BUSINESS INTELLIGENCE FOR UTILITIES AND THE SIX HALLMARKS FOR SUCCESS

By Ethan Cohen, Smart Grid Practice Manager, BRIDGE Energy

As the saying goes, “In the land of the blind, the one eyed man is king.” But what happens in a land, or better yet, a utility enterprise where technology gives us the power of sight and insight. Unfortunately, confusion can come to reign. That’s where business intelligence (BI) matters most.

What exactly is business intelligence? In a technical definition, you could say that business intelligence represents the tools and systems that play a key role in the strategic planning process of the corporation. These are systems that allow a company to gather, store, access and analyze corporate data to aid internal and external user groups in decision making and process automation. You might further elaborate that business intelligence is a broad category of processes, systems and technologies for gathering, storing, analyzing, and providing access to data to help internal and external user groups make better business decisions and/or automate processes.

In reality, decision makers need information to run a successful business. In the utility industry, analytics are used to predict events, identify equipment failure and forecast financial trends. Big data analytics brings an opportunity for utilities to mitigate business and technology risk, support compliance, uphold audit and control and promote visibility to material events at all levels of the organization.

However, knowing about the potential for BI isn’t the same as having the first-hand experience of designing, developing, deploying and running business intelligence systems in electric, gas and water utilities. What BRIDGE Energy Group’s Research Team has uncovered as the bottom line for utilities, is that robust business intelligence is about enabling visibility, insight, and decision making across all user groups for improved business performance and productivity.

In the 2012 Utility Industry Survey, BRIDGE asked an audience of over 14,000 utility employees about their experiences in analytics, business intelligence and/or big data. A full breakdown of participant types can be viewed in Figure 1.

In a question intended to assess the maturity level of analytics at each utility, 61% of respondents widely admitted that their organization had immature BI/analytics capabilities – placing them on the side of knowing about the potential of BI but not necessarily having first-hand experience. Regardless of maturity, 46% indicated that they are planning major BI/analytics projects in the coming two years while 61% are planning minor BI/analytics projects. Example projects that were noted by participants include initiatives as minor as introducing predictive analytics tools to efforts as great as integrating AMI data into an enterprise wide BI/Analytics platform.

The disconnect between hands on experience and planned projects presents multiple issues that survey participants further echoed in listing the top three challenges impacting planned or ongoing projects. These challenges include the integration of related systems and data stores, supply and availability of staff with the right skills and limitations with current BI tools.

In order to hire the right people to do the job, utilities may want to consider establishing a business analytics group with the budget to perform a proof of concept and quickly show value. The group should report to the CIO and be business facing and most importantly business focused. The group should not be exclusively an IT team but rather they should work closely with IT, BI group and the data warehouse group so that they have access to data. Utilities will need to acquire resources with analytics/statistical experience but can also recruit internally to minimize cost. Many universities offer business analytics certificates as part of a six month to one year program. You should consider augmenting your team with BI experts who have specific utilities related experience. Utility focused consulting firms can provide the temporary assistance needed to successfully establish, define and prioritize these initial efforts, also helping to establish the permanent, long term internal skills. This approach can significantly increase the benefits while reducing the time to value of these complex projects.

THE SIX HALLMARKS OF BUSINESS INTELLIGENCE

Because we understand that living with the smart grid and improving utility operations as a whole requires a full-handed understanding of information technology, operations technology, and utility industry specific business acumen, we can net it out and tell you that better information can bring about smarter business decisions, period.

In other words, we know that utility BI is not just about enabling a technology and creating some new business processes. Rather utility BI is about better enabling the business of the utility. Analytics is more than just the heuristic of business insight queries. Robust utility enterprise analytics is also about having the dashboards, reports, search tools and technical insight to make and support value driven decisions.
In fact, utilities can no longer afford to settle for the status quo. Open minded business users who want to embrace a change need to think about how they could improve their process and offer incentives to the business to be creative. To start, many utilities monitor the performance of certain key performance indicators in customer service or field service and seek to describe the new value chains created across existing business processes. The champions for change must establish metrics and measure the business process at each step of the way. Eventually innovation.

Figure 2 provides a logical illustration of a utility enterprise business intelligence capability that demonstrates the complexity of achieving operational efficiency through integrated analytics.

As we have worked with and contributed to the evolution of business intelligence with our utility and energy industry clients, BRIDGE has defined six hallmarks that we use as a yardstick for help our clients develop and grow their business intelligence capabilities.

Hallmark 1: Visibility increases, to new previously unattainable levels of acuity, particularly in the management and measurement of total business performance. To start, many utilities monitor the performance of certain key performance indicators in customer service or field service and seek to describe the new value chains created across existing business processes.

Hallmark 2: Transparency surges, bringing with it the opportunity for utilities to mitigate business and technology risk, support compliance, upkeep audit and control and promote visibility to material events at all levels of the organization. Many utilities are finding the project budgets become much easier to create and to manage with higher degrees of accuracy. Some of the most substantial improvements are to be found in IT projects, operations projects, and large capital projects.

