Driven by analytics

Analytics ushering city gas distribution into a new era

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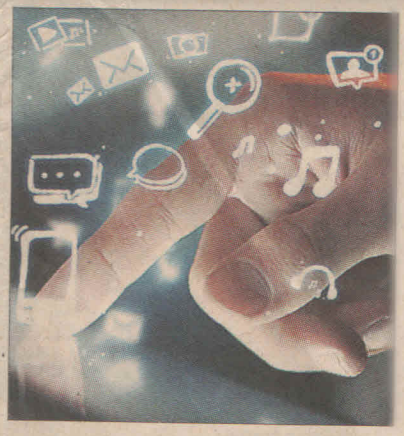
ANALYTICS IS COMMONLY understood as the discovery, interpretation and communication of meaningful patterns in data. Analytics may provide insights that challenge accepted wisdom, setting organisations in the direction of innovation. Increasingly, organisations are developing an appetite for major transformations, resulting from analytics-driven strategies.

All sectors are being disrupted by digital technology, shifting demands and market insurgents. While the 'implied halo' could be a worrying factor, determining analytics-enabled improved processes, articulating an analytics roadmap and developing a robust technology ecosystem are elixirs for businesses and consumers.

The oil and gas industry faces several challenges, requiring it to make operational changes if it is to remain economically viable in the current low-price environment. Penetration of analytics across the sector is low, especially within the city gas distribution (CGD) sector. India is the third-largest consumer of energy in the world. Globally, natural gas contributes about 24% to the primary energy mix. However, in India, natural gas has a nominal market share of 6.5%. In 2015, the government announced piped natural gas (PNG) and compressed natural gas (CNG) as essential commodities to increase the contribution of natural gas in the energy basket to 20% by 2025. It also declared CGD companies as public utilities and laid out a plan to increase the serviced cities from 81 to 326 by 2022.

In order to achieve this stiff target, organisations will need to adopt a holistic approach by embedding analytics in all possible business processes. CGD companies must embrace digital technology in conjunction with analytics intervention to enjoy technology renaissance. This will help them achieve improvements and address issues in PNG, CNG and management of assets, among others.

Improving infrastructure and managing assets are major challenges faced by CGD companies. The average pipeline capacity utilisation of about 40% reflects ineffective utilisation of resources. These companies can manage assets and improve pipeline capacity through situa-



tional awareness for visually-enabled data intelligence by deploying acoustic sensors, fibre optic sensors and smart pigs to detect leakages; situational intelligence for integrating associated geospatial data for fine-tuned location precision; and predictive analytics for improving responsiveness by decoding and modelling data patterns. In addition, this can help companies reduce the need to have a large workforce to manually maintain and monitor the pipeline network.

PNG is experiencing several challenges such as inaccurate billing, inappropriate usage—commercial customers being charged at the domestic rate—and revenue leakage. The stretch goal (number of connections) set by the government for several organisation compounds the issues further. Metering and billing are crucial for both consumers (consumption and payment tracking) and CGD companies (revenue generation). Energy theft via supplementary pipeline connections and meter tampering negatively impact profit margins. Smart gas metering can help remotely track and control gas delivery devices, detect anomalies and receive real-time alerts. For instance, a leading natural gas-focused energy company based in the US leverages Itron's technology to remotely collect meter readings, improve billing accuracy and reliability, and reduce labour costs, thus translating into reduced tariffs for customers.

CNG is plagued by greater challenges as it has to battle the threat of electric vehicles. CGD organisations will need to calibrate and stem the potential decline of CNG in the future. Adapting to this new normal will require them to address fundamental challenges in the form of reducing high queue times, ensuring adequate supply in all areas beyond urban centres and predicting dry-outs and breakdowns. The level of efficiency and effectiveness of the services will determine the ability of CNG to coexist with electric vehicles. A few organisations are beginning to respond to these challenges by employing analytics—capacity utilisation by station/areas, higher power for compression by station and leveraging video analytics to optimise queues, among others, though greater rigour will be needed to address all business issues.

We need to ask: Can CGD companies adapt and embrace analytics to provide services at an acceptable level? This transformation has to begin with an improvement in existing services. In the coming years, the sector should witness significant digital and analytics interventions to make its consumers more active participants in the value chain. Enabling consumers to view consumption patterns, set consumption goals and compare consumption against peers will make them their own energy managers. As with any disruptive concept, the line between well-founded excitement and unfounded giddiness is thin. Leaders should avoid accepting a *non sequitur* owing to culture, cost or other factors, and place the organisation on the path of being analytics-driven.

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