

Buyer beware

Risk-management software development is still struggling to recover from slashed budgets after the Enron debacle. So before choosing a new system, buyers should look closely at five critical areas, writes *Salim Jabbour*

★ The energy industry was initially slow to adopt risk-management systems until the mid- to late-1990s, before retrenching again in mid-2002. This had a negative impact on systems quality, stability and effectiveness.

This means users need to heighten their scrutiny of systems before making a selection – including a critical review of the following five areas.

Integration

Strive for a wide stable footprint that is compatible with your infrastructure.

Much has been written about the importance of business applications integration in the energy industry, but much less has been achieved. Despite all the hype about straight-through processing and enterprise-wide risk management, energy firms continue to struggle with too many poorly integrated applications. The continued reliance on spreadsheets for deal capturing, input data preprocessing, core analytics, results post-processing, and applications integration is adding insult to injury. And it is hindering compliance efforts with corporate governance requirements.

Integration challenges abound. The issues include commercial systems quality and corporate institutional matters. The most notable technical causes of poor integration include outdated, inflexible system architecture; arcane, poorly documented legacy structures; modelling incompatibility across multiple systems; and conflicting analytical approaches.

Analytics

Keep a broad perspective and ensure a balanced approach.

A set of analytical algorithms are often embedded in risk management systems. Developers tend to use a solution based on their own experience and expertise. But there can be fundamental differences in analytical sophistication and modelling approach. Often, large 'integrated' systems lack the required analytical rigour for proper risk management – the more sophisticated solutions can be found in highly focused "add-on" tools.

Modelling approaches tend to gravitate toward either statistical, financial or production analysis. While this diversity is natural, there is often too much focus on one area at the expense of others: systems often include excruciating detail in areas such as statistical analysis and neglect important functionality. Finding the proper balance continues to be elusive.

Decision support

Look for vendors with established experience in decision-support systems.

A key objective of risk management systems is to help users process a large amount of data and transform it into useful information that helps decision making. Energy risk-management systems have focused on data management and data analysis – they barely address decision-support capabilities: a defi-

ciency that has diminished their effectiveness and limited their ability to fully meet customer needs.

Why? The market has been slow to adopt decision-support systems. The diversity of needs in the energy industry makes standardisation difficult. Also, good decision-support capabilities require advanced problem-solving and consulting skills, and the need for improved decision-support capability only becomes obvious at later stages as users start to realise a system's limitations.

As market participants become more aware of the need to deal with increased complexity and heightened risks, future energy risk-management systems are likely to include improved decision-support capabilities.

IT matters

Ensure end-to-end modern system architecture and data structures.

The growth in performance of the CPU in the past 30 years hit a wall in 2003, as performance gains through faster clock speeds became increasingly difficult to achieve. For the near term, performance improvements are expected through hyper-threading (running two or more threads in parallel inside a single CPU), multi-core (running two or more CPUs on one chip), and 64-bit computing, which can address very large amounts of memory – significantly larger than the 4 Gigabyte limit of 32-bit processors.

In the past, performance gains simply required purchasing newer, more powerful hardware. Looking forward, this approach may not be as effective. Software applications need to be carefully designed to benefit from concurrency and 64-bit computing – a task that is easier said than done.

Legacy applications, which use a sequential control flow, will require major changes – possibly a complete re-engineering – before they can benefit from future computer performance improvements.

Patches and fixes

Accept only limited patches and fixes: short-cuts are often short-lived.

As market participants and system vendors started to improve their understanding of system limitations and of user needs, they rushed to implement fixes. They claimed these improved analytical solutions, modernised software and advanced systems integration.

Unfortunately, industry restructuring and its associated cost pressures have had a negative impact on the ability and willingness of system vendors to make the necessary investments. The outcome has been a bunch of patched-up, poorly integrated solutions – instead of a much-needed new generation of integrated enterprise-wide risk systems. **ER**

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The vendors' view

Energy software vendors are the first to admit they suffered financially from the downturn in the markets, but most stress they've developed innovative solutions despite the slump. *Energy Risk* put Salim Jabbour's concerns to vendors

Integration

Expedience will probably always drive software development to a degree, leading to *ad-hoc* solutions and potential integration problems. But total integration may be as undesirable as it is illusive, some vendors argue. Buyers should be wary of swapping the specialisation they need for a general fit.

