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Business Information Management

Extending Boundaries with Collaborative Business Intelligence

Today's business problems are complex and require a higher level of technological sophistication, not only to analyze mountains of data and gather insights but also to look into the future, predict business outcomes, and use these predictions to drive actions. Such an approach to problem-solving is difficult to achieve using simple Business Intelligence (BI) tools given the data volumes and complexity.

An inter-disciplinary approach is required, and a process orientation to information analysis involving a combination of BI tools, data collation and collaboration (with external third-party owners of data), integration architectures and technologies and engineering sciences - all integrated seamlessly to handle the problem. This is what we call Collaborative Business Intelligence (CBI).

BI, hitherto, has been used primarily to understand what happened, when, where and perhaps, why. Putting together a BI program meant integrating vast amounts of enterprise data from disparate sources using an ETL (Extract, Transform and Load) tool, and generating reports with an industry strength query and reporting tool. These BI tools empowered the analyst by allowing them to slice and dice the data on an ad-hoc basis, thereby helping the business user to get answers to important and critical business questions.

As these questions were often about the past, a typical Data Warehouse or data mart answered them pretty well, depending, of course, upon how effectively the original data had been modeled.

But in the last few years, many things changed that put paid to the ability of the power user to work with those answers. Some of these changes are:

- the number of electronic consumer touch points has increased and the ability to capture these touch points has increased too. Organizations and individual consumers now leave a footprint in various media, such as web interactions (ecommerce, social networking) or gadgets (mobile

Business Information Management: Better Value from Information and Data

Information is one of your most valuable business assets. Effective management and interpretation of information can set your organization apart. This could be through identifying your most profitable customers and products, modeling the effect of new offers and fully understanding or quantifying your business risks.

By using analytic tools and a Business Information Management (BIM) program effectively, you can gain real business value through your information.

Better Value from Information and Data

Information is not only about structured data (columns and rows). Unstructured data, including reports, emails and customer comments, are equally important. Gaining easy and quick access to such information is critical to making informed decisions. That is why Capgemini ensures that our BIM model addresses