Prove IT, then move it

Having the right software can make all the difference when it comes to securing supply chain contracts but the hard sell is often half the battle, writes **Malcolm Wheatley**

Build a better mousetrap, they say, and the world will beat a path to your door. But in the world of automotive logistics, things aren't so straightforward. The mousetrap in question is superior computer software, capable of wringing greater efficiencies and lower costs from the complex supply chains that characterise the industry. Yet successfully harnessing the power of such software calls for close co-operation in a very different supply chain – the chain that links software developers to logistics service providers, and in turn, to automotive manufacturers.

For automotive manufacturers themselves, software itself isn't a prime concern: what matters are results. On the other hand, for automotive logistics service providers, innovative and powerful software can be critical – but developing it is a skill that usually falls outside their area of core competency. Yet ironically, those businesses for whom such specialist and abstruse software is a specialism face challenges of their own: proving to prospective purchasers that their solutions are indeed better.

The result? A complex set of mutual inter-dependencies that resemble nothing so much as a three-legged stool: all three legs are needed. Take one away and failure follows. And as automotive logistics becomes increasingly reliant on the power of sophisticated IT systems, understanding and leveraging this principle has become vital.

IT complexity

"Every logistics service provider has trucks, every logistics service provider has warehouses, and every logistics service provider has good people," concedes Ian Pemberton, Director of Internal Logistics for Ford's Premier Automotive Group at logistics service provider NYK Logistics. "What sets you apart from the competition in the eyes of automotive customers are the IT systems that you bring to a contract."

Take the example of BMW, which relies on Wallenius Wilhelmsen Logistics to transport finished vehicles around the world on its 60-strong fleet of ro-ro vessels. Presently covering around 20,000 vehicles a year, and involving seven factories (three in Germany and one each in Austria, the US, South Africa and Britain), the relationship goes back to the mid-1990s. Bjarne Birkeland, Wallenius Wilhelmsen's Vice President for Global Business Systems, explains that both the core logistics requirement and the underpinning IT systems have grown more complex over time.

Wallenius Wilhelmsen Logistics transports BMW's finished vehicles around the world on its 60-strong fleet of purpose-built ro-ro vessels

This increase in complexity meets Wallenius Wilhelmsen's strategic objective of becoming a Tier One provider, offering a total solution, notes Birkeland. "We realised that we needed to offer a total solution – not just port-to-port, but all the way from factory to dealer," he says. However, that in turn called for having the company's physical assets underpinned by an extensive IT capability, including not just supply chain planning and execution functionality, but track-and-trace as well as a finance and accounting provision.

One size fits all

Another strategic decision was to prove critical. Recognising that its core competency lay in the management of its physical assets, not developing clever software, Wallenius Wilhelmsen Logistics decided to develop this IT capability by combining individual components, bought off-the-shelf from a range of vendors. That way, not only could the business tailor its IT offering more closely to the needs of its individual customers – mixing and matching software components as required – but it also allowed the company to utilise "best of breed" components, best suited to the task in hand.

The trade-off was clear: a one-size-fits-all solution, either bought or internally-developed, might offer easier integration but equally clearly it might not offer world-beating functionality. And especially in outbound logistics, shipping finished vehicles, a very solid best of breed capability was essential, explains Birkeland. "There are plenty of logistics solutions on the market, but they tend to address other logistics issues: inbound parts logistics, for example, or partial distribution, where a consignment

South Carolina celebrated its one millionth BMW through the Port of Carolina last October and Wallenius Wilhelmsen Logistics was ready to ship it abroad

such as a container is distributed among a number of final destinations," he notes. Useful though such capabilities are, they would not meet Wallenius Wilhelmsen Logistics' requirements in terms of serving BMW.

This is because the nature of outbound logistics in the automotive world has several relevant peculiarities, explains Birkeland. One issue is order related: several different orders may apply to the same vehicle, each covering a different aspect of the vehicle. Separate orders might cover various phases of its transportation (for example plant-to-port, and port-to-dealer), as well as country-based specifications (Equip to Australian standards, for example), and customer-based specifications (Equip to Avis specification).

Another complication stems from the lead times involved. A vehicle may have been built to forecast, for example, but then be sold en-route – and in the process require shipping (say) to eastern Australia, not western Australia as anticipated at the point of forecast or manufacture. "Traditional solutions find this kind of thing quite difficult to deal with," notes Birkeland.

