How to escape
Jurassic Park syndrome

Alan Woodward explains how businesses can maximise the return on their investment in technology – and avoid putting themselves at the mercy of suppliers.

Case studies, courtesy of Microsoft, Inc, are used to illustrate how application development frameworks have played a role in facilitating the development of new software solutions.

Remember the movie *Jurassic Park*? If you're running a business, the scene that is most likely to have really horrified you was not when the T-Rex launched its attack, but rather when poor Richard Attenborough, the billionaire genius behind the dinosaur theme park, discovers that once his plump, treacherous and debt-ridden computer expert has flown the roost (unintentionally to end up as dinosaur dinner), nobody else in the Park's HQ knows how to get *Jurassic Park* up and running again.

That, for today's business leaders, is

the true nightmare – finding that your computer resources, on which you have expended so much effort, thought, heartache, anxiety and hard cash, are not really your own. It's not much fun to discover you are totally reliant on a third party – and often an expensive, not-always-available third party – if you have a problem with your computer system or want to enhance it.

Quite reasonably, you want to have your cake and eat it. You want a really powerful, fast, flexible, compact, multi-functional, innovative computer system that does things your competitors' systems don't, or can't.

You want a computer system that readily permits your in-house system programmers to develop robust new customer-focused applications that your customers and your users love.

You want to do absolutely everything you can to ensure that your latest products and services – not your competitors' – are the first onto the marketplace.

You want technological innovation, and you want to deploy high-tech resources that play a crucial role in winning you that all-important competitive differentiation.

But there are things you don't want. You certainly don't want to become unduly dependent on the specialised and expensive skills of one corporate or individual supplier, whether it is because they might hold you to ransom, be unable to service your changing needs without additional expensive upgrades, or go out of business when you need them the most. Nor do you want your computer system to become quickly obsolete because the technology on which it is founded has been superseded.

Another thing you don't want, or shouldn't want, is to waste time and money by obliging your software development team – or consultants you call in to help you write a new piece of software – to spend valuable time writing routine elements of the program instead of focusing on developing key initiatives that will give you the competitive edge. These routine elements are like the tyres of a car or the carpet in an aircraft: a necessary feature, but not something that is going to contribute to winning you the desired competitive edge. All the same, the software needs them.

Finally, you most definitely don't want your competitors to get their new products and services out to market while yours are still on the

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You want a really powerful, fast, flexible compact system

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drawing-board. In the rough and tumble of today's business world, speed to market is a crucial competitive factor. Indeed, in some cases, the crucial competitive factor.

A new paradigm
Taking all your requirements into

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consideration, you need an information technology resource that is quite different from the fully customised, bespoke, tailor-made systems many organisations have, until recently, automatically assumed they need to build. Bespoke systems can be very expensive to create, and frequently – in about 70 per cent of cases, according to reliable industry sources – they fail to live up to the hopes that were vested in them. Yet nor do you want an 'off the shelf' software computer system that doesn't allow you to differentiate your products and services properly from those of your competitors.

So how can you get yourself a truly effective system that is neither built

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Volkswagen implements project management tool to increase supply chain efficiency

Volkswagen needed a new system to simplify and streamline the management of software projects within the e-procurement and supply chain integration department.

The existing system used complex spreadsheets for each project, with up to 35 software projects running at the same time. Projects could not easily be evaluated individually, and the profitability, strategic benefits, and flexibility of project's budgets could not be assessed.

Volkswagen decided to develop a customised solution, as it was unable to find a ready-made system that fulfilled all its requirements cost effectively.

Teaming with Electronic Data Systems (EDS), Volkswagen implemented a central database, running on Microsoft SQL Server 2000, that compiled project plans, budget information, and employee details.

Volkswagen was responsible for the design and technical implementation of interfaces and EDS worked on the business integration and data access structure of the solution.

The solution was built using the Microsoft .NET framework. This enabled geographically distributed teams to work together, maximising collaboration and speeding up the development of the solution.

Detailed project information is now available at the touch of a button, providing clear information and a uniform methodology across projects. The tool has been so successful that it is planned to be rolled out to other departments within Volkswagen.

Benefits include greater flexibility and transparency for supply chain management; up-to-date budget information; easy-to-use reporting system; cost-effective development; and streamlined processes.

from scratch nor an off-the-shelf product? By taking advantage of a new paradigm: application development frameworks.

These frameworks, which have been available for a couple of years and are becoming increasingly popular, offer you numerous benefits:

■ The ability to optimise any development for your particular business needs.

■ Maximum speed in application development, enabling you to get your new products and services to market with minimum delay and without having to put your developers through expensive and time-consuming retraining.

■ The confidence that the system is based around a universal, widely-accepted programming framework with a long-term vision and roadmap associated with it. A key consequence of this is that a large pool of corporate and individual computer engineers will be available who can service, maintain and enhance your system. No more Jurassic Park syndrome.

■ No more expensive time wasted on writing the routine elements of your new system. The frameworks feature the routine elements anyway. The result? Your programmers can devote that extra time to adding a depth and quality of functionality that wins you competitive differentiation.

There's a certain conceptual connection between application development frameworks and the old 'open' operating systems, such as UNIX, which were, at least in theory, a kind of universal architecture for software, so that in principle any software that ran on UNIX could run on your UNIX system if you had one.

