the company initially stopped short of rolling the system out on the shopfloor, it now intends to add terminals there to allow staff to use SFDC. 123insight's SDK (software development kit) will be the enabler, and Holt knows it will work, having already implemented not only 123insight's CRM (having already aborted a competitor system) but also Access Dimensions accounts, with the SDK providing the tools.

That's the key to growing with this system, according to Chichester, West Sussex-based C&J Marine. Operations manager Wayne Strickland tells a now familiar story of turning down conventional ERP systems in the £50,000 plus £10,000 per annum support range, in favour of 123insight's low-cost yet comprehensive module coverage. In his case that includes CRM and 123insight's Equipment Register (a free-format sub-database that enables firms to track equipment and target marketing). However, most importantly, he points to the system's extendibility, via the SDK, which C&J used to integrate with third party SFDC, accounts and e-commerce.

Strickland says the SDK has been pivotal in enabling stable data transfer between systems without risk of

www.123insight.com



Leaning out

The move to leaner IT organisations tips the balance in the best-of-breed debate, argues Rue Dilhe

For two decades, manufacturing companies have been applying lean principles to their factory floors. And now, says Rue Dilhe, managing director of mid-market ERP vendor Exel Computer Systems, they're applying those lean principles somewhere else – namely, to their IT organisations.

And the outcome, adds Dilhe, is a fundamental change in the way that manufacturing businesses view their IT systems and infrastructure.

"There's a significant change underway, and it's been taking place faster since the recession," says Dilhe. "Our customers are seeing it, we're seeing it, and the industry as a whole is seeing it."

So what, exactly, is going on? Simply put, says Dilhe, manufacturing businesses have been taking a fresh look at their IT functions and infrastructure, viewing them through the same lean-centric lens with which they look at their factory floors.

In short, they've been stripping out complexity, striving to make systems and procedures 'fail safe' and foolproof, reducing headcount, and eliminating activities that they regard as unnecessary. Lean-style procurement practices are becoming more usual, too: single sourcing, building strategic relationships with a smaller body of vendors, and looking to trusted long-term suppliers to add value by providing a broader mix of products and services.

"Companies just don't want to deal with multiple IT

running debate over the choice between best-of-breed niche solutions and fully-integrated ERP enterprise systems – with the tide now turning firmly against best-of-breed.

"As companies have become leaner, with fewer IT staff, enterprise systems have advanced to the point where customers can see that a modern, fully-integrated system quite simply needs far less full-time IT resource," says Dilhe. "So the search has been on for ways to reduce the vendor count, and standardise around a single solution."

To be sure, it's a development that for Exel has been a mixed blessing. In terms of sales and marketing, the business is finding a newly-receptive marketplace, with manufacturers who were formerly happy with best-of-breed now slimming down their IT functions, and seeing new merit in going down the fully-integrated, single-vendor ERP route. But on the other hand, the company's product support function has undeniably taken more phone calls.

"We've seen a marked increase in support calls that appear to be directly related to a reduction in IT staffing levels at the customer," notes Dilhe. "Previously, the customer might have been able to field front-line support queries themselves – and now, people have left or retired, and not been replaced, and we're picking up the slack."

In short, he explains, Exel is seeing the marketplace wake up to a set of messages that it and other providers of fully-integrated ERP solutions have been extolling for years.

"You've got one supplier, who takes full responsibility – and no finger pointing between vendors as to why things aren't working," he notes. "There's no costly replication and duplication of data, or duplicated integration, maintenance and development costs: what you buy is already integrated, and offers inherently more robust data integrity. And overall support costs are lower, because there's only one product requiring support."

Throw in the fact that fully-integrated solutions are generally easier to upgrade – because a manufacturer is only upgrading one system, and not multiple systems as well as the interfaces between them – and Dilhe is convinced that in these times of straitened economic circumstances, the battle is going Exel's way.



"they've been stripping out complexity"

"Presenting users with just the information they need, in just the format they need, is the next step on the lean IT journey"

Rue Dilhe, Exel Computer Systems

vendors any longer," says Dilhe. "They've taken a strategic decision to eliminate duplication and complexity in their manufacturing processes, and now they're following the same logic in their IT processes and infrastructure. In staffing, the change is particularly noticeable: without doubt, IT functions aren't as well-resourced as they were five to 10 years ago."

And the result of these changes, he says, is an undeniable shift in the balance of power in the long-

"Companies just don't want to deal with multiple vendors from a corporate bandwidth point of view, and can't hold the knowledge internally to handle multiple systems," he stresses. "What they want is one support contract, one upgrade path, a single user interface for enhanced usability, a single point of contact, and a single body of knowledge to be held internally."