Supply chain planning

As Wallenius Wilhelmsen Logistics developed its IT offering – by now named 2vu and being deployed on contracts for a number of automotive manufacturers – the best available software components on the market were selected, according to the needs of the contract in question. Each component was then interfaced to 2vu's central core, which contained code from Holland's Baan, supplemented by a finance and accounting capability from the UK's CODA, a leader in data-centric accounting and analysis software.

But in trawls of the marketplace, regularly undertaken in order to update the company's familiarity with potential best of breed components, in 1999 Wallenius Wilhelmsen Logistics discovered a small British software company called ProAct International, which had a supply chain planning offering that looked capable of being used for cross-border vehicle distribution. "ProAct was very interesting," recalls Birkeland. "Their capability was very strong and the company appeared very flexible."

Just as clearly, though, there were several drawbacks. ProAct International was very small – "We usually deal with much larger companies," says Birkeland – and there were question marks over aspects of the company's technology. Nor did the company – at that point, anyway – have the requisite depth of experience in vehicle distribution. Nevertheless, Wallenius Wilhelmsen Logistics decided that ProAct International were promising enough to work with on a pilot project for Jaguar, which got underway in 2000.

For ProAct International itself, the Jaguar project came at a pivotal moment, explains company Chairman Garth Parker. ProAct International, founded in 1988, had carved itself a niche in the market for the provision of software for major 3PLs – initially in the UK, but subsequently in Europe, North America, Latin America and Asia with global LLPs such as UPS, Emery, Caterpillar Logistics and Ryder. For 3PLs, the appeal of ProAct International was its software development environment, which allowed it to create purpose-built logistics systems very quickly, tailoring them "on the fly".

"A 3PL might take 12 months to win a contract and then need a software system to serve it in a matter of weeks," says Parker. "What's more, the initial specification would typically be very fluid, changing and evolving as the 3PL and its customer began working together."

While the Jaguar project was regarded by both ProAct International and Wallenius Wilhelmsen Logistics as successful, the shortcomings of the company's Windows-based technology were all too apparent. The world was moving to web-based systems, explains Parker, and it was time for ProAct International to do so as well. It was time to build a new solution from the ground up, in Java, an internet-friendly computer language.

"The intention was to move away from a software solution sitting on site specific computers, and to create a centralised system accessible from anywhere in the world, with just a desktop computer and a web browser," says Parker. "That way, there's no software to distribute: suppliers, customers, contractors – everyone playing a collaborative role in the supply chain can go on-line and access it."

Competitive capability

The next time that Wallenius Wilhelmsen Logistics conducted one of its market trawls of available technology, in 2003, the new system – by now brought to fruition – immediately caught the company's eye. Not only that, but ProAct International itself was larger, and had deepened its automotive experience. The time was ripe, it seemed, for another joint project. But this time the project would take the form of a head-to-head competition with another vendor, and with ProAct International being initially regarded as second-preference provider – chiefly, says Birkeland, owing to the company's size.

The outcome was a surprise: the solution from the first-preference provider failed to deliver, says Birkeland. "It couldn't handle the complexity," he explains. "Even so", he adds, "there remained particular capabilities that the ProAct International solution didn't provide either, and that it proved necessary to work together on in order to

develop" – an aspect of the relationship where in Birkeland's eyes, ProAct International's smaller size played to its advantage. "Because it was small, the company was able to be quite adaptable to our needs," he says.

And today the Wallenius Wilhelmsen Logistics relationship has grown: as well as the BMW distribution contract, ProAct is in use on other contracts – inbound parts distribution to the US, for example, and exporting bulldozers. And quite apart from the Wallenius Wilhelmsen Logistics relationship, adds ProAct International's Parker, ProAct is involved with Ford and GM and other automotive manufacturers, and is also involved in the distribution of Cadillac European parts through a contract with Caterpillar Logistics.
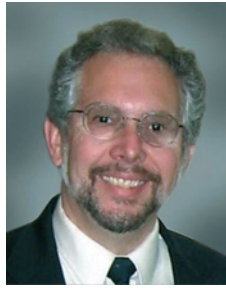
"The solution provides supply chain management in a multi-modal environment, and also includes the ability to maintain carrier schedules to plan and manage capacity bookings on ocean going vessels," he says. "Visibility of the plan is key for providing contract managers with a view of problems in the supply chain, and for feeding the corporate web site with progress, projection and status information on each individual vehicle and order – thus providing complete visibility to the end customer."

