ROLTA

The Utilities' BI Map Gap

*Improve insights by integrating stronger geospatial intelligence*

Powerful BI & GIS integration sheds light on Utility operations

Traditional Business Intelligence initiatives have had a good run in Utilities that have adopted and implemented them correctly. Data driven decision making has been the buzz word in consulting and executive circles for the past few years. The data capture and analytics practices that helped Walmart and Google rise to the top of their respective industries are now folklore in the business world.

In addition, the work of people like Nate Silver of FiveThirtyEight.com fame, who correctly predicted the outcome of the 2012 U.S. elections, as well as Hollywood blockbusters like "MoneyBall," that chronicles the beginnings of analytics and statistical methods in modern baseball, have led to a more mainstream understanding of statistical and predictive methods both in the media and general public. Data science and statistics are no longer seen as the last resort of scoundrels, or worse.

Better BI for Utilities

The traditional BI recipe is now well understood by most organizations and executed correctly in most cases. But in organizations where BI initiatives were led by Utility decision makers rather than IT, the resulting benefits achieved exponential growth. Emphasis on getting the business processes to capture the right data and store it in dimensionally correct and optimized data models, allowing the data to be current and contextual, leads to far greater success. The right amount of data made available in an accessible way to executives has taken away some of the guess work in making decisions that impact organizational effectiveness, efficiency and competitiveness.
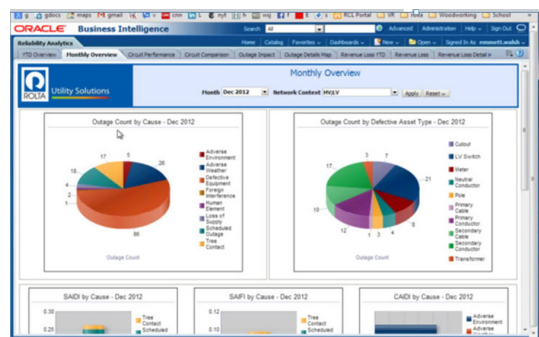

Outage dashboard

Proliferation of 3G and Wi-Fi networks, smartphones and tablets enables Utility executives to tap into more current, and in some cases real time information, when and where they need it. Better understanding of how the brain perceives information and evaluates alternatives has also led to improved graphics and information architecture that conveys more data with less noise.

Evolution of a Utility's failures and opportunities is strengthened when business leaders can better understand outcomes not only by looking at what occurred, but where. The ability to combine the insights of BI and the intuitive visualization of spatial analytics delivers information in a more fully rounded context than is possible with charts and graphs. This need led to the integration of BI and Geospatial Information Systems (GIS) technologies.
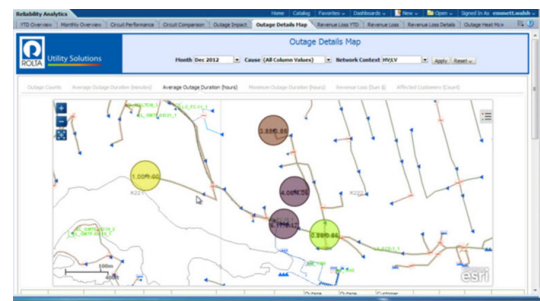
Drill down map

While many BI vendors incorporated maps in their product suites, they are generally of limited use. Traditionally through BI solutions, maps typically contain political boundaries of countries, states/provinces or cities that BI developers can link to their tabular data. The result is pretty maps that display comparative data (called thematic maps in GIS industry parlance).

More advanced BI platforms allow developers to designate one or two columns in the traditional database table as Latitude Longitude coordinates that can then be overlaid on a web-based map like Google Maps. Tabular values on the maps are designated
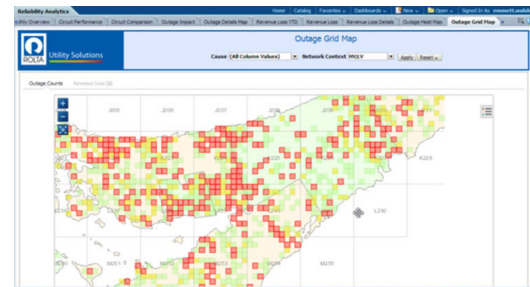
Outages by neighborhood

with symbols in various colors and sizes. However, this level of visualization is not adequate for most asset-intensive industries with large, spatial datasets that contain more than simple point geometries for assets and operational areas.

For example, Utilities manage large spatial datasets with a lot of operational, strategic and tactical information tied to them. They need access to huge amounts of spatial data about custom spatial extents and/or network features, and have a great amount of intelligence that is stored within these datasets residing in a traditional GIS environment. Utilities have not been successful in adopting traditional BI and mapping integration solutions because their business data spans spatial extents and includes geometric features that do not conform to traditional political boundaries or simple point features in traditional BI platforms.

