Win in the flat world

Energy Trading & Risk Management - Top 5 IT Imperatives

- Rahul Shah

The post Enron disruption and the ensuing consolidation in the energy trading industry have not only laid the foundation for a robust growth in the trading activity but have also brought in a paradigm shift in the way IT would be leveraged by the energy trading firms. Given the strong focus on compliance, control, real time risk management, efficiencies and change management, the 5 key IT imperatives are: - Legacy application re-engineering, Master data alignment, Robust trade capture functionality, Scalable integration infrastructure, and Scalable funding and resourcing of the IT function. Once accomplished, energy trading firms will be strongly positioned to create an IT roadmap providing scalable, flexible and highly integrated infrastructure to the business.

Reprinted from:

commodities now

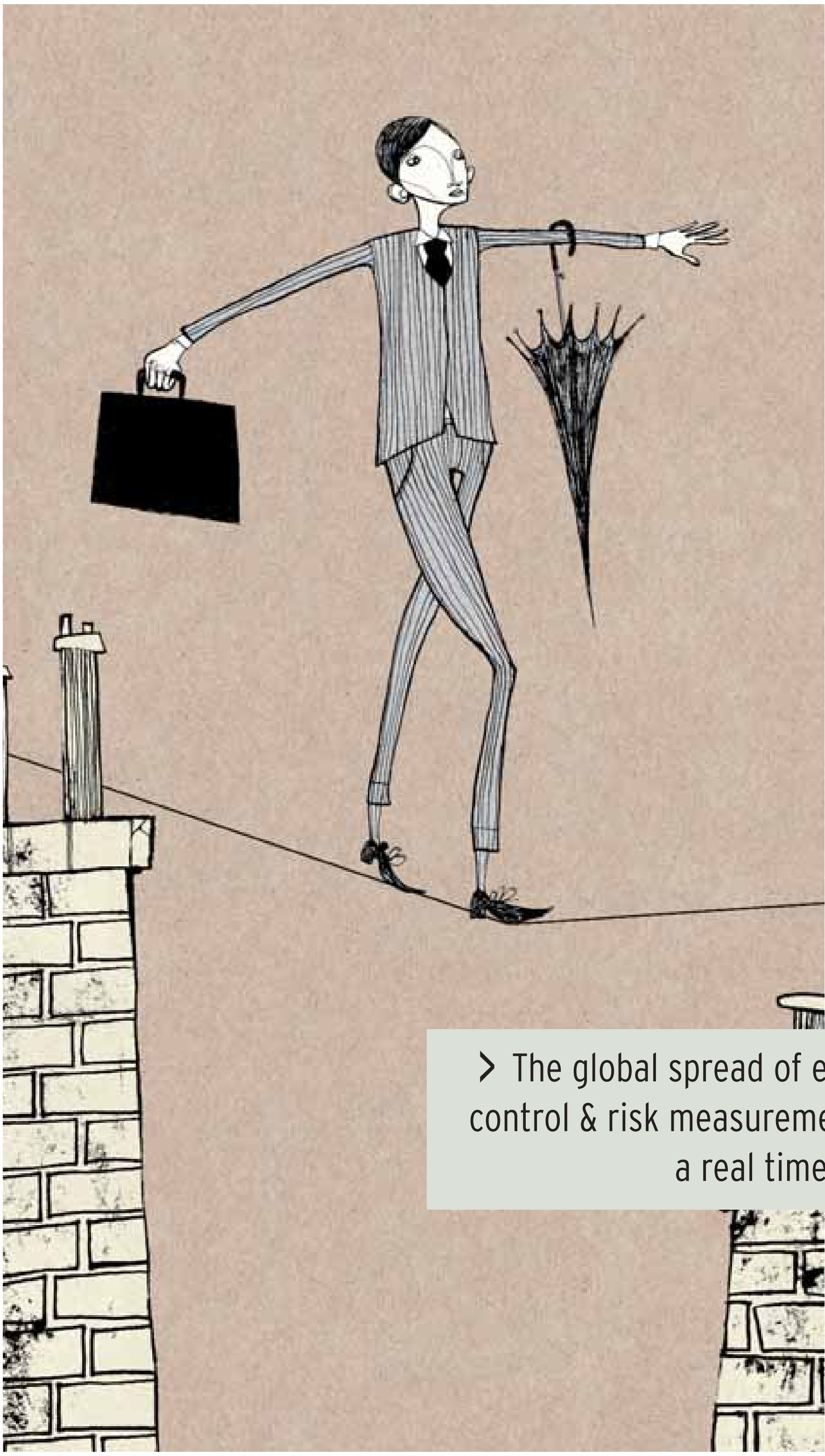
March 2005 issue
Used with permission.
www.commodities-now.com

