

## Leveraging Enterprise Reporting Software for Public Utilities

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### Abstract:

*Enterprise Reporting software provides a wide range of data management functions for organizations, specifically in the areas of gathering, organizing and distributing data to internal and external customers of a company. This paper's purpose is to analyse Enterprise Reporting technology and its applications to public utilities services companies.*

*Most established public utilities services companies have a host of legacy systems on disparate platforms, creating challenges in data management. As utilities enterprises continue to become larger and more complex, their ability to efficiently access, assemble and distribute data to key stakeholders and clients becomes paramount to the success of the company. As a result, companies are increasingly devoting significant resources to the implementation of Enterprise Reporting tools.*

*Leading the charge in this arena are companies such Microsoft, SAP, Oracle but also many other local companies, offering both analytic and enterprise reporting capabilities on integrated platforms. This paper will involve the selection of one of the aforementioned providers and an analysis of how their technology will address the systems integration and reporting issues facing public utilities services companies in today's competitive marketplace.*

**Key words:** ERP, Public Utilities, Data Management, Information Systems

### JEL Classification Codes

L95, O31

## **I. Introduction**

In the current business environment of achievement, consolidation and integration, one of the biggest challenges facing organizations in the public services industry is obtaining useful information from the massive amounts of data available to them. Utility companies, who are increasingly expanding their services and network, are faced with ever-growing warehouses of data spread over disparate platforms ranging from legacy systems to relational databases and text files. As a result, data must be accessed using numerous reporting and data retrieval tools, making it difficult for IT personnel to integrate data and meet the ever-increasing demand for efficient enterprise reporting.

When it comes to information needs, business leaders of utility companies demand large-scale reporting capabilities that provide efficient access to accurate data, presented in a flexible, meaningful format. This creates unique challenges for the IT personnel charged with fulfilling these requirements, and thus creates the need for more complete, enterprise-wide reporting solutions.

To meet this ever-increasing demand, many local companies or worldwide recognized like Microsoft, SAP, Oracle have developed Business Intelligence solutions to provide enterprise reporting capabilities to organizations. These solutions deliver a single product for all reporting requirements, with straightforward deployment, maintenance and integration characteristics.

Business intelligence has been around for a long time, and over the years has taken on many different forms – reporting, OLAP, ad hoc, performance management, predictive analytics, data mining, etc. For someone who's new to the concept of BI, these various solutions can be quite confusing. Many potential users struggle to understand the differences between the numerous technologies and methodologies and find it difficult to prioritize them.

But, the fact is that each facet of BI is important, and each plays a vital role in a company's overall information strategy. However, few organizations truly understand how these different tools and techniques should be used together to drive efficiency and effectiveness across the entire enterprise. After many years, we have learned that BI is used in three distinct ways – strategically, analytically, and operationally.



**Figure 1**

These three “levels” of business intelligence, while unique in their own way, are not mutually exclusive. They should be directly connected to each other, working in concert. Strategic analysis drives analytical BI, while analytical BI directs the focus of operational initiatives. And, these operational initiatives are what impact agility, productivity, cost-efficiency, and profitability.

## **II. Enterprise Reporting Technology**

User experience and interface design in the context of creating software represents an approach that puts the user, rather than the system, at the centre of the process. This philosophy, called user-centered design, incorporates user concerns and advocacy from the beginning of the design process and dictates the needs of the user be at the forefront of any design decisions. The most important aspect of any Web-based enterprise reporting solution is to address all of an organization's

reporting requirements in order that one reporting system can produce production reports such as invoices, statements, and legal reports as well as the broad range of business reports that help everyone in an organization to understand their operations better and make effective business decisions.

Enterprise reporting delivers high quality reports to massive numbers of users. Its business reporting capabilities provide unprecedented flexibility to allow users from novice to advanced, to create complex reports with drag and-drop simplicity. Many organizations currently use multiple solutions to meet their reporting requirements. These solutions, which are most often deployed departmentally, create unique challenges because they must all be supported concurrently.

As they strive to decrease the cost and complexity of their reporting environment, IT managers have been looking for a single, Web-based reporting solution that can address all of their reporting needs. They require a flexible solution that leverages existing IT infrastructure, is truly scalable, and has the ability to grow. The solution should be able to cover all reporting needs with one product. It should bring down the total cost of ownership of enterprise reporting. Bringing all reporting requirements together under one solution is a breakthrough in reporting software.