Conversely, it is also important to highlight that traditional GIS has not been successful in becoming the decision making platform for executive users within Utilities. Traditional GIS applications provide a plethora of spatial analysis tools, but executives are typically lost when confronted with a pure mapping interface. Experience has shown that the most common question executives ask when looking at a map-centric application is "Where do I begin?"

BI + GIS = A Clearer Picture of the Utility Business

The next wave in Business Intelligence is marrying the intuitive navigation of a BI dashboard with the sense and pattern making in GIS, creating a truly integrated platform. Strong BI/GIS integrations deliver maps offering insights that cannot be revealed in traditional BI presentation formats. Achieving this requires a deep understanding of both GIS and BI solutions as well as the decision making processes within the Utility industry.

It is also important for practitioners to understand how the spatial information and spatial intelligence stored within geometric features and networks ties to the overall KPIs by which the organization measures itself. The most encouraging aspect of this integration is that the technology building blocks needed to make this integration possible are already present in most Utilities.

Over the past many years, Utilities have made huge investments in GIS, BI and reporting platforms. Still, many companies have yet to implement or maximize a Location Analytics solution. During a panel discussion at the Esri Business Summit in early July 2013, an impromptu poll of attendees found that more than half (56%) said GIS was only "somewhat" integrated with their enterprise system.

Location Analytics solutions enhance the value of legacy systems and GIS investments by enabling cross-functional integration to deliver additional business and operational intelligence. The merging of BI and GIS platforms creates business value by unlocking hidden information and making it available in a context more accessible to decision makers at all levels of the organization.

Leveraging Existing IT Investments

BI and reporting platforms are usually selected based on their out-of-the-box capability to integrate with other financial and operational systems used by an organization, such as SAP, Oracle, Microsoft and others. On the GIS side, Esri has firmly established itself as the market leader in Utilities and most other industries, and its continual innovation in both server and traditional desktop-based GIS has led it to increased market share. It is therefore imperative that any product/solution that seeks to provide Geospatial Business Intelligence leverages the investments already made by Utilities in the GIS and BI space.

"Any IT leader in any given enterprise needs to evaluate the potential of location intelligence because it can provide a competitive advantage."

Gartner, Hype Cycle for
Strategic Business Capabilities, 2012

However, even when an organization has both GIS and BI solutions, integrating the two is not easy, with challenges including disparate business systems, high costs, shortage of technical resources, budget pressures, and longer product development life cycles which often delay ROI. Consequently, technology providers, like Rolta, with partnership agreements with Esri, Oracle and SAP, have developed frameworks to integrate disparate systems using seamless configuration techniques, cutting down costs and development time.

A GeoBI solution, like its traditional BI counterpart, will only be as effective as the currency and consistency of its underlying data. This responsibility falls on the underlying spatial and traditional ETL (Extract, Transform and Load) technologies. Existing technology stacks provide a much better supported ecosystem in spatial and traditional ETL to keep your GeoBI dashboards humming with relevant and current information.

Location Analytics in Use

- Identify locations where service expansion will likely be needed.
- Pinpoint infrastructure locations and evaluate weaknesses within the system.
- Highlight areas with higher than average complaints or nonpayment incidents.
- Create maps of coverage areas that not only show frequency of outages, but associated costs as well as loss of revenue.
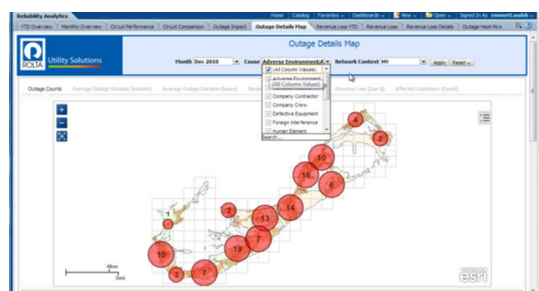
Outages
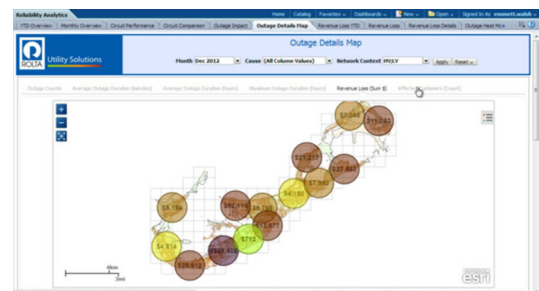
Revenue loss

A GeoBI Initiative Roadmap for Utilities

Agile methodologies have made their way to BI initiatives for the Utility industry. To assess the value and the risk of a GeoBI initiative, many Utilities seek a knowledgeable consultant and start with a pilot. GeoBI initiatives can be broken up by subject areas that can be understood as a selected set of measures that the organization reports on and the underlying processes that determine the outcome of that measure. Once the value of the initiative is understood, it is important to identify a business champion who can serve as the executive sponsor within your organization.