Jeff Liker says that considerable effort was required to persuade Toyota HQ that computer software could meet its supply chain needs

Persuasive technique

Yet not every automotive manufacturer embraces software-driven supply chain planning as readily. Toyota, for example, has incorporated a roughly comparable inbound logistics planning capability from American vendor Agillence into its computer-based route planning system SMAP. Yet, notes Jeffrey Liker, a noted Toyota watcher and Professor of Industrial and Operations Engineering at the University of Michigan, considerable effort was required by Toyota's American division in order to persuade its Japanese headquarters that computer software could do the job.

In particular, explains Liker – author of *The Toyota Way*, and *The Toyota Way Fieldbook* – it took the determined efforts of one particular American executive, General Manager of Production Control and Logistics, Glenn Uminger, before Toyota headquarters agreed to a trial of the Agillence optimisation engine. "When resistance came from Japan, he overcame it," says Liker. "He was the guy who saw the potential, and pushed and kept the idea going."

The issue, explains Liker, was chiefly cultural in origin, although Agillence's small size played a part, as it had with ProAct International. Toyota's approach to logistics, as with its approach to production control, has been developed

Toyota's approach to logistics has been developed over decades and the company doesn't tolerate risks to its just-in-time and *heijunka* scheduling
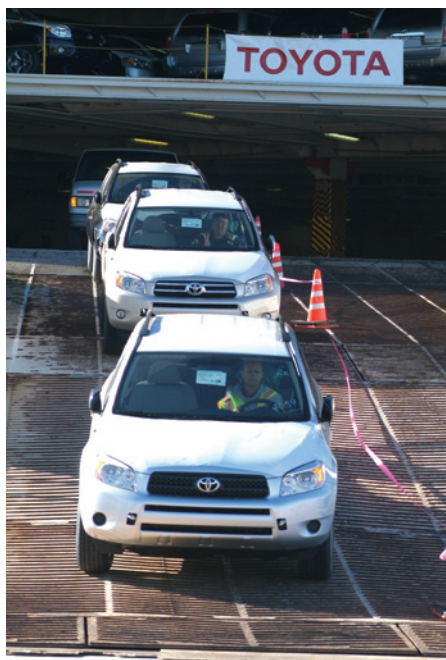
over decades and there is an inbuilt distrust of relying on a complex mathematical algorithm. A solution that ran counter to, or diluted, Toyota's just-in-time and *heijunka* scheduling approach would not be tolerated. And it was especially sceptical of claims that software could eliminate cost from the supply chain, he adds. "In the Toyota way, software never does that; it's an enabling factor, certainly, but cost is eliminated through process improvement rather than through software on its own."

Nevertheless, explains Agillence's Dr Sean Kim, the developer of the algorithm, a pilot project to test Agillence's approach was undertaken in 2004, after Agillence had first been subjected to a thorough vendor evaluation programme. And, as with Wallenius Wilhelmsen Logistics' evaluation of ProAct, the pilot project was competitive: the solution of a major Japanese software house was also under consideration. Some seven "test problems" had been designed by Toyota, and the two vendors pitted against each other. Even after Agillence had shown its solution was better, however, Toyota wanted to know why it had won. Dr Kim recalls: "They really wanted to know why we were better and how we had beaten a major Japanese competitor; looking back, we think they were highly surprised that we had won. It wasn't the result they had been expecting: "We had beaten the competition, but even so, were we the right vendor?"

But, after some deliberation, Toyota decided to move ahead, deploying the Agillence engine for inbound logistics planning in its North American operations. A year later, work for Toyota in Europe followed – although, says Dr Kim, the engagement was again characterised by an element of initial doubt. "We had to undertake several months of consultancy work in Europe, showing first that the solution would work, and second, that it could generate substantial savings," he says.

And a global rollout now seems likely, concludes Dr Kim – adding that the same core optimisation engine that powers the Toyota solution has now been coupled by Agillence to a general-purpose "front end", enabling others to use the same software. An agreement with Keystone Automotive, an aftermarket parts vendor, has recently been concluded.

The moral is clear. Build a better mousetrap and the world could beat a path to your door. But, as ProAct and Agillence have found, don't be surprised if prospective customers require proof that it is indeed a better mousetrap – and also some convincing that you are an appropriate developer to do business with. ●●●