But isn't there a downside to this new lean approach? It might be leaner, it might be easier to manage, with a less complex IT infrastructure—but does it result in an IT infrastructure that is just as effective?

Go with best-of-breed, runs the familiar logic, and you get best-in-class functionality, as well as flexibility and configurability. Simply put, a manufacturer who went with best-of-breed knew from the outset that they didn't have to compromise: their new best-of-breed system would do what they wanted it to do. The only problem: integrating that best-of-breed system with the other systems that populated the business's IT landscape.

But these days, says Dilhe, that's yesterday's logic. The world has moved on, and today's ERP systems offer functionality that is just as rich as that of best-of-breed systems. In short, there's no need to go down the best-of-breed route at all, along with its complex IT integration, support and upgrade requirements – the functionality that manufacturers want is these days built into ERP, available right out of the box.

Better still, he adds, quite apart from their level of inherent functionality, modern ERP systems have extensive customisation capabilities, allowing manufacturers to change screen layouts, automate processes and specify workflow.

"People tend to underestimate the impact that such tweaks make to users' productivity," he notes. "But presenting users with just the information they need, in just the format that suits them, is the next step on the lean IT journey. It's the same with workflow: users no longer have to go looking in the system for the tasks they must perform – everything that requires their attention is presented to them in their inbox. It's about making the ERP workstation as efficient as a workstation in a cell on the factory floor: no clutter, no wasteful activities and everything that you need, right at hand."

Best of all, he adds, customising an ERP system in this way shouldn't create problems for subsequent upgrades. Exel, for instance, delivers such customisation by building a development layer on top of the system, called 'Adapt'.

"This allows manufacturers to take the basic software process and add their own 'tweaks' to it, and still keep to the standard software product, and the standard upgrade path: the customisation is in the development layer, and not the core product," enthuses Dilhe. "It means that the IT function is making changes just once – and having them automatically re-applied with each upgrade." So does lean IT really spell the end for best-of-breed? In mainstream manufacturing, the



answer is 'yes', insists Dilhe.

"You can't wind back the clock," he concludes. "A business that has discovered the advantages of a lean and efficient approach to IT won't suddenly go best-of-breed, and take on more IT staff, and start creating integration layers again."

"Like the typewriter and telex machine, the era of best-of-breed software has had its day." ■



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Eliminating integration complexity

The proliferation of systems within the typical manufacturing business isn't going to go away, says John Sharp. What's needed is a better way to integrate and simplify them

There's an inconvenient truth lying at the heart of most manufacturing businesses, says John Sharp, solutions architect at K3 Syspro. Namely, that despite extensive investments in ERP, manufacturers still possess a proliferation of disparate systems which must somehow be integrated into their overall IT infrastructure.

Sometimes, that means integrating such disparate systems with other disparate systems. Sometimes, it means integrating them with the ERP system. And sometimes, unfortunately, it means both.

And the number of such disparate systems is frightening, says Sharp.

"At one manufacturer we recently worked with, an internal audit identified no fewer than 36 separate manufacturing-related systems, in addition to the core ERP system," he points out. "And that's by no means unusual: quite simply, small niche packages and self-developed Access and Excel systems are far more common than most people imagine."

So how have manufacturers found themselves in this predicament? Wasn't the logic of ERP that it got rid of the need for so many separate systems?

Yes, says Sharp – originally. And in certain core areas, that is very much the case.

"Go back to ERP's roots, and you see its real core strengths: bill-of-material management, MRPII, inventory control, sales order processing, purchase ordering and accounting," he says. "And over the years, that core has been added to: document management, quality, maintenance, advanced scheduling, human resource management, and so on. But that still leaves gaps – and the recent additions, such as document management, are of varying calibre."

And the result, he says, is that manufacturers take the core ERP system, and surround it with systems that either suit them better than the ERP vendors' secondary offerings – a best-of-breed quality system or document management system, for example – and then add third party and self-developed systems to fill the gaps that ERP doesn't cover.



Which is how we get to today's situation, he points out.

"What you end up with is a very good core ERP system, surrounded by a second layer of systems which are a reasonable fit, and then a proliferation of other systems, developed to fill specific gaps that the ERP vendors don't regard as strategic," sums up Sharp. "It's a headache to manage, a headache to integrate, and you don't have the workflow opportunities between all of the systems that exist in the outer layers that are present in the core ERP system."

But don't hold your breath waiting for ERP vendors to somehow expand their core offering to encompass the workloads undertaken by these ad hoc systems at the perimeter. They're ad hoc for a very good reason, says Sharp: it's here that most manufacturers' processes, procedures and priorities vary most widely.