It is also important to have representatives from both business and IT to understand the initiative to ensure tight alignment with business objectives and to maximize functionality. Experience in the Utility industry has shown that a GeoBI effort typically takes between 3 to 6 months, while a pilot can be done in 4 to 8 weeks.

When developing a GeoBI solution or working with a technology firm, the first step is to determine necessary outcomes that must be achieved. The solution should allow Utilities to realize the following:

- The ability to embed data from a company's existing business systems into easy-to-understand maps.
- Rather than simply show data laid out in a geographic format, it should allow users to conduct sophisticated correlations and evaluations of data, developing the kind of custom analysis that produces answers relevant to the company's business needs.
- Gather data from across the organization by using location as the common key for integration.

The power to visualize spatial data and the benefits derived from doing so will increase the rate at which Utilities seek GeoBI solutions. As CIOs, CFOs and CEOs come to recognize the value of the comprehensive and nuanced intelligence available from these solutions, increasing numbers of organizations will take the next evolutionary step – moving closer to the intersection of GIS and BI.

A 360 Degree View of a Utility's Outage History
Integrated impact assessment leads to best use of capital and maintenance dollars

One of Rolta's Electric Utility customers approached us with a business challenge: "Help us build a 360 degree view of our outage history – and make it available to our Operations personnel, at every level. We need to do better on outages, and we need everyone's input: field crews, customer reps, engineers, planners, etc. Everyone has a say in how to improve system reliability for our customers."

The Utility sought a Business Intelligence and Analytics dashboard solution, with value-rich KPIs, charts and graphs, drill-to-detail navigation, and other insightful decision support tools.

Rolta delivered on that, and we demonstrated that with a disciplined approach to dimensional data modeling and analytics design, the range of available insights is genuinely impressive, even with a seemingly simple set of core metrics, such as number of customers affected, outage duration, and other common outage related measurements.

But we didn't stop there. We gave them full-featured Esri maps, embedded seamlessly within their dashboard pages. These maps show the spatial concentrations and impacts for every available BI metric and index: SAIDI, SAIFI, average outage duration (CAIDI), maximum outage duration, number of customers impacted, and several others.

And we took it one step further. We brought in historical averages for customer billing and aligned this data with their outage events. We could then easily show the revenue loss for each outage. Revenue loss can be analyzed on a map alongside other outage analytics.

Rolta also introduced a customer-configurable model for an Outage Impact Index (OII), in which each outage is ranked by Rolta's algorithm that considers the outage duration, number of affected customers, historical outage frequency and duration, revenue loss, presence of medical alert customers, and other factors. The OII, displayed on maps and traditional charts and graphs, helps planners and asset managers see an integrated impact assessment. From there, they can recommend the best use of capital and maintenance dollars to improve system reliability.
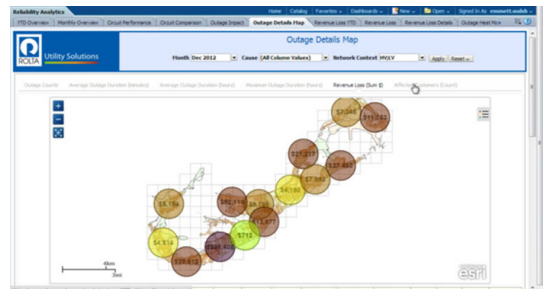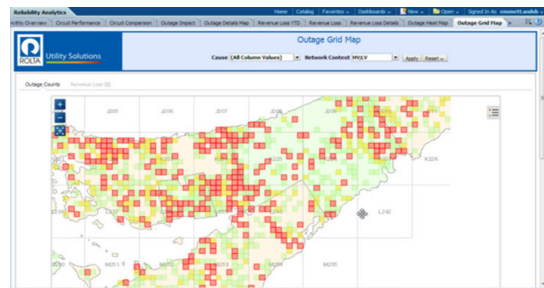
About Rolta

Rolta is a leading provider of Consulting, Managed Services and Technology for many vertical segments, including Financial Services, Utilities, Oil & Gas, Retail, Healthcare and Manufacturing. Enterprise-level solutions are built around Rolta's intellectual property and domain expertise to offer deep insights and understanding of industry drivers and supporting business processes that help organizations achieve their business goals. Through our innovative approach, Rolta makes a lasting impact on your business.

To learn more about Rolta's GeoBI solution, email Info.NA@Rolta.com or visit www.Rolta.com.