Enterprise reporting software provides capabilities that make basic departmental reporting easy and complex global reporting simpler. Locale sensitivity and advanced multilingual capabilities allow users to deploy reports in any language. Global enterprises can bring divisions, departments, and country organizations together so they can all work from the same information online. Complementing these revolutionary capabilities, enterprise reporting software allows everyone from the first-time user to the advanced report author to broadly extend their power to create, distribute, and modify reports to everyone across the organization.

For many small to medium-sized utilities, the complexity of data integration, processing and reporting is

increasing faster than their information systems can handle. Business intelligence today is widely viewed as the key to managing performance and achieving success. But the quality of business intelligence is directly dependent upon the quality of data integration - the way information from multiple sources is merged, extracted, transformed and managed in a dimensional environment to provide data that is easy to understand. Poor integration will cripple business intelligence applications, leading to user frustration and lack of widespread buy-in. Superior data integration, on the other hand, makes information readily available, simple to absorb and immediately useful to users throughout the organization.

One of the most important components in data integration and processing for enterprise reporting solutions is the ability to process large volumes of data in a short amount of time. This is accomplished using powerful multi-platform, server-based engines that utilize metadata to work within existing data architectures to efficiently read data and deliver high throughput.

The use of metadata, or “data about data”, greatly improves the efficiency of data searches by telling the engine how organizational data is related and how these relations can be evaluated to process even more complex filter and search operations.

Equally important to data are the actual report design capabilities provided by the reporting software. Key components to enterprise report design tools include the following:

- I. *Dependency checker* – ability to identify data dependencies or critical relationships between data elements
- II. *Dynamic image locator* – enables pictures and graphics to be placed in a report through a link in the database, eliminating the need to store images within the database.

- III. *Hierarchical grouping* – ability to create hierarchical structures in reports to improve the readability of data groups.
- IV. *Visual report designers / wizards* – ability to quickly design interactive reports using an intuitive, drag-and-drop interface and object-oriented explorers.
- V. *Charting and mapping* – ability to create charts, graphs and maps to improve the presentation of data in reports.
- VI. *Format options* – ability to create reports in standard formats such as Microsoft Excel, PDF or HTML
- VII. *Custom templates* – ability to create user-defined templates that can be re-used for future report designs

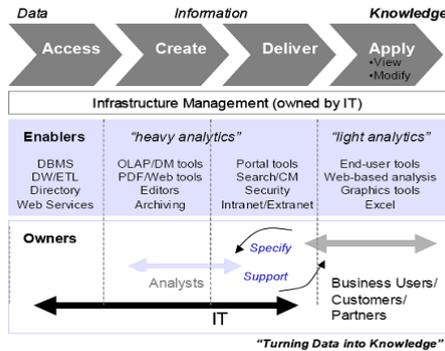


Figure 2

### III. Analysis of Enterprise Reporting Technology Benefits

Reporting creates a common denominator for easier decision making across every department of a company that allows it determine if expected goals are being met. According to a research done by Allen Bonde Group Research, managing the Business Intelligence (BI) and reporting process was identified as a key challenge for most organizations, as well as ensuring that data was clean. Other findings included that the greatest payback and ROI for reporting solutions are creating reports for different type of user, simplifying the overall process ( replacing manual processes), and distributing reports to everyone.

Having everybody share the same data, achieving faster and cheaper distribution of information, and better control over information delivery were highlighted as the big wins of a reporting tool.

During the past years, the BI market has seen a move towards enterprise-wide business intelligence which has generated some key implementation challenges, including supporting the unique needs of different types of users, the frequent lack of consistent BI processes and standards at a company level, and the growing burden on internal IT staff. These trends have driven interest in self-service models—both to empower users to be able to access, create and deliver information on their own terms—and allow IT to offload tasks such as routine report development, technical support and even training, to users themselves.

Reporting software such as Microsoft Dynamic - BI offers different types of users in services companies the flexibility to access required reports anytime using a single business intelligence product that is simple, fast and easy to manage.

Most BI and reporting tool vendors have segmented their users as Enterprise, Casual, Business, Power or IT as defined below:

- a. *Enterprise Users* – able to read a table of numbers or a simple graph on paper or web-page, do not need the ability to write computer code or learn to use a computer application other than a browser, and do not produce information content for themselves or others.
- b. *Casual Users* - have the interest and ability to manipulate information content and navigate a complex report, may use parameters to filter or sort content, and are often interested in understanding cause and effect, exceptions and trends. They occasionally produce their own information content with end-user oriented reporting tools.