Infosys®

POWERED BY INTELLECT
DRIVEN BY VALUES

ETRM: Top 5 IT Imperatives

By **RAHUL SHAH**, Principal Consultant, Domain Competency Group, Infosys Technologies.



THE CALIFORNIAN ENERGY crisis, followed in quick succession by the Enron debacle caused an industry disruption on a massive scale. Major players in the energy markets ramped down their trading operations and reduced their exposures to the financial markets. Overall energy trading activity witnessed a steep drop in volumes.

During this fall, regulators focussed their lenses, investors became more demanding, financial institutions acquired the assets of failing energy companies thus gaining big scale entry into energy trading, and energy firms re-oriented their trading strategies and started focussing more on asset optimisation and risk control. This disruption and the ensuing consolidation have not only laid the foundation for a robust growth in trading activity but have also brought in a paradigm shift in the way IT would be leveraged by energy trading firms. In this article, we examine what this shift means in terms of key IT challenges for those firms.

Key Business Imperatives for Energy Trading:

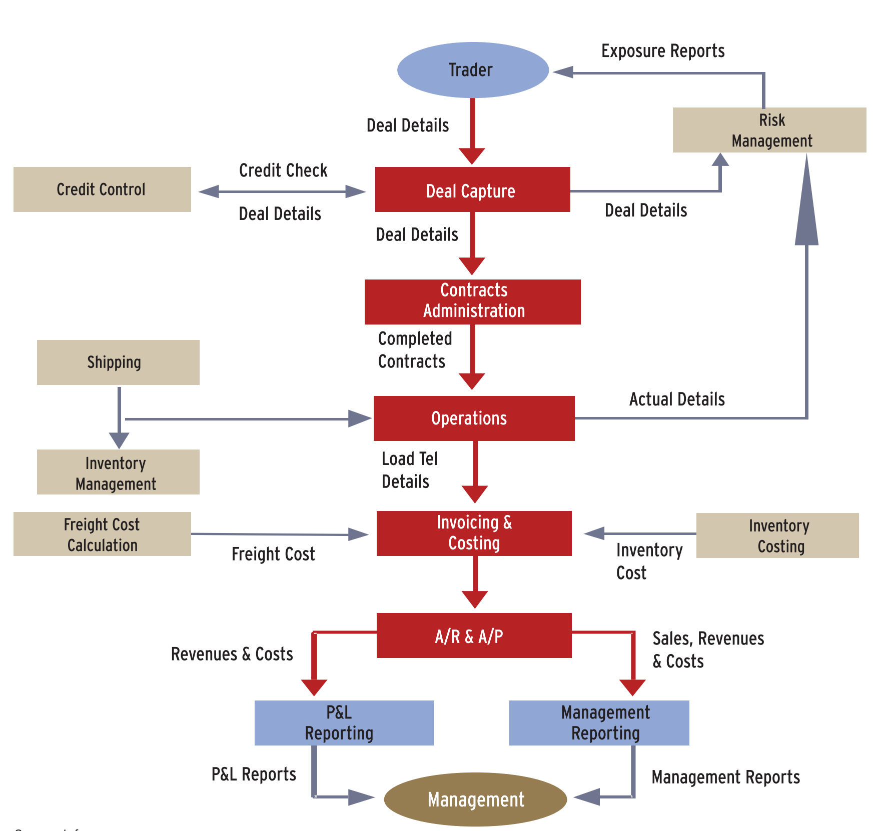
1. *Compliance*

The biggest ramification of the Enron debacle has been a strong focus on compliance and investor disclosures. Though the pressure came from the regulatory authorities, the motivation has come from within the industry. The crisis of confidence from the banking and the investor community provided commercial arguments in the armoury of CFOs and risk managers. Benchmarking against best industry