Once the data is available, utilities can share usage consumption with others in their zip code/geographic location and offer incentives or rewards for reduction in usage. They can also share potential energy efficiency gains and educate the customer on potential savings through targeted campaigns on how they can lower their monthly bills through demand side management.

Hallmark 3: Analyzing and monitoring data enables the business to improve a functional process across both internal and external stakeholders. For example, a field service technician reconfigures an outage management schedule based on data and analysis from customer service.

In order to share data enterprise-wide, there must be an established set of guidelines for data governance. There should also be open communication on what data is available and a business glossary for enterprise-wide search capability. Business leaders must restore the “wow” factor with dashboards by encouraging internal user forums on business analytics and providing a platform for sharing success stories. Once other lines of business see what others are doing – primarily around data visualization/dashboards – they will line up and want to get involved.

Hallmark 4: Timeliness becomes a driver in secondary, tertiary and even quaternary decisions and optimization becomes a business lever whereas prioritization rubrics created constraints. Utilities at this stage might, for example, be able to react quickly to a change in engineering labour rates and decide to move up the design of new laterals even in the midst of other more complex projects.

Hallmark 5: Innovation, or doing business differently, becomes second nature and is no longer a “special project” requiring significant management oversight. For instance, a municipal utility begins to identify areas of infrastructure underinvestment by cross-populating street repair surveys with power or gas infrastructure field surveys.

Hallmark 6: Productivity increases when people are provided with focused, relevant information and in turn, more and more utility employees can deliver evidence-based insight and make value-centric decisions.

If utilities are looking to implement situational intelligence tools to unified operational views that span systems, disciplines and geographies, they should look for ease of implementation, including customization capabilities; an open interface for connecting common CIM messages including near real time data streams; and the availability of skilled/experience resources with the product.

Utilities should also seek to answer questions such as whether the product will require an analytics engine, columnar database for analytics; if the product can support event playback and does the product have “what if” capabilities (e.g. what if we balanced out our overloaded circuits, what would be the impact)?

THE DRIVERS FOR INVESTING IN BIG DATA ANALYTICS

Decision makers need information to run a successful business. In the utility industry, analytics are used to predict events, identify equipment failure and forecast financial trends. Big data analytics brings an opportunity for utilities to mitigate business and technology risk, support compliance, uphold audit and control and promote visibility to material events at all levels of the organization.

The benefits of buying advanced analytics software include the capability to mine data and discover new insights – such as lost revenue from theft. There is also the ability to perform strategic “what if” scenario planning on where capital investments should be made and profit/loss planning. Finally, it provides an automated business process capability to generate work orders based on equipment health, specific events, etc. Overall, the ROI will vary by project but it must be measurable and should be continuously monitored to determine success.

To measure analytics progress, metrics that can be used include the number of analytical projects executed in addition to outcomes, revenue recovered, expenses and large capital cost avoided (due to more efficient equipment management), client or customer surveys, efficiency gains in the number of employees required to complete a job, the number of BI resources per total user count (low ratio is best). Usage analytics can help to measure the adoption of solutions, generate usage stats and identify strategic information. Once measured, utilities can begin to apply value to information.
TOOLS FOR SUCCESS
The utilities surveyed also indicated which BI tools they were using. The results are listed in Figure 3. As seen, Oracle barely edged out Microsoft across all respondents but significantly reigned as leader with IOUs. Microsoft showed itself as the clear leader across munis – indicating perhaps the sensitivity of price for the small to mid-tier market.

Regardless of the tools, one of the key determining success points is the ability to integrate BI/analytics tools with current systems. In the example of a fraud detection program, utilities could leverage smart grid/AMI data for trapping immediate theft cases or look at many years of usage data for existing customers and identify exceptions. This may help to mitigate the increase in number of commercial and residential customers that understand how to install a jumper device and reduce monthly usage according to the meter reading. This type of ability, which could save utilities a substantial amount of money, is not possible if the data collected is not able to interface with other systems, such as CIS, AMI and so on.

System integrators such as BRIDGE are often called in to develop an integration strategy prior to the procurement of new BI tools or in a less ideal scenario, as utilities are discovering that their current architecture does not support an additional point to point integration without affecting the integrity of other system interfaces.

Figure 3 – BI/analytics tools currently deployed

Seems simple enough, right? Unfortunately, simplicity and elegance do come at both effort and a price; and utilities have, so far, focused on analytics and not the whole stream of tools and capabilities that enable business intelligence. As a simplified process, first they need to seek out business opportunities that provide clear value and ROI. They can partner with a systems integrator to develop an analytics roadmap for where they ultimately want to be in the “end state.” As it takes time to adapt to analytics with so much data available, utilities could start with identifying an opportunity that could be used as a pilot and demonstrate the value of running on analytics.

Regardless of the steps taken, the 2012 BRIDGE utilities industry survey has uncovered a major key insight: in order to capture outcomes from business intelligence – the right people, processes and technologies must be in place in order to achieve success.

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ABOUT THE COMPANY:
BRIDGE Energy Group is the leading smart grid IT services and software solutions provider for clients in the utility industry. BRIDGE offers business and IT transformation strategy planning, program management and expert implementation services in support of key market operations, grid operations and smart grid initiatives.

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