- c. *Business Users* - often use spreadsheet programs such as Excel to analyze and manipulate data, query data on reports on an ad hoc basis and often produce content for themselves or others.
- d. *Power Users* - able to use sophisticated analytical software and understand complex data structures, including multi-dimensional data. They routinely produce information content for analysis, and communicate content as well as analysis results to others
- e. *Information Technology* – work in IT departments and are tasked with producing information applications for Information Consumers to use. They control the data sources and are able to use programming languages as well as application tools to provide information at any level of complexity, given detailed specifications and sufficient resources

#### **IV. Strategic Analytical, and Operational BI**

Just how do the three levels of BI relate? In a sense, they perform as a cycle. Let's start with strategic BI. The primary goal of strategic business intelligence is to drive the performance of the company as a whole, as well as the individual departments and business units that produce and deliver the company's products or services. Management collaborates and agrees on a strategy, and functionality like strategy maps, scorecards, reports, and dashboards are used to communicate the strategy in the form of measurable goals.

Within that same strategy, several critical success factors will exist. For example, customer satisfaction scores, market share, profit margins, or overhead costs. And, the status of those factors will reveal the progress – or lack thereof – towards reaching the overall goal(s) of the strategy. This approach is much like a car's dashboard, where gauges that are in the red zone or flashing lights tell the driver that something

is wrong, and where the problem may lie. By closely monitoring those factors, companies can immediately detect where problems exist and take swift corrective action. Once the strategy is defined, analytical BI comes into play. While strategic BI sets the foundation in the form of key performance metrics, analytical BI is employed to identify the source of an issue once it has been uncovered. Tools like analytic dashboards, OLAP, predictive analytics, and ad hoc queries are utilized to determine the location or cause of a major problem. For example, if profits are declining, is it because of low sales, or increasing expenses? If customer churn rates are on the rise, is it because of poor product quality, or lack of success in customer loyalty initiatives? With analytical BI, companies can investigate the factors that impact business performance from many different angles.

The results obtained from analytical BI activities then drive operational initiatives. Operational business intelligence facilitates the kind of day-to-day decision-making that happens at the lower levels of an organization, and enables the attainment of strategic goals. The immediate availability of this type of operational information directly impacts the company's ability to reach high-level objectives such as increased sales or greater profitability.

## **V. Applications to the Services Sectors**

With increased demand for better services and customer care, broader information databases, utilities face significant data management challenges. They must be able to quickly and efficiently sift through outsized amounts of information. As older applications begin to show their age, many utilities have found that software improvements are a necessary step to increasing the efficiency and effectiveness of their systems. Enterprise reporting systems can help increase customer profitability, enhance customer service, manage risk and reduce

operating costs through sophisticated analyses against data assets.

The software also made it possible to standardize more control tasks to more efficiently analyse different business areas of the bank. Also, they were able to begin to move away from manually created reports and generate more through the software.

Within the insurance industry, deregulation has substantially increased customer competition as customers begin to view insurance offerings as a commodity that can be tailored to their individual needs. To address the issues of consolidation and deregulation -- traditional banks and insurance companies are shifting from a product-centric to a customer-centric approach, where the focus is on ensuring that the most profitable customers receive targeted marketing outreach and optimal customer service.

Enterprise reporting applications play a crucial role for companies shifting to a customer-centric focus by providing a unified view of customer interactions across all products and service offerings. In other services organizations are able to improve customer profitability by identifying the most profitable customers and leveraging that information to execute targeted marketing programs for maximum impact with minimum costs. Using enterprise reporting applications, customer service representatives are able to easily cross-sell and up-sell new bundles of insurance products.

The RZB - Raiffeisen Bank, which is one of the country largest bank, implemented an enterprise reporting initiative to integrate the bank's separate main systems for financial and management accounting. To achieve this, RZB needed to centralize all of its financial transactions using a single accounting logic, stored in one accounting general ledger and accessible in all relevant formats for external and internal reporting.

RZB managers now benefit from faster availability of month-end figures, automatic report generation of reports to

meet all external and internal reporting requirements and produce accounts in Albania and International standards. They also now benefit from enhanced teamwork through an open system.

