Making software a good investment

In an economic downturn technology investments can be hard to justify – but may be the very best way of improving competitiveness. Dr Torsten Büssow, Germanischer Lloyd, gave *Digital Ship* some advice about how to make the most of software investments

Everybody in the modern world is using software to manage and control a wide variety of aspects of their day to day lives.

Even those of us that don't spend hours a day in front of a computer will be surrounded by systems running basic applications, from the mobile phone in their pocket to the onboard technology in their car telling them how far they've travelled.

At the business level software tends to be a lot more sophisticated than a dashboard clock, but the fundamental reasoning driving the use of these systems is the same – making life easier and more efficient through the use of specialised tools.

Dr Torsten Büssow, head of maritime software at Germanischer Lloyd, believes that understanding these principles behind the use of technology and software systems is a key ingredient in making them work for you.

He argues that the principle of effectively using tools to manage processes is quite a simple one, and has been understood long before we had computers – drawing on the early parts of the twentieth century to illustrate the point.

"Think of the Model-T Ford car, one of the most successful cars in the last century – for two decades it had a 60 per cent market share," he said.

"Henry Ford didn't invent the car, it was a German guy. He didn't invent the assembly line either, like many people think, he just copied the idea from other industries that were using this type of production."

"When somebody asked him what he did differently, he said 'we put a higher skill into management, planning and tool building'. To me, the interesting thing is that tool building is only one part of the equation, and the tools he is referring to would today typically refer to software. So this principle is nothing new."

From Dr Büssow's point of view, appreciation of this principle has been somewhat lacking in the maritime industry in recent years – however, with a global downturn forcing many to re-examine the way they do business, there is the possibility to draw more attention to the tools they use within their operations.

"From my perspective I think we're now at a stage where the shipping industry is changing its focus from just trying to manage huge growth, to starting to look at increasing competitiveness," he said.

"This means looking at competitors in the same local markets as you, but also looking at completely different markets. And when focus switches from growth to competitiveness, software can play a key role."

So how can software contribute to making a company more competitive? Dr Büssow suggests that efficiencies can be realised in a wide range of areas, and points to some software projects he has been involved in in other industries to demonstrate.

"An oil upstream company rolled out a complete ERP system across its European organisation and reduced its purchasing costs by 8 per cent, on an €800 million purchasing volume – that's a pretty significant number," he said.

The Ford company knew the value of tool building in managing its assembly lines, more than 100 years ago

"At a logistics service company we managed to increase the profitability by 20 per cent by just using the software to help them understand how profitable each single client group was. An insurance company introduced a company-wide CRM system and were able to increase their revenue per client."

"An oil major reduced its back office function costs by 25 per cent, costs for administrative functions like finance and HR and purchasing, by integrating into a modern ERP environment and restructuring the company into what we'd call a shared service environment."

Dr Büssow points out that the evidence linking IT spending and growth is there, and notes that growth in the US has accelerated in line with increased spending on technology systems over the last twenty years.

Software spend

While there may be a certain logic behind this argument for software, the less acceptable part for many companies experiencing the squeeze of a shrinking market is that dirty word 'spending'.

By Dr Büssow's calculations, a reluctance to invest in software has been a typical feature of the maritime market for many years, with the overall market worth a small amount of money relative to the size of the industry.

"If you talk about the shipping technology market you're talking about different segments, there are systems for navigation, systems for communications, systems for ship automation," he said. "Those are mostly hardware driven, I think. There's software that you buy to run them, but a lot of that is to do with the hardware that you buy."

"There are two segments that have a pure software focus – one is freight or transport management, getting a shipment from A to B, and the other is ship and fleet management, so that's the core shipping applications that you know about."

"The market size for these two segments is about €300 or €400 million, for each segment. That's the annual spend globally of shipping companies investing in software – a very small market, though it has been growing by about 10 per cent each year."

To put those figures into perspective, Dr Büssow looks at the oil and gas industry for comparison.

"If you ask engineers that know both of these industries they will tell you that a ship is in no way less complex an asset than an oil and gas asset," he said.

"We calculate that in shipping the CapEx (capital expenditure) spend is about €100 billion annually. In oil and gas this is about €340 billion – bigger obviously, but useful for comparison."

"The oil and gas industry is currently spending about 3.5 per cent of this CapEx on software and related services, half of which is on software licences and half of which is on IT services. The shipping industry is currently spending only €700 million on this, so it's 0.7 per cent of the total annual CapEx investments. This is a big difference, in percentage terms its only 20 per cent of the relative spend for the oil and gas industry."

Dr Büssow says that even this comparison does not show the full extent of the differences in approach between the two industries when it comes to technology investment.

"The total software spend will be about more than just the licences. Look at our €300 million spend in the fleet management software sector – let's say the new licences are about €100 million. Maintenance and support, which can be licence related like updating the software, those things are about €130 million," he said.

"Training, implementation and consulting, the 'services' share of the spending, is only about 25 per cent of the total, maybe around €70 million together. In other industries this services share would be about 50 per cent of the total, every time they spend €1 on software they should be able to spend another €1 on services to go with that."

"The shipping industry currently doesn't do this, and the results are that implementation projects do not run on time, people have trouble getting the software on the vessel, they have insufficiently trained crew, and so on."

Software deployment

Software deployment projects within the maritime industry are often plagued with problems, according to Dr Büssow, with companies often expecting miracles from their new systems which have very little chance of being delivered.