"At the core, there's an awful lot of commonality. Because what one manufacturer wants from inventory control, or MRPII, or sales order processing, will be very similar to what another manufacturer wants," he argues. "And that's true, too – although to a lesser degree – of 'secondary' offerings such as quality management, warehouse management or maintenance. But on the perimeter, there's a huge amount of variation."

And just look at the sort of activities embraced by these perimeter systems: change control, defect investigation,

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management team at Cobham recognised that it needed to integrate a number of best-of-breed individual solutions to deliver levels of automation and control that were appropriate for the advanced aerospace environment in which the company operated.

And the specific impetus for change was the need to automate its engineering change control and document management systems, integrating them with Syspro to provide controlled access to the more than 70,000 designs and production documents it held, making them easily accessible in a controlled way to its design and engineering staff, as well as the company's production operators.

The solution? SinglePoint, a software product from K3 Syspro, which consultants use alongside Syspro's Workflow Service to integrate the ERP system and the SinglePoint document management module, allowing companies to design, manufacture and supply products through one simple system.

The Workflow Service transfers data between the two systems in real time, explains Sharp, allowing Cobham to control its design and production processes from end to end using a fully-integrated document management system. This system provides a workflow-driven document change control process along with a web-based document viewing portal, ensuring Syspro users can only view properly-released and version-controlled documents and drawings.

But this, though, was just the start, says Sharp. Wherever they looked, Cobham managers began to see other opportunities to use SinglePoint to simplify integration and workflow – and duly tasked K3 Syspro with delivering the capability to do just that.

The reporting of labour times associated with individual works orders was a case in point, calling for a rules-based solution that would enable Cobham to book the time and labour costs associated with orders – from design, where time is recorded on a weekly basis against individual projects; to production, where real-time labour content reporting is associated with work orders on the factory floor.

In short, says Sharp, the combination of a workflow engine, the simple screen design tool contained within SinglePoint, and the interface with Syspro delivered a solution to meet these diverse needs. And the fact that Syspro's internal design is built around 446 'business objects', he adds, makes that tie-up even more straightforward: the 'business object' handles issues such as validation, meaning that all that is required is a link between SinglePoint and the appropriate business object.

"We're hugely impressed with what the combination of K3 Syspro and SinglePoint has achieved at Cobham, and we see it as a template for future rollouts," sums up Sharp.

"The potential to deliver not just integration but simplification is enormous – and at Cobham, a large number of separate systems have shrunk to just two: Syspro and SinglePoint. And functionality has been enhanced, not reduced." ■



At Cobham Antenna Systems, many separate systems have shrunk to just two: Syspro and SinglePoint

new product introduction and document management – here, a lot of the content and workflow is dependent on how the manufacturer performs the activities, which in turn depends upon aspects of its culture, management style, and corporate DNA. Forget a universal 'best practice', in other words – it's about developing an approach that works for an individual organisation.

In short, says Sharp, these systems are out there, and must be managed, integrated and leveraged. They're important, and fulfil a need – but they aren't going to be subsumed into any vendor's core ERP offering.

"Buy a mainstream ERP system and you'll still need to have all these extra 'perimeter' systems, because they're vital to the business," he says. "You need the information contained within these systems, you need it in real time, and you can't afford to re-key it."

In other words, manufacturers must recognise that their integration issues aren't going to go away – irrespective of their choice of ERP vendor. Which, in turn, means that for both manufacturers and ERP vendors, there's a strategic opportunity to embrace that integration challenge, working to proactively simplify and manage it as seamlessly as possible.

And for proof, says Sharp, look no further than longstanding K3 Syspro ERP customer Cobham Antenna Systems, part of FTSE-250 aerospace group Cobham. Wanting to streamline its business processes, the

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Simple integration unlocks the power of APS

ERP vendor Access Group has named a new preferred provider of advanced planning and scheduling tools, says Rod Schregardus. Key to the switch is simple integration

Earlier this year, Production Modelling, a supplier of advanced planning and scheduling (APS) solutions, released the latest version of its flagship product Orchestra.

What followed saw one of the UK's leading ERP vendors shift its allegiance to Production Modelling, and publicly declare that Orchestra was now its preferred APS solution, and the one that it recommends to customers, going forward.

In short, for Coventry-based Production Modelling, it's quite a coup, says Rod Schregardus, operations director at the company. And he's quietly optimistic that other ERP vendors will take note and also select Orchestra as their preferred APS solution.