> The global spread of exposures necessitates control & risk measurement to be performed on a real time basis <

practices like GARP, CCRO framework, FSA requirements and financial accounting standards (e.g. IAS 39) has become the norm. Regulatory acts like Sarbanes-Oxley, the FASB 133 directive and SEC requirements have given more teeth to the arguments.

Figure 1. The Trading Life Cycle



Source: Infosys

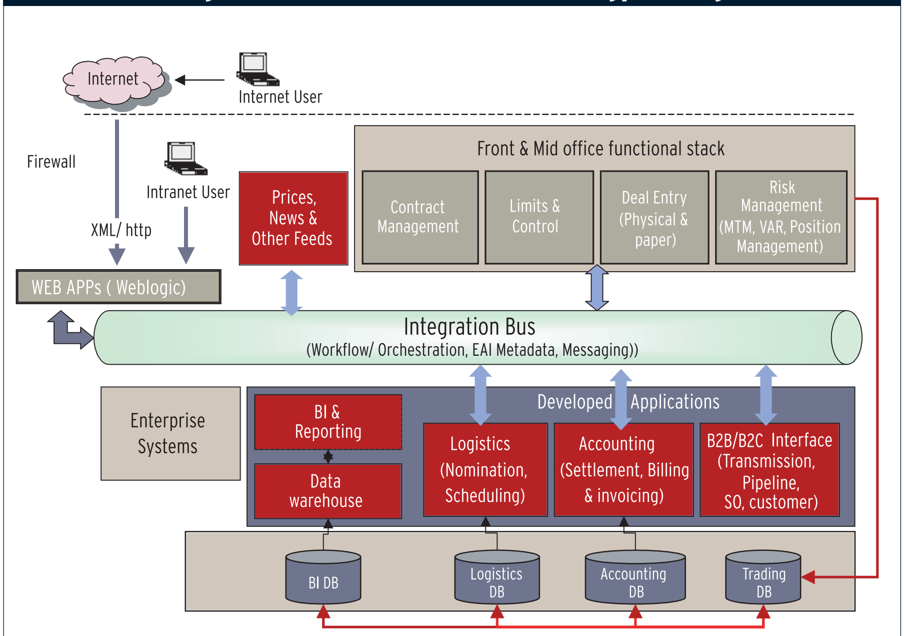
2. Control

There are three dimensions of control. The first one relates to the fact that trading operations are fraught with risk and commitments made by the traders need to be carefully monitored and controlled. Traders are empowered to make commitments to the marketplace that, while intended to benefit the trading organisations, also place considerable liabilities on them. The second dimension relates to the fact that trading is all about maximising the reward to risk ratio. Energy firms are following the footsteps of the investment banking community and concepts like 'risk adjusted rates of return' are on their radar for implementation. In such a scenario, real-time and accurate risk management has assumed centre stage. The third dimension relates to credit control. Energy firms do not want to be penalised for the mistakes of their counterparties and hence a tight credit monitoring and even tighter credit worthiness scanning becomes important. Given the global spread of the exposures, one additional requirement for all these dimensions is that the control and risk measurement need to be in real time.

3. Efficiency

Exploitation of vast computing power and low bandwidth costs has led to lesser information arbitrage possibilities. This in turn has led to lower trading margins given a certain amount of volatility. In such a scenario, straight through processing (STP) has assumed centre stage. It enables lower transactional costs, thus allowing traders to be more competitive. This, in turn, enables higher volumes of business through faster trading velocity. I hasten to add here that while STP is often misconstrued as having strong IT connotations, it is more of a culture that requires the highest amount of confidence and co-ordination between the silos of front, middle and back office. On one hand, it requires the highest degree of care while capturing own data, and on the other it requires confidence about the data received from the related departments.