"Clients' full expectations are rarely met, especially in terms of things like saving time and having better information flow and so on. Software is not usually as successful as they expected it to be," he said.

"People give us feedback saying they have many island solutions that only solve partial problems, or that the software providers are IT people that don't understand how their business works, or the systems are too complex and most functionality could be done with Excel."

"A lot of them will say that they underestimated the time and effort needed for implementation, and complain that the expenses for implementation are much higher than for the licences."

One issue that can affect this imple-

Developing a state-of-the-art maritime software product is a €2 million to €3 million investment

mentation process is the company's deployment strategy, with Dr Büssow pinpointing three alternatives that different companies tend to choose between.

"One type of company could use 'best of breed' solutions, so for each single process it chooses one of the market leading applications," he said.

"Then there is the mixed approach, where you might have standard software for things like technical management and for finance, and then for things like chartering and crewing they will do it themselves."

"Then you will have people who will do in-house development for their applications. They might have legacy systems that are old that they are still using, and there are still some big players in the market that invest in developing completely new systems even though there are standard systems in the market."

Dr Büssow believes that the third of these strategies, in-house development, should really be avoided as far as possible, with the likelihood of success very slim.

"Let's take a planned maintenance or purchasing module, typically at the moment you might pay €6,000 per vessel, and also pay some customisation and configuration costs," he said.

"A software development project, if run properly, for those systems would cost €2 million. There's no way that a shipping company, even with 100 or 150 vessels, can manage to get this down to a competitive rate, even though they might think they can."

"Data capture and the roll-out will come on top of this, it doesn't matter if you create your own software or buy your software."

Crowded market

So, if in-house development is to be avoided, it would seem that the best approach is to go to an existing provider – however, Dr Büssow notes that this can also be a perilous process.

"At the moment, in this €300 million software market, we are talking about 100 different software providers globally from our count. Maybe it's 150, but these are just the ones we come across," he said.

"At the core of this market are about 35 ship management software providers, coming from a planned maintenance and technical management and procurement angle. They are joined by different specialist providers for voyage management, for chartering, quality and safety systems, voyage management, and so on."

"One part of the problem is that, within this landscape, this market is not really viable. What is the value to the market of the planned maintenance module number 30 or number 31 entering the market? They're not better than the others. We have clients who come to us and say that they chose this system last year or two years ago, and now the company is struggling."

Another issue that Dr Büssow highlights is the potential lack of R&D funding available in a highly competitive market.

"If you have 100 different companies in a market of €300 million, each vendor makes a revenue of €3 million. How can a company invest in new products and innovative products out of this €3 million?" he said.

"If you assume that there's a 10 per cent margin, which is probably not the case at the moment, they make €300,000 per year – developing a state-of-the-art maritime software product is a €2 million to €3 million investment."

"Also, how much does a small vendor have to depend on one big client to keep them alive? For another shipping company, if I'm not the one big company but the other small one I know what will happen if there are resource constraints, which is often the case at the moment."

Dr Büssow argues that, in an environment such as this, there are two likely outcomes – the shipping company will pay too much, or get too little.

"I think it's probably the second one, because prices are pretty competitive and low at the moment," he said.

With this in mind Dr Büssow says there are three key factors that he would suggest a company looks at when evaluating a potential provider.

"One is investment security – ask if this company going to be around five or ten years down the road, which would be the typical length of time you could be using the software," he said.

"The second is innovation – are there funds available for this and do they have a track record of being able to invest in product innovation? What is their innovation cycle like and what kind of new products have they created in the past? It's not enough to just change the colour and the buttons in the PMS system each year."

"Third is independence. It's funny that out of the software providers a lot of them belong to other shipping companies, some are obvious but some are not as obvious. If you buy software from this company are you making your competitors stronger with your money?"

Road map

Dr Büssow says that, in his experience, most companies that he has seen successfully deploy and enhance their IT systems have followed a somewhat similar succession of steps, beginning with the most basic operational functions.

"When a company looks into using software to support operations they always, from my experience, start with technical management and procurement. Those systems are well connected from most providers, and there are a lot to choose from," he said.

"The second step, if they have a well implemented PMS, is to look into other administrative processes – compliance support, getting ISM regulations right, crewing support, and so on. There are fewer solutions in the market for this, and some will be in-house developed, though this is changing."

"The next step is to look at innovative maintenance systems, combining any planned regime that is currently the common standard, with condition based systems or systems concerned with the structure of the vessel. Things like hull integrity management and condition based machinery maintenance."

"Then the next step, where there are few players working on this, is to get a real integrated ERP suite that combines all of these things. This will combine all of your information with your financial information too."

Dr Büssow is hopeful that, despite the downturn, more maritime companies may begin to embark on such a journey, and invest in improving their competitiveness.

"We talked to a number of clients in the last year about IT budget development, and there were some good signs. About 50 per cent of those we asked said the IT budget had increased, 40 per cent said they'd stayed the same, and only 10 per cent said it was decreasing," he said.

"You can check for yourself the value of a good software system. A good shipmanagement software system could cost you about €10,000 per year, per vessel. This is only a small fraction of any other costs you would have in your operating budget."

"Compare the difference in missing or over-ordering spare parts, in the effort you need to prove quality of maintenance to your charterers, in the workload for your key staff. The benefits available from a software investment are usually not that difficult to derive." DS