But unfortunately, in practice UNIX was never really as open as this, and different versions of UNIX tended to spring up which were unfortunately often far from mutually compatible. The modern incarnation of UNIX is the much vaunted LINUX. Sadly, we are also seeing proprietary variants of LINUX destroying the viability of the so-called 'write once run many' (or WORM) dream that UNIX was supposed to deliver, but never did.

Pick 'n' mix

Application development frameworks are in a sense more loyal to the concept of the open operating system than open operating systems themselves actually ever were. And it's the very fact that the frameworks are universal that has led to many independent software development firms speculatively writing application packages for certain specific areas of functionality.

This range of packages is available from what are in effect web-based software libraries, as the software can be accessed over the web. The elements of these software libraries are increasingly available and can be bought very much on a 'pick and mix' basis.

What application development frameworks are available? Two of the best ones are the Microsoft framework known as .NET and the Java-based framework J2EE. (Application development frameworks have many advantages, but catchy brand names are not one of them). Both .NET and J2EE have attained great popularity, though .NET

Technology supports navigation-based services of the future

The European Space Agency (ESA) is creating a new satellite navigation system for non-military users. The project, called GALILEO, will draw on information from 30 satellites by 2010. The first four will be launched and orbiting the earth by 2006.

Computer simulation models have a critical role to play in every phase of the project. These models help to determine the best possible design for the system and offer continual fine tuning. In addition, they will help ESA develop new satellite-based services. All partners in the project will be able to access the ESA simulation system online with web services developed using the Microsoft .NET framework. In doing so, the partners will have all the information they need to develop navigational services for the rail, road, air, and water transport industries.

Today, state-of-the-art satellite systems provide unprecedented navigation tools. The operating principle for these systems is simple. With the aid of highly accurate atomic clocks, satellites regularly emit signals that contain information about when they were emitted. This information, which is encoded, is interpreted by receivers on earth. If a receiver has the coordinates of the satellite's trajectory and has information from at least four satellites, it can determine its own position on the surface of the earth.

GALILEO will begin operation in 2008 and be complete by 2010. By that time, there will be 30 new satellites orbiting the earth at an altitude of about 23,000 kilometres. A global network of ground stations will control the operation and trajectory of each satellite.

In the early stages of developing navigation services, computer simulation models are critical. Such systems reproduce satellite signals and provide information about how the real signals will behave under specific atmospheric conditions.

John Lewis, Managing Director of Vega Informations-Technologien GmbH, Darmstadt, Germany, says: "Simulation models provide important indications when it comes to making technology and investment decisions. They not only help create the system, they can be used later on for making critical adjustments and can be vital when it comes to training operating staff."

The computer simulation model for GALILEO is called the GALILEO System Simulation Facility (GSSF). It is being created for ESA by Vega using the Microsoft .NET framework development environment, an integral part of Microsoft Windows operating system that provides a programming model and runtime for web services, web applications, and smart client applications.

Simulation systems are normally built in two parts: simulation models for specific atmospheric conditions and a supporting infrastructure to support the process of data flow and to provide user interfaces. Using the .NET framework and the Microsoft Visual C++ development system, Vega has been able to increase efficiency and build all these functions in a single development environment.

Post-it Software Notes boosted by .NET framework

3M serves customers in more than 200 countries around the world. The company wanted to deliver a satisfying and simple user experience with a new version of its Post-it Software Notes application, consistent with the Post-it brand, including a novel Messenger feature, and make the application smaller and more portable. It accomplished all of this in only three months using Microsoft Visual Studio .NET and the .NET framework.

With Post-it being one of the most recognisable brands in the world and Post-it Notes a market leader in its category, it made sense for 3M to develop a computer equivalent. Post-it Software Notes for Microsoft Windows was developed back in the Windows 95 days. The product has now gone through several versions.

3M decided to build its latest version of Post-it Software Notes with the Microsoft .NET framework, to take advantage of the features offered by the .NET framework and the development efficiencies offered by Visual Studio.NET 2003 development system. The product team wanted to optimise its application for Windows XP, improve the user interface, and to lay the groundwork for future portability to mobile devices.

Post-it Software Notes 2.X and 3.X were developed using Microsoft Visual C++ 6.0 development system using the Active Template Library (ATL). The architecture was extremely modular. "This allowed us to easily develop new add-ins for different note types and to support new communication/email protocols," explains Brian Westover, lead developer for Post-it Software Notes. "This architecture has served us well in the past, but looking forward, the .NET framework will provide a better base as we move to new platforms and add new functionality."

currently has something of an edge. Probably because .NET is newer and is so fully integrated with the ubiquitous Microsoft operating systems and products, it is beginning to dominate in many applications. And even though .NET is a Microsoft framework, you don't necessarily need to base your systems upon Microsoft operating systems to use .NET. In fact, third parties have for some time been developing .NET for other operating systems, including LINUX.

Confidence in the concept

Ultimately, the most important thing you need, if you want to make the most of the new application development frameworks, is confidence in the concept of a software development environment in which you can get computer programs written quickly and cost-effectively to cover all your software needs as your business grows and develops. The result of making use of this new tool, the

application development framework, can be a superb new computer application developed to suit your particular business needs, but without the inefficiencies, delays and cost over-runs that have often plagued organisations in the past.

Further information

To see more case studies of how application development frameworks have been implemented in business, check out *http://www.microsoft.com/net/casestudies/*.

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