Build versus Buy – 5 myths and realities

Overview

Energy market participants now demand more from their valuation and risk management functions to meet board expectations. Also, players are operating in a more stringent regulatory climate; there is increased oversight from credit rating agencies, as well as from banks extending credit.

Companies are struggling with utilizing their Energy Trading and Risk Management (ETRM) systems to fulfil their risk analysis and valuation requirements for portfolios that typically comprise complex financial contracts and physical assets, such as power plants and gas storage facilities. Lacima have observed that the valuation and risk management capabilities of all the major ETRM systems is recognized as their weakest functional area – a fact borne out by the sheer number of market participants who use their ETRM systems effectively solely for capturing deals, and for data and position management. In many cases, the preferred strategy, to bridge this functionality shortfall, is to turn to internally developed solutions.

In this business briefing, five myths associated with undertaking an in-house risk and valuation application development project internally are discussed.

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Myth #1: "It doesn't cost us anything"

One justification for pursuing an internal build strategy, is that it is a less costly option than deploying an external software solution in an organisation. In fact, we have heard it claimed more than once that it "... doesn't cost us anything as we already have the quantitative analysts sitting here". The reality is that the costs associated with the undertaking of a project to internally build a comprehensive risk and valuation system engine are not well understood by many in senior management positions.

An internally developed application of this kind should be built to meet the needs of trading, risk management, valuation, structuring and origination groups, who have a diverse range of functional requirements for risk and valuation analysis and reporting. It is recommended that organisations conduct a thorough analysis of the short, and long, term costs involved in developing and keeping analytics model libraries up-to-date.

In its May 2010 study "Optimizing the OTC Pricing and Valuation Infrastructure – Addressing Analytics Costs and Efficiencies", Celent analysed the cost to banks and investment firms for building up their own pricing and valuation capabilities. They concluded that, aggregated over the total software cycle, firms adopting in-house strategies for OTC pricing will require investments between $25 million and $36 million to "build, maintain, and enhance" a complete derivatives library.

Although the typical spend for most energy organizations will be less than that required for the investment banking firms analysed in the Celent study, once the total costs associated with the initial specification, build and test; ongoing bug fixes, enhancements and upgrades; as well as integration costs with internal and external systems are taken into account, then even at one quarter of these costs energy companies are looking at investments of between $6.2 million and $9 million over a multi-year software cycle.

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One cost area that is underestimated in nearly all organizations is the inefficiencies due to fragmented data, analytics and platforms. Lacima has consulted in organisations where there have been 2 people solely employed to keep the internally developed risk system running – as a result often of temporary workarounds and operational systems not being adequately tied together – obtaining, reformatting, and cleaning the data, running individual steps of a business process, reading the output data in XL, and forming reports. This process is something that should be able to be accomplished by one person with the push of a button in a properly configured system. It is not unusual to find very well qualified (and highly paid) quantitative analysts spending around 75% of their time on these non-value added activities, and only 25% of their time on value added activities such as research, analysis and modelling.

In reality quantitative analysts have limited knowledge of how to develop an application's architecture or how to build interfaces with other applications. Therefore, relying on such individuals alone to undertake this type of project is likely to result in inflexible applications in the organisation with ad-hoc interfaces which are difficult to use by all business users.

Myth #2: Risk and Valuation is where our IP is

This is probably the number one reason given to Lacima for justification for in-house developed applications and, for the vast majority of organizations, this is where the biggest difference lays between the myth and reality. There is a perception that by internally developing risk and valuation functionality, intellectual property (IP) is retained within the organisation and models are built to bespoke requirements. It's a fact that internally developed valuation and risk functionality is almost always built by very smart people. It is also almost always a fact that hardly anybody else in the organization knows what these very smart people are doing.

Lacima's experience is that, just because they are smart, and you don't know what they are doing, doesn't necessarily mean that they are developing IP. Often, what has been done is that the developer has taken books and papers written over the last 12 years by Les Clewlow, Chris Strickland, and others, and coded up standard algorithms available in standard commercial applications such as Lacima Analytics – and they have spent the last 12 months doing it.

In addition and in reality, the typically 1 or 2 key individuals (see myth #4), involved in the development of the application can only bring their own experience to the table, which further limits meaningful customisation.

Myth #3: IP stays within the company

In the energy industry, it is also common in organisations that opt for internal build projects, for such projects to be led by just one or two individuals with specialist knowledge. An organisation must ask itself what will happen when these key individuals leave the company?