Not necessarily because of Orchestra's powerful planning and scheduling features, undoubted though these are. But because of Orchestra's extensive rich integration capabilities, which make it possible to install and connect it to an ERP system in a matter of hours – something that is not possible with competing APS solutions, insists Schregardus.

And the story behind the move says a lot about the importance of IT integration to today's manufacturers, he says. "Today's manufacturers expect to get fully-customised solutions, despite buying off-the-shelf products," he explains. "So IT integration needs to be simple, fast, and contained within standard software."

From the outset, then, Orchestra always had 'out of the box' integration as a design objective. The most powerful yet of Production Modelling's intuitive and user-friendly APS solutions, Orchestra has the ability to import data from almost any source, and with minimal configuration.

At its simplest, that means users can readily import conventional text, spreadsheet and comma-delimited files – handy for 'what-if' analyses and simulations of new production processes.

And at its most powerful, that means true enterprise-level integration, allowing Orchestra to be seamlessly integrated with any ERP suite.

"As standard, Orchestra will import data from any ODBC, OLEDB or SQL data sources," says Schregardus.

"Sales orders, works orders, purchase orders, bills-of-material, inventory levels, planned maintenance tasks – you name it, and Orchestra can import it 'out of the box', with simple configuration routines taking a handful of hours to complete."

In practice, then, that means that easy integration is now possible between Orchestra and ERP solutions from a huge variety of vendors – Microsoft Dynamics, Sage, JDE, SAP, Infor, Access, and many bespoke ERP and MRPII systems.

And the result, says Schregardus, is that it's now possible to cost-effectively bring the advantages

of APS to a vast number of manufacturers who know they need a better scheduling tool, but who have been put off by the integration challenges that have been involved.

"Even now, too many companies are still planning production on spreadsheets," he notes. "Not only is it inefficient and time consuming, but it's a job that spreadsheets weren't designed for. So the resulting

production schedules aren't optimal – and people spend their time managing the planning process, instead of managing production more efficiently."

And that's not all. Not only aren't spreadsheets efficient when it comes to factory planning, they're not effective, either. So in the process, manufacturers miss out on significant opportunities to improve customer due-date performance, capacity utilisation, and work-in-progress levels.

"Traditional MRP-based scheduling logic works on the basis of infinite capacity," he notes. "As an order comes in, it drops in to a weekly or monthly 'bucket' of work, and management have to figure out how to achieve it. It's not so much planning and scheduling as a simple statement of what must be achieved – without providing any help in achieving it."

APS, in contrast, most definitely provides that assistance – and at a surprisingly affordable cost. In short, APS provides a means of planning and scheduling that reflects the reality imposed by constraints and resources on the factory floor, and actively constructs schedules so as to maximise their utilisation, while simultaneously optimising customer due date performance.

"APS says, 'here's the existing order book and



"...just
hours to
complete"

workload, here's the available manpower and capacity, and here are times when capacity isn't available due to things like planned maintenance'," explains Schregardus. "It then constructs a schedule that takes all those factors into account. Trying to factor in all that information with spreadsheets – or in people's heads – is difficult, error-prone, and rarely results in an optimal solution."

Fast take-off

All of which was music to the ears of Lufthansa Technik Landing Gear Services, which maintains, repairs and overhauls aircraft landing gear for airline customers such as Virgin, British Airways, Air France and Ryanair.

Until the introduction of Orchestra, planning and scheduling had been performed using multiple spreadsheets, which were created and maintained by different people in different departments. No longer – thanks to Orchestra, and an integration process with the company's bespoke ERP system which took just hours to complete.

The time taken up by planning has been cut dramatically, and for the first time the business has an accurate end-to-end view of its production plans, helping to improve productivity. Just as importantly, due date performance and schedule compliance have soared.

And, says Schregardus, such stories are increasingly resonating with ERP vendors, for whom a cost-effective, easy-to-integrate APS solution has obvious attractions. Take Access Group and its 10,000-strong customer base, for instance.

Access had always offered its customers APS functionality within its Access SupplyChain suite, says Schregardus, explaining that for years Access had provided it through one of the best-known proprietary solutions on the market.

But Orchestra prompted Access to take a fresh look at its approach to APS, impressed by both the ease of integration and the extensive blue chip customer base, which includes Siemens, B/E Aerospace, Walker Precision and Verna Group.

Specifically, says Schregardus, Access sent one of its experts to spend a day at Production Modelling, reviewing Orchestra and putting it through its paces.

And the result – as a recently published Access Group press release highlights – is that Access quickly came to the conclusion that Orchestra's integration capabilities far outstripped the capabilities of the existing solution that it recommended to prospective customers.