Figure 2. Architecture Stack in Energy Trading

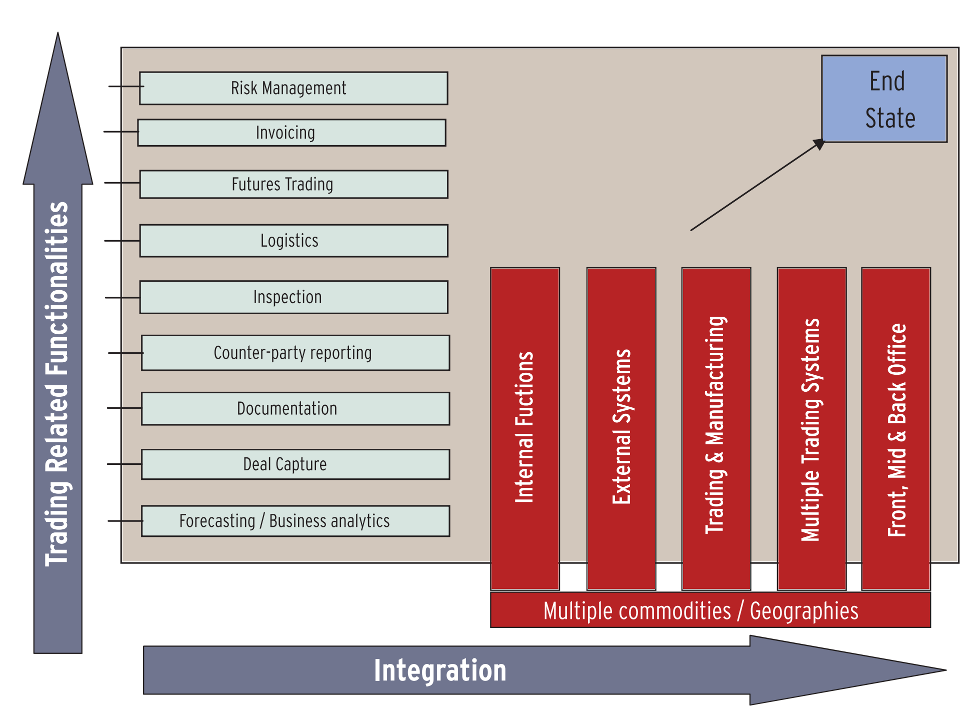


Source: Infosys

4. Business Growth

Business growth is a ubiquitous objective and hence an imperative of every business and of all stakehold-

Figure 3. Utopian State



Source: Infosys

ers, be they investors, employees or suppliers. The energy trading industry is no exception. There are three possible growth engines.

a) *Expansion in existing businesses:* i.e. in the existing commodities and geographies. Lesser arbitrage possibilities can be countered only by increased velocity of trading and maximum exploitation of market volatility. Again, STP offers scalability to the trading operations so as to exploit market volatility to the maximum.

b) *Inorganic growth through mergers and acquisitions:* Flexibility of the parent organisations' people, organisational structure and IT systems to seamlessly integrate the merged or acquired entity plays a key role in achieving faster return on investments.

b) *Expansion into newer geographies and commodities:* Trading firms have substantial investments in trading infrastructure in terms of people, offices, IT systems, exchange memberships etc., and understand the complex business of trading. They need to leverage these core competencies to expand into newer horizons.

Embracing Newer & Mould Breaking Business Models

Rapid and disruptive technology and environmental changes have required energy trading organisations to continuously re-design their business models. On the technology front, lower bandwidth cost, higher computing power and the proliferation of the Internet have changed business like never before. Whether it is record oil prices, low interest rates, events like 9/11 and the more recent Tsunami earthquake, rising US fiscal deficit and weakness of the US dollar – almost every change will affect the way business is done. Flexibility and adaptability of all facets underpinning the organisation's effectiveness becomes important in such a dynamic, volatile and unpredictable environment.

Hence, the Key IT Imperatives for the Energy Trading Industry Are ...

Real-time integration of data, STP and an IT landscape that is flexible, adaptable, future-proof and scalable. Let us see what operational initiatives these IT themes boil down to.