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A lack of adequate documentation and knowledge transfer amongst team members is a prevalent problem in energy trading organisations largely due to the time and effort involved for a few key individuals to put this type of information together as well often their lack of inclination to do so for personal reasons. Once these key individuals leave, they essentially take the IP with them and the people that replace their roles are left with little no record of the algorithms, models and methodologies on which such internal solutions are based on and are stuck with inflexible internal applications that do not meet current or future requirements.

For most companies, the reality is that the company doesn't have any IP, it's in that guy's head, it goes home every night, and will, almost surely, walk into another company one day.

Myth #4: We have people to build this in-house

In the vast majority of cases, it is quantitative analysts alone that are tasked to undertake internal build projects for energy organisations. With such a responsibility, these analysts are unfairly expected to be the "master of all trades" and, as a consequence, the scope of functionalities for risk and valuation tends to have a narrow focus and is often not useable for other groups in the organisation.

For a successful internal build, an energy organisation needs to employ a diverse range of separate skill sets to successfully specify, build, test, and maintain on an on-going basis, a comprehensive risk and valuation application. Individuals with specialist knowledge on pricing assets and valuation algorithms, financial engineering, database management skills and user interface programming are all required. It is rare for all these skill sets to be available with one organisation, let alone 1 or 2

individuals. Such a scenario seriously hinders the ability to develop successful applications in the appropriate context.

In our experience, the typical profile of the in-house build team for most energy organizations is an individual, or two, with an advanced technical degree (maybe a Ph.D) in an area like physics, or some kind of engineering discipline. They are typically a few years out of university, don't have a background in financial engineering, or stochastic optimization, have never developed a commercial software application and have no prior experience of developing user interfaces (outside of XL) or linking to databases. They rarely – if ever – socialise their models and algorithms outside of the organization, and their only knowledge of financial contracts and physical assets is what has been picked up 'on the job'. As a consequence, compared to the development of commercial software applications, such as Lacima Analytics, the level of IP developed is often akin to where we were over 10 years ago.

Myth #5 – We can get away with spreadsheets

Errors in spreadsheets have caused a large number of significant economic losses

Many in-house application build projects still involve the use of spreadsheets. Such an approach exposes energy organisations to regulatory scrutiny and reputational risk due to the high probability of more errors occurring in calculations. In addition, credit rating agencies and banks are demanding greater rigour, and tighter business processes, than are afforded by spreadsheet based solutions.

Problems associated with the use of spreadsheets for risk and valuation analysis also include unwanted time and costs to resolve issues, inconsistencies in risk metrics and valuation figures between front and back office due to the use of disparate models and the inability to effectively integrate results across multiple applications such as ETRM and accounting systems. It is well documented (see for example the European Spreadsheet Risks Interest Group website) how errors in spreadsheets have caused a large number of significant economic losses, including many for energy companies.

Conclusion

Before embarking on an in-house risk and valuation application development project, organisations need to consider the entirety of costs associated with the scenarios described and ask themselves the following key questions:

- Is risk and valuation system development really our core competency as an organisation?
- Do we have the relevant resources and skill sets needed across several departments to build such an application properly?
- What are the chances of this working and will it succeed?
- How are we going to support and maintain the system in the long-term?

In our experience of working with energy organisations on solving complex risk and valuation issues, we have found that it is easy to underestimate the long-term effort and costs involved in building a comprehensive risk and valuation application that meets the specific functionality needs of trading, risk, structuring and valuation groups within an organisation. History shows the chances of a project of this nature running on time and on budget are slim.

The strength of internal resources is the detailed knowledge of the company's portfolio and their ability to tailor analytics and analysis for that portfolio. There are significant benefits, therefore, to be attained in opting for a buy/build mix strategy to internal risk and valuation projects – leverage the internal modelling and valuation strengths on particular assets and contracts, with the risk framework strengths from a 3rd party vendor.

About Lacima

Lacima is a specialist provider of software and advisory services dedicated to valuation, optimisation and risk management for global energy markets. We help you to maximise your profit potential and make more informed decisions by providing tools that yield more accurate valuations, hedging analysis and risk exposure analysis for portfolios of financial contracts and physical assets.

Clients of our software and services include structuring, valuation and risk teams in vertically integrated energy companies, energy retailers, financial institutions and large energy consumers in Europe, North America and Australasia.

Our software solutions have been developed and implemented by peer-recognised experts in energy analytics, offering an unparalleled level of expertise and personalised support.

For further information, visit **www.lacimagroup.com** or email **info@lacimagroup.com**