Better still, says Schregardus, it's full two-way integration. Not only does the ERP system continually feed Orchestra with outstanding sales orders, works order inventory positions and the like, but Orchestra is feeding back anticipated due dates and updates.

Inevitably, Access was tempted to showcase Orchestra in the next product demonstration to a prospective customer, a food manufacturer. "They signed up straightaway," says Schregardus. "So did the next prospective Access customer we did a joint



demonstration for."

And the result has been that it is now Production Modelling's Orchestra that is the preferred APS solution at Access, with Access consultants able to install a fully-connected Orchestra APS solution to Access SupplyChain's database in less than a day.

"The key to bringing the benefits of advanced planning and scheduling to more manufacturing businesses is simpler and rapid integration with existing ERP systems," sums up Schregardus. "That was a design goal of Orchestra, and with Access we've got an ERP partner who has recognised this within its own offerings to customers." ■

Rod Schregardus:
"Key is simpler and rapid integration with existing ERP systems"



Flawed logic

In opting for ERP-based functionality in critical areas, manufacturers are making a strategic mistake, says Kevin Luxton

Look carefully at the typical factory floor, and you'll see something odd. And it's this: production people diligently using computer systems that they know to be sub-optimal – while knowing at the same time that there are specialist manufacturing systems out there in the marketplace that would do the job, but which they are prevented from using.

So take a look at what they're using instead of a specialist manufacturing solution, and sometimes you'll see a system laboriously constructed in Microsoft's Access database, or its Excel spreadsheet tool. Sometimes you'll see them using the generic capabilities of whatever ERP system the business relies on as its transaction backbone. And sometimes, you will see them using a specialist best-of-breed manufacturing system – but a legacy, out-of-support version, rendered semi-obsolete by an inability to upgrade to something newer.

In each case, the outcome is the same: what you'll see is a manufacturing function fighting with one hand behind its back, forced to use tools far from adequate for the task to which they are being put.

So what's going on? How has this come to pass, and how exactly is this influence exerted?

In fact, there's no single, causal factor at work, explains Kevin Luxton, founder and chief executive of QiSOFT, a specialist provider of a suite of factory-floor productivity and quality solutions.

Partly, he says, what has happened is down to hard-pressed IT departments: under pressure to deliver ERP implementations, they're resisting production requests for specialist manufacturing systems. In short, they haven't got the budgets, they've haven't got the integration manpower – and they do know that what they have got is an ERP system which seemingly offers very similar functionality.

"You want a quality system? Use the one that's built into the ERP system.' That's the message coming out of IT," says Luxton. "It's a very understandable message – particularly when you factor in ERP vendors' equally understandable tendency to over-sell the capabilities of their products."

"To have the IT function take the final decision is madness. And strategic madness, at that"

Kevin Luxton, QiSOFT



Granted, this is a message that helps to stretch IT budgets further. The typical manufacturing business running an ERP system from companies such as Microsoft, SAP, or Oracle, will have made a significant investment in that ERP system. Expensive software will have been licensed, users will have been trained in how to operate it, and the system's tentacles will have been woven into the heart of the business.

So superficially, the logic is clear. Why license yet more software in the form of a factory-floor solution such as a quality system, or manufacturing execution system? Just insist that the manufacturing function use whatever capabilities that Microsoft, SAP, or Oracle have built into their respective ERP systems.

The trouble is, it's a mistaken message. Simply put, says Luxton, it is seriously flawed – both factually and logically.

From a factual perspective, he asserts, the argument misses the point that the manufacturing-specific functionality built into most ERP systems is fairly generic, and lacks the depth and richness required to make a real difference to manufacturing performance.

"Sure, there's a quality module – but do a feature-by-feature comparison with a specialist best-of-breed system, and the gaps are enormous," says Luxton. "What is in the ERP system is a quality module in name, but not in functionality. And it's the same with other factory-floor solutions: ERP on its own just doesn't deliver."

Which takes us to the logical flaw in the IT function's argument that ERP-based manufacturing functionality is better. Because the core competency of a manufacturer is manufacturing – which means that the business should be



“ERP just doesn’t deliver”

that they were so impressed with in the first place.”

And as with ERP-based functionality, such homebrew solutions are also flawed – and not just because hand-crafted spreadsheets can be bug-ridden, and consume scarce resource to create and maintain. Instead, says Luxton, the danger is that they are generally backwards-looking, providing information about what happened yesterday or last week, but very rarely providing useful insights into what is happening right now.