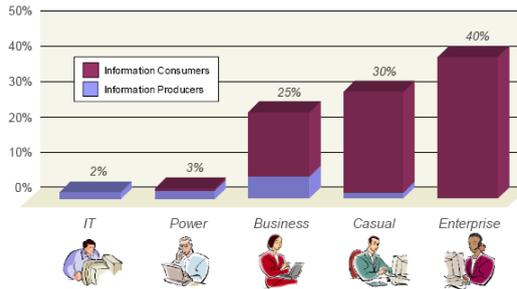
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**Figure 3.**

BI software offers complete enterprise reporting coverage which means that one reporting system has the flexibility to let each group of users work with the information they need, the way they want; all of this without been overwhelmed by additional features or confusing interfaces. Each report recipient can easily access and share the information he wants according to his preferences. For example a sales manager can drill into client reports and top executives can access a business dashboard for a glance at summaries of critical information regarding their organization.

Reports produced with BI software give managers in utilities visibility across heterogeneous data sources whether they are relational or OLAP. Users can create reporting applications in one type of environment such as development and deploy them on production databases. This type of data source flexibility gives organizations a comprehensive view of their business through their reports. Among the data sources that BI can access are: relational databases, other OLAP sources, widely deployed ERP systems, enterprise data warehouse etc.

An additional benefit related to this feature is that BI has a single application server rather than separate servers for reporting, analysis and score carding, which translates in fewer applications servers for IT to manage and more time to concentrate in other crucial activities.

BI software deliver a “zero footprint, browser based interface for all reporting functionality. It eliminates the need for IT to install and manage client desktop software. The easy to use interface ensures users can access and work with the reports they require to be effective on their job.”

An additional benefit of BI allows users to create reports that use graphics or special maps to present data in different forms such as areas, network or different levels of customers. These can be combined by the users with interactive charts such as horizontal bars to build multiple queries into the same chart as well as individual portions of the chart. This functionality allows user to drill-up or down through chart elements to see the essential details of the big picture of the data they are accessing.

In the past, BI reporting software has focused on the needs of the “power users” leaving aside, sometimes the full range of business users. Now BI has the capacity to offer self-service reporting for everyone that needs to author reports, as well as support to teams which allows groups to collaborate when creating reports. This allows power users such as business analysts inside a financial entity to create and enhance reports easily and share information with other team members, diminishing the workload in IT departments.

One of the most important concerns when choosing a reporting solution like BI is scalability. Scalability refers to the ability of a system to perform well in the face of increasing user demands. Companies are testing BI to handle an increasing number of concurrent users. Concurrent users are those who are actively sending a request and waiting for a report.

## **VII. Career Impacts**

We selected this technology for 3 reasons:

1. Applicability to utilities
2. Relevance to strategic decision making

3. Relevance to all units within an organization, including its customer base.

As stakeholders of such business organizations, our ability to access information will prove critical to our ability to make effective business decisions. For example, as General Manager of a utility, we might be responsible for managing the operations of the company and report to different stakeholders each with its own separate systems and databases. With its ability to integrate disparate data sources and create customized reports, enterprise reporting tools could greatly assist us in generating reporting across all three business lines, giving us a broader picture of the performance of the company's operations.

Additionally, the day may arrive someday when we are faced with actually managing the selection and implementation of enterprise software within our own organizations. To accomplish this successfully, it will be important to carefully evaluate the user base, understand the data structure of the organization and work closely with IT personnel to ensure we select the most cost-effective and business appropriate reporting application. Enterprise reporting will no doubt be an ever present tool used in organizations going forward.

Information is by far one of the most critical assets of an organization. This technology is universal in its application to financial organizations, as well as any organization housing large amounts of data with the need to consolidate information for effective decision making.

## **VIII. Conclusion**

In today's complex business environment, reporting is no longer just about simple representation of data; reporting is also about how efficiently data can be accessed, formatted and delivered. Utility services companies typically house information across numerous platforms and databases, creating inherent

challenges when it comes to enterprise data integration and access. As organizations continue to become larger and more complex, the demand for accurate, meaningful, enterprise-wide data will continue to increase. Unless organizations take steps to alleviate this issue, IT departments will be unable to keep up with the information demands of the company and business may suffer.

To meet this ever-increasing demand for information, organizations are implementing business intelligence systems with enterprise reporting tools. When selecting an enterprise reporting tool, organizations need to evaluate the product's scalability and flexibility to meet tomorrow's business needs, its interoperability with the firm's existing IT data infrastructure and its ability to provide tangible benefits to its user base. By providing the ability to integrate organizational data, generate reports according to business needs and efficiently deliver the information to stakeholders, these systems have proven to be a critical link to not only how effectively business management can make decisions, but also how well an organization can communicate across business lines and with its customer base.

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