Legacy Applications Re-engineering

The current IT landscape of energy trading firms can be classified into three main categories – best of breed packages, custom built small applications and most significantly, the core trading and risk management applications that are typically 'legacy' applications using old technology, platforms and tools. These legacy applications have monolithic codes, minimal documentation and non-intuitive and complex user interfaces, rendering them not so agile candidates for the modifications, enhancements and integration that are current business requirements. However, these applications store vast amounts of business knowledge and perform business critical operations, and, as a result, cannot be wished away either. Hence, there is a need to re-engineer or replace these applications with Web-enabled, multi-tiered, componentised applications incorporating best business practices. Given the mission-critical nature of the business processes that these applications underpin, a phased business, case-driven approach towards replacement is more suited than a 'big bang' approach.

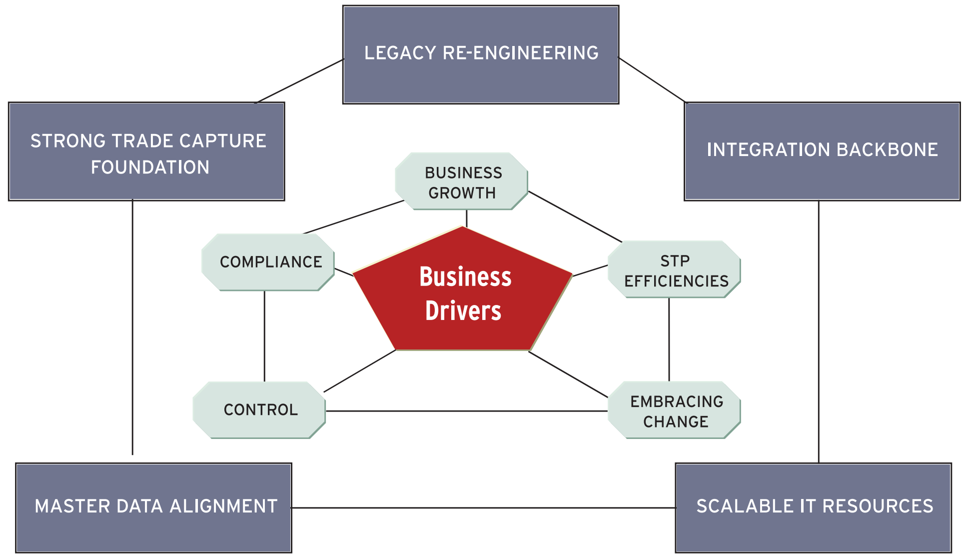
> There is a strong need for a common vocabulary across the entire information lifecycle <

Master Data Alignment

Master data is one of the most important pieces of information infrastructure underpinning any business process and related IT applications. Multiple applications developed at different stages or inherited from acquired organisations result in the existence of multiple versions of master data e.g. names and contact details of counterparties, banks, agents, ports, locations, shipping terms, credit terms, contract clauses, grades, derivative instruments and so on.

Existence of these multiple versions acts as the first hurdle in data integration for real-time risk management and STP. There is a strong need for a common vocabulary across the entire information lifecycle. Energy trading firms need to centralise and tightly control their master data as a first step towards seamless integration. Benchmarking against best practices during the centralisation process in terms of the adoption of industry wide nomenclature enables easier B2B integration with large industry players, futures exchanges (like NYMEX, IPE etc.) and finally with B2B exchanges like the ICE/IPE. A good master data infrastructure also becomes a re-usable component for future projects thus saving substantial time, cost and energy.

Figure 4. Business & IT Imperatives



Source: Infosys

Laying a Strong 'Trade Capture' Foundation

Trade capture is the most front facing functionality of the trading life cycle. It is at this stage that more than 75% of the data relevant for the trade is captured and used as a benchmark for the performance of the trade thereafter. It is through the applications underpinning trade capture that the organisation's commitment towards STP is established. A robust trade capture application is characterised by its ability to enable deconstruction of contracts, accurate data capture, provide flexibility and range to allow multiple business practices and provide workflow management, audit, 'templatization' and alert functionalities. Let us look at two of these characteristics in more detail.