“This matters because, for manufacturers, real-time information is actionable information,” he points out. “The shorter and faster the feedback loop, the better. If things aren’t going right, you want to be taking corrective action, and not planning overtime or re-work.”

So is there any good news at all in this stark assessment? According to Luxton, yes. Because two separate developments are once again tipping the scales in favour of niche applications.

First, he points out, the design and engineering teams of more and more ERP vendors are recognising that their inbuilt ERP capabilities are not best-suited to complex real-time manufacturing, and its predominantly non-transactional data.

“They’ve looked at the investments required to develop and maintain solutions that would deliver critical functionality in some of these areas, and are backing away,” he says. “Beyond a certain level of basic capability, they’re asking themselves: ‘Is this where we want to go?’”

But this unease isn’t reaching the ERP vendors’ salesforces – nor the manufacturing industry customers to whom they’re speaking.

“When you are selling systems for millions of dollars, pounds, or euros, you’re certainly going to want to give the impression the system does everything,” notes Luxton. “And equally, when you are buying a system that costs millions of dollars, pounds or euros, then you are certainly going to expect it does everything.”

The second development again offers hope. Simply put, ERP vendors are building better and better connectivity and integration features into their ERP offerings, using technologies such as XML and web services. In other words, integrating a best-of-breed solution to an ERP system has never been easier – and is likely to become easier still, over time.

Nevertheless, points out Luxton, the battle won’t be over any time soon. But at least the battle lines have now been realistically drawn up, he says.

“It’s no longer a debate about functionality, or integration issues,” he concludes. “It’s about cost: does a manufacturer save money by settling for an inferior solution, or does he do the right thing and go with a built-for-purpose specialist system? And that’s a debate we’re very, very happy to have.” ■



Kevin Luxton: “Better ERP connectivity means it’s never been easier to integrate a best-of-breed solution”

doing all that it can to further its manufacturing prowess, and building its manufacturing-based competitive edge. Which won’t be achieved by settling for anything less than the best when it comes to manufacturing-centric or factory-floor software.

Put at its starkest, then, the final decision on the choice of manufacturing software should lie with the manufacturing director – and not the IT function. Because from a strategic perspective, what matters most to a manufacturing business is raw manufacturing functionality.

“It’s the tail wagging the dog,” says Luxton. “To have the IT function take the final decision – and veto compelling best-of-breed offerings purely on the grounds of ERP standardisation – is madness. And strategic madness, at that.”

But it’s a madness that’s far from uncommon, he stresses. Time and again, reports Luxton, he meets companies which are making software selection choices on precisely those grounds.

“They’ll come and talk to us, be impressed with the functionality we offer, and then be told by their IT functions that they can’t buy it,” he says. “

And typically, it’s a battle with one of three outcomes: either the manufacturing people come out on top, or they have to settle for whatever functionality is in their ERP system, or the manufacturing people continue to struggle on, achieving what they can with their Access databases and Excel spreadsheets. However, many of those eventually realise that they cannot just ‘make do’ with what they have, and years later return to buy the system

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Back to basics

Go about selecting an ERP system in the right way, and lengthy implementation times, high implementation costs, and excessive integration effort are a thing of the past, says Alain de Martin de Viviés



Alain de Martin de Viviés: “The right system in the right timescale at the right cost”

The business of being a manufacturer isn't getting any easier, notes Alain de Martin de Viviés, European pre-sales lead for Sage ERP X3, Sage's mainstream ERP solution for the midmarket. Consider, for instance, the challenges posed by globalisation, rapidly changing marketplaces, a need for continuous innovation in terms of products and services – and of course, ever-present risks and constraints, heightened by the current economic climate.

Put all that together, says de Viviés, and it quickly becomes apparent that the sort of ERP solution that was adequate for yesterday's business environment won't meet the needs of today's environment. Far less tomorrow's.

So what will meet those needs? What does a best-in-class ERP solution for today and tomorrow look like? And how does that relate to the question of integration?

And the answer, perhaps surprisingly, is best summed up by the word 'specificity'. In other words, a best-in-class ERP solution is one which perfectly meets the needs of business, whatever the nature of the business that a given manufacturer carries out, and whatever the nature of the business challenges that they face.

What's more, he continues, that specificity shouldn't come with an expensive price tag, or be onerous or time-consuming to implement, consuming vast amounts of internal resource.

Better still, he adds, an approach of aiming to deliver specificity handily helps to minimise integration headaches: too many manufacturers, says de Viviés, buy

the wrong ERP system – and then have to shoulder the burden of integrating it to niche auxiliary systems in order to acquire the missing functionality, thereby adding cost, complexity and inefficiency to the business.

“In today's world, businesses have enough on their plate without dealing with the challenges of an expensive ERP system that takes forever to implement and integrate with other systems in order to deliver vital functionality,” says de Viviés. “The goal isn't just about getting up and running very quickly – it's about getting up and running very inexpensively, and very efficiently.”

Put like that, he adds, it becomes much easier to define best-in-class ERP in terms of what it should look like, as opposed to defining it in terms of what it shouldn't be.

Thinking outside the box

For a start, it should be possible for a manufacturer to orient the system around pre-defined best practices. Long gone are the days when companies spent many long months analysing how they did things, and then re-engineering those business processes to produce simpler and more efficient ways of carrying out business, and then building those processes into their ERP system.

Instead, insists de Viviés, those simpler and more efficient ways of carrying out business should come ready to run, straight out of the box, supplied by the ERP vendor in the form of proven template-based best practices, already pre-defined in the product.

Needless to say, he adds, Sage ERP X3 does precisely this – giving Sage an edge over many of its competitors, he notes.

“We have all the predefined templates that a manufacturer needs in order to get up and running in as little as 35 man-days,” he says. “They're the best practices that have come from our implementations and user base over 25 years, embedded in the system as a series of selectable templates and options, visually presented.”

Secondly, says de Viviés, a best-in-class ERP solution's drive to deliver specificity should encompass – very precisely – the type of industry in which the manufacturer in question operates.

“Too many vendors define ‘manufacturing’ very simplistically – sometimes so simplistically as to be of little value. A food manufacturer, say, is looking for something very different from the kind of ERP solution which might meet the needs of an engineering firm,” he



argues. "To meet specific needs, it's important to offer specific features."

And once again, needless to say, Sage ERP X3 does exactly that, says de Viviés.

Conceptually, he describes it as a series of layers, drilling down in a four-stage process to precisely define a given manufacturer in terms of their industry, the type of manufacturing they carry out, their key business processes, and their pressing business challenges.

Equally, a 'tick box' flow chart decision tree is another analogy: at each stage, pick the answer that is the right one for your particular business needs, and move to the next level.

"To begin with, we identify the type of manufacturing involved," explains de Viviés. "Is it discrete manufacturing? Or process manufacturing? Or project-based manufacturing? And then, we determine the type of industry. Process manufacturing, for instance, encompasses food and beverage manufacture, pharmaceuticals, cosmetics, and chemical manufacturing; while discrete might embrace hi-tech, automotive and industrial equipment."

Then, the focus moves away from the type of manufacturing and type of industry, and instead looks at the nature of the business processes and challenges that are involved.

"In terms of business processes, for instance, we'll look to see if a manufacturer is make-to-order, make-to-stock, or is a project-based engineered-to-order manufacturer," says de Viviés. "Then, finally, we'll turn to the business challenges that they face – cost-reduction challenges, the need to reduce time-to-market, or the need to improve customer service, for example."

And it's this latter stage, says de Viviés, that again helps Sage to differentiate itself from competitors, by determining very early on in the project the nature of the business partners and third party applications provider with whom a Sage customer might benefit from working.

"We have premium business partners with a great depth of skills in industries such as automotive, pharmaceuticals, food and beverage, and hi-tech," he notes. "They're the right people, with the right knowledge, and they can talk to the manufacturer's own people in the manufacturer's own language. It all helps to get the right system in place, in the right timescale, and at the right cost."

Best of all, he says, Sage ERP X3 is well-equipped with 'connectors': pre-defined and built interfaces with which to communicate with the best-of-breed third party applications which suit a particular manufacturer's circumstances – particularly in the case of industry specifics, or meeting particular business challenges.

Should the need be for advanced planning and scheduling, for instance, Sage ERP X3 has relationships with – and pre-defined connectors for – the products of two leading specialists: Preactor and Ortems. In the case of product lifecycle management, the relationships – and



"...the right system in place"

connectors – are in respect of Audros and Lascom. For manufacturing execution systems, it's Osys, and for sales forecasting, it's Dynasys and Azap.

And for barcoding, warehousing and tracking solutions, it's Datalink. Similarly, specialist relationships and pre-built connectors apply for computerised maintenance management, electronic document management and 'IT for Green'.

In short, sums up de Viviés, the key to a successful 'integration lite' best-in-class ERP system is to precisely understand the nature of the business in question, its competitive context and challenges, and the type of manufacturing involved.

This approach, he stresses, works to both eliminate the unnecessary integration involved in respect of third party applications that aren't really needed – because the ERP solution already fully covers the customer's requirements – as well as highlighting instances where third party applications can genuinely add value. And in those cases, Sage ERP X3 has built-in connectors, and strong partnerships with the vendors in question.

