

Innovation: IT practices should shape future business models

■ By Rajeev Singh

Modern electricity supply systems are amazingly sophisticated. It is also one of those modern amenities that we take for granted, in most part of the world, regardless of what we do. We forget that most of the technological advancements, including automation in any sphere of our activities, depend on a reliable electrical supply system.

When we look at what is happening with electric utilities the world over, one wonders if the traditional business models will still suit the emerging challenges and demands placed on them. It is evident that the electric utilities have been going through transformation in many ways. The degree/extent of this transformation depends on a given region/country. Here, we are going to discuss the factors that may influence the traditional business models in India, and will try to anticipate what new business models can emerge as a result.

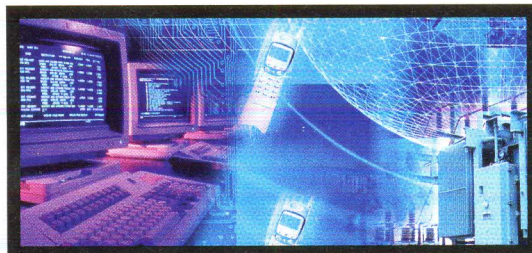
IT already plays a significant role in day-to-day operation of the utilities (and together with OT is likely to do even more so). So we would look at the role of IT in the context of potential future business models (or changing business models). We will be confining this discussion to generation and distribution utilities, as transmission utilities tend to be natural

monopolies and may be less subjected to these pressures. As we said, we present the discussion in the context of India, through it may be possible to extrapolate.

EMERGING BUSINESS TRENDS

Without going into too much detail, let's look at the some of the key factors/trends and analyze on business models that may emerge. Role of IT is discussed alongside.

Rising cost and uncertainly around fossil fuel: Traditional business models



will come under pressure to deal with risks and costs pertaining to fossil fuel. Fuel being the most important input for power generation, it will be interesting to see what innovations emerge in business model to deal with it. As we write this, there are new power plants in India that are idle owing to high cost or unavailability/uncertainty of fossil fuel or related issues. (We are told that JSW Energy Barmer Plant is a case in point. Recently a few power plants in Tamil Nadu declared that they would be shutting down owing to high cost of imported coal).

Now the question is - Can generation utilities tackle this fuel linkage challenge through innovation in business model? For example, we have seen efforts towards backward integration into fuel supply chain. Or, will there be other innovations to ensure that risks and returns are shared by fuel supplier and power generation utilities to ensure that interests are completely aligned and profit margins stable and shared in the value chain (fuel supply to generation). The key role of IT will be that of an enabler to support this.

Traditionally, IT has focussed on providing what is known as "Enterprise Systems", but the very definition of Enterprise will change. A seamless interchange of enterprise information is what is required. In this particular case, information from fuel production through to the fuel supply chain should seamlessly flow in a manner that generation plants remain completely aware of it in order to respond at the plant level in the optimal way. It is quite possible that entire fuel supply chain information is delivered through cloud computing which should easily interoperate with Generation Enterprise Systems.

Environmental regulation and carbon market: Till a decade or so ago, a negative externality like emission/pollution did not cost anything to the utilities, which

now costs them dearly. So, it is already playing a central role in business planning in the power generation utilities. It will be interesting to see if this may give rise to shifts in business models or if carbon credits will be differentiating factor in profitability more than the margin from traditional business (it reminds me one of the case of Ford Motor company's vehicle financing creating better margins that vehicle manufacturing a few years ago).

What is clear though, the emission monitoring, its audit and verification, carbon trading, integration between generation and trading will all require a new thinking around IT. We will need IT and OT infrastructure for emission monitoring, emission certification, and eventually trading.

Emerging Market for Energy Efficiency: It is anticipated that with rising energy costs, and supply uncertainties and shortages, there will be growing market for energy efficiency. According to some estimates, by 2030, energy efficiency and consumer behaviour changes will offset more CO₂ than all the new wind, solar, and other alternative energy generation methods combined. Does it mean that utilities will look at new business model in which they help their customers reduce energy consumption by helping them become energy efficient? Quite possible, and there are early evidence of the same.

The traditional utility business model is ill-suited to support and reward utilities for investing in energy efficiency of customers' homes, offices, businesses, institution and industries. There may emerge new business models in which utilities earn an additional margin/reward by helping consumers reduce their energy bills, and associated gains (including carbon credits earned) resulting from reduced energy consumption. Such a business model again works only around easily verifiable

results. Energy efficiency and energy conservation programs anyway require robust, fully integrated, real-time systems with use of artificial intelligence perhaps to enable energy consumption, and equipment efficiency monitoring. Robust business intelligence architectures will be deployed to ensure near real-time analysis of huge amount of data and to support the energy efficiency programs.

Project risks and stakeholder dissatisfaction: Many power projects are suffering from land acquisition related issues. If we keep the politics around land acquisition, and policy/legal inadequacy around land acquisition, there are enough evidence of genuine resentment against land acquisition. Undercurrents of anger and resentment pose challenge even after land is legally acquired. Poor/inadequate stakeholder engagement is often a reason.

Will the utilities be able to take the stakeholder engagement forward, the way several companies have successfully done by making employees the share holders? Will we see a new metric like power generated per square yard of land used, or profits per square yard, and a part of this profit is shared with original landowners that engage them on a sustained basis?

Another innovation can be by integrating the CSR activities through a cooperative organization whose members are the landowners.

The role of IT again will be to enable effective engagement with such stakeholders through effective information sharing. And the very definition of enterprise systems will undergo fundamental rethink.

High AT&C losses for state utilities: Most of state utilities are completely unviable, and it is going to be almost impossible to turn them around without deploying alternate business models.

Distribution Franchisee model is one such attempt. Privatization is another option that has yielded results. Rural cooperatives could be another business model that is likely to emerge, wherein stake of the consumer is linked the ownership and hence profits earned. The traditional business applications will need to support new business processes.

IT-ENABLERS

Utilities will continue to innovate in search of newer business models to ensure economic, social, and environmental sustainability of business enterprise. IT will have to play a crucial enabling role. The key elements could be as under –

- **Architecture:** Open IT architecture will be the key to support emerging business architectures/models. Enterprise applications will be selected for their architecture more than for anything else.
- **Cloud computing:** Some critical aspects of utility business model such as carbon market is likely to be supported through cloud computing.
- **IT and OT integration:** Several critical elements of the new business models will depend on reliable and accurate data in real time. Emission monitoring in the power plants, energy consumption details from consumer installations are some of the examples. IT and OT will have to go beyond an occasional handshake to hug each other wholeheartedly.
- **Real time analytics:** With enormous amount of data coming through key measurements in real time, analytics will play a key role.
- **Smart grid related IT infrastructure:** This is one of the most intensely talked about set of technologies, and will play a key role in supplier as well consumer led business model innovations.

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