"Specialisation comes at a price," argues Matt Mandalinci, president of SunGard Energy Systems. "It is unreasonable to ask that *all* vendors do *everything*. In fact, our clients and the market in general are skeptical of any one company's ability to be 'all things to all people'."

And integration can mean one system from one vendor, or many systems all integrated, says David Bucknall, chief executive of vendor KWI. "The optimal mix is one between having the best specialisation and the biggest footprint." Achieving complete integration is easier for some industry categories than others, he argues. "A system that provides everything needed by an oil major is decades away. KWI focuses on the multi-commodity category, and we have systems that have a 100% footprint in certain companies."

Andy Aziz, vice-president of enterprise systems vendor Algorithmics believes the integration challenge differs depending on each software supplier's starting point. The middle office needs an enterprise risk-management framework, whereas front-office traders need a trading-focused system.

"Integration is definitely a key issue for us," says Aziz. "We've always been an enterprise risk software supplier – now we have begun to make the software accessible to more than just the middle office." By contrast, he adds, some vendors have developed risk-management systems for the front office – to provide trader-level decision support – and have then sought to expand them for the middle office – to cover multi-asset-class issues, for example.

James Lam, consultant at enterprise risk-management software supplier CXO Systems, stresses the importance of taking a 'top-down' approach. By this, he means systems should be tailored to the needs of senior management and the overall company strategy – built for a specific transaction or purpose rather than from the bottom up, as most systems are.

Analytics

Properly designed systems provide the structures and some of the tools to support rigorous analytics, says SunGard's Mandalinci. However, with many different analyses targeted to specific purposes and dependent on a company's business models, it is impractical to expect all of this to be included in the integrated package, he says. The fact that analytics applications are 'add-on' is a function of the fact that they're built for very specific purposes.

Algorithmics also feels analytics add-ons are no bad thing. Algorithmics' aim has been to build an enterprise-wide system, hence the company has created an open API, so that customers can embed third-party models or build their own, says Aziz. "So while these are add-ons, we see this as a strength – if clients want to add, say, FEA's energy analytics into the Algo system, they can."

Bucknall believes KWI has tackled the problem of analytics add-ons by approaching it from the part of the market where complex structured deals are being carried out. "Straight-through-processing is usually hindered by things such as virtual storage or complex synthetic trades that are difficult for traders to input, and so usually end up being input on a spreadsheet," says Bucknall. "But working from the complex end of the market KWI couldn't avoid these sorts of trades." So the company developed a framework for 26 types of trade, and these can then be further personalised if the company should need.

Decision support

CXO's Lam stresses the importance of real-time data to making decisions. "There is a lot of volatility in the energy market and it's hard to get accurate prices," he says. "Price risk and market risk are interdependent – even more so than in other financial markets. So it's crucial for energy companies to get real-time data – yet it's difficult to do that if they are relying on spreadsheets or static reports rather than a dynamic, updated risk-management system."

SunGard does not see decision support as one of its strengths, so it leaves it to the specialists. "SunGard provides basic 'what-if' capabilities to support decision making, but true decision support is a specialised area," says Mandalinci. "We prefer to focus on data management, physical logistics and analytics, and to partner with specialists in decision support and portfolio optimisation."

IT matters

On this point, the vendors agree with some of Jabbour's points. It's true that applications must be re-engineered to benefit from future CPU performance, says Mandalinci, and this is why SunGard has worked with clients over the past year to develop 'grid-enabled' versions of calculation-intensive analytics modules. The company is also working with clients to convert analytics packages to 64-bit, and with hardware partners to ensure SunGard applications can take advantage of new hardware functionality and performance, he says. In addition, software cannot always be "upgraded" with add-ons, says KWI's Bucknall. "When a vendor moves a system to a new company, you have to make sure you don't pack things into the software that it wasn't designed for. Sometimes you do need to go back to the drawing board."

Patches and fixes

Mandalinci agrees that there is a legacy of patching systems. "Many energy companies have a patchwork of systems and a variety of data sources with which vendors and they themselves have had to interface," he notes. "However, there are now solutions on the market that address these problems." He believes companies can both develop existing products beneficially and bring to market new products. "SunGard Energy Systems has been able both to enhance and maintain the products in use, and invest in a new-generation enterprise-wide risk system in the form of Entegrate," he says. **ER**