Better still, he adds, it's possible for manufacturers to implement the same solution – Sage ERP X3 – in either a standard way, using best practices and templates, so as to maximise speed of implementation and minimise cost; or alternatively go for a fully-customised approach, to reflect very specific customer requirements. Or, indeed, 'mix and match' between the two, opting for customisation in some areas, and plug-in best practices in others.

"At Sage, we try to make the solution fit the business – and not the business fit the solution," he concludes. It's a small difference, but a vital one." ■



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Broken links

Thanks to advances in ERP and integration capabilities, building links to plant-floor systems has never been easier – and those manufacturers who don't are missing out, says Keith Pittaway

Walk into most manufacturing businesses and it's not difficult to spot a fundamental flaw in the logic that underpins their approach to ERP systems, reckons Keith Pittaway, sales manager at Microsoft Dynamics Gold ERP partner Syscom.

Simply put, he explains, it's not unusual for manufacturers to have manufacturing systems offering a rich set of manufacturing-specific functionality: quality systems, manufacturing execution systems and OEE systems, for instance. But, he charges, it is unusual to find those systems well integrated – or even integrated at all – to those same manufacturers' ERP systems.

"When it comes to implementing ERP systems, manufacturers focus on functions such as sales and finance, and somehow never quite get around to integrating ERP with their existing manufacturing systems," he points out. "But for a manufacturer, these plant-floor systems are a vital part of their competitive edge – as much as the sales and finance functionality of the ERP system."

In short, says Pittaway, manufacturers are missing out. They're missing out on opportunities to get real-time access to plant-floor data, they're missing out on manufacturing-specific management reporting opportunities, and they're missing out on opportunities to gain real-time visibility into factory-floor works orders and work-in-progress.

And put like that, it's difficult to refute the argument. Manufacturers specialise in, well, manufacturing. For vital systems supporting the manufacturing process to be isolated from the main IT backbone of the business seems illogical.

But, indisputably, that's the reality of modern manufacturing. ERP systems reach into every corner of the business, except that part of it that is most fundamental to what a manufacturer does – namely, manufacturing.

So how has such a situation arisen? And what can manufacturers do about it? Perhaps surprisingly, Pittaway is optimistic that the dichotomy that he sees is a problem of the past, and not necessarily the future.

Turn the clock back even 10 years, he observes, and implementing an ERP system was a daunting task. The timescale was measured in months, if not years. A small army of consultants was often required to codify business processes and reflect them within the new system. And from an organisational point of view, implementing an ERP system consumed a huge amount of internal resource –

often the business's best, brightest and most able people.

Likewise, extending ERP to the factory floor, and to the systems residing there, was also a challenge. Data interfaces had to be developed and de-bugged, decisions taken about protocols and communications standards, and 'middleware' investigated and acquired.

Turn the clock forward to today, and that picture has changed considerably, and in two important ways. First, communication between systems has become simpler, thanks to new standards and communication protocols in the shape of XML, web services and similar advances. And secondly, ERP systems themselves have changed, and these days offer a lot more feature-rich, industry-specific functionality, covering a range of vertical industries. Better still, that functionality is often in the form of best practice 'templates', ready to be applied at the push of a button.

The upshot is that implementing an ERP system today isn't just quicker, cheaper and easier – it also results in a higher-quality implementation and a system pre-configured around best practice for the vertical industry in question.

"Take Microsoft Dynamics AX," says Pittaway. "From the ground up, it's been designed to provide a feature-rich set of functionality for a wide array of vertical industry sectors – and to do so without customisation. The saving in implementation effort and cost is considerable."

All of which is good news, of course. But the real opportunity comes from the ability to strategically redeploy that implementation effort into building links with plant-floor systems. Links which are now easier and simpler to build, of course, thanks to advances in communication standards and protocols.

"Return on investment can be greatly increased by reducing implementation timescales and broadening the scope of the project to include complex business areas such as shopfloor data capture (SFDC)", says Pittaway. "These can be carefully planned and structured into low-risk, high-return, manageable chunks.

"Extending ERP to the factory floor is always the 'next step' that never quite gets underway," sums up Pittaway. "And now, with their investments in modern feature-rich ERP solutions such as Microsoft Dynamics AX, manufacturers have a real opportunity to break the mould. There's no longer an excuse for not going the 'final mile' – and doing so has never been easier to achieve." ■



Keith Pittaway:
"Manufacturers have a real opportunity to break the mould"



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