> The integration backbone can reduce cost, provide certain off-the-shelf features & provide a ready infrastructure to the individual projects <

a) Trade capture is a stage right next to when the trade pricing and construction is done. However complex the trade might be, at this point the knowledge of the pricing components and assumptions is fresh and approved by the people who own the bottom-line i.e., traders and trading managers. Capturing the deconstructed contract during trade capture can enable early visibility into hedging requirements and also hopefully reduce the disagreements between the risk managers and traders.

b) Accurate trade capture can be achieved through a highly business rule oriented application or a highly parameterized one. The former approach can be inflexible and tedious mainly due to the domain gap between the business and IT. A highly parameterized trade capture functionality, underpinned by accurate master data and a robust master data maintenance capability, provides business flexibility and the elimination of inaccurate data capture. This in turn increases the confidence of the data receiving departments and applications leading to an STP culture.

Creation of a Scalable Integration Backbone

A trade moves through multiple applications in front, middle and back office in its life-cycle. Moreover, multiple commodities and trade practices that often characterise global integrated energy firms lead to a highly complex application landscape. In a non utopian world, this complex landscape gets further complicated by a plethora of applications serving the same functionalities due to a legacy replacement cycle or overall non-optimised application landscape.

As the number of inter-connected applications increases, traditional point-to-point integration costs increase exponentially and hence energy trading firms strongly need a common shared integration backbone into which multiple applications can plug-in. A study by Gartner shows that direct integration costs account for 30% of new development and 50% of enhancement costs.

The integration backbone can reduce cost, provide certain off-the-shelf features like error handling, data mapping capability, message monitoring, audit etc., and finally provide a ready infrastructure to the individual applications. It also paves the way for a shared maintenance service thus lowering the future maintenance burden for the individual projects. An organisation providing plug-in capabilities for individual applications creates a launch pad towards achieving STP, real-time risk management and robust compliance capabilities – three requirements essential from a business perspective.

Scalable IT Resources

The scorching pace of M&A activity and rapidly changing business requirements necessitate the ability to absorb and rationalise newer applications and to support quick changes and enhancements to the applications underpinning business performance. While the foundation towards agile applications needs to be laid upfront by creating a componentised, agile and malleable architecture, there is also a strong need for providing scalable IT resources – organisation, funding, infrastructure and updated application documentation to respond to the challenge. There are three challenges that the CIOs need to address to reach this objective.

a) First, they need to find alternative delivery capability models to fight the constraints of resources and space.
b) Secondly, they need to ensure the application documentation is updated and impact analysis of the business requests can be responded to quickly.
c) Thirdly, they need to demand redundancy in the budget allocations to meet the business requests. Trading is a mission-critical and highly opportunistic driven activity. It pays to scale up the effort to meet the business requests rather than keeping a steady structure and doing 'enhancement boxing'.

Conclusion

The pre-Enron era saw trading assume centre-stage. Industry deregulation, the birth of Enrononline in November 1999, and the subsequent birth of ICE in March 2000 (and ICE's takeover of the International Petroleum Exchange in 2001), were all important milestones in the trading-centric era. Derivative trading rose astronomically and industry players forgot that the basic underlying reason they were trading was to manage the risk of physical commodities.

Business challenges have changed drastically since then. There is a strong focus on compliance, control, real-time risk management, efficiencies and change management. These changing business imperatives require a different IT strategy and mindset. This article has examined 5 key foundation steps that trading firms need to take towards this new goal. These are – legacy application re-engineering, master data alignment, robust trade capture functionality, scalable integration infrastructure and scalable funding and resourcing of the IT function. Once accomplished, energy trading firms will be strongly positioned to create an IT roadmap providing scalable, flexible and highly integrated infrastructure to the business ■

RAHUL SHAH is Principal Consultant at Infosys Technologies Ltd and has over 10 years of industry and consulting experience across energy and commodity trading and risk management. This includes physical trading in grains and oilseeds worldwide, particularly in South East Asia, Africa and Middle East and hedging using futures and options on the Chicago Board of Trade.
E: rahul_shah02@infosys.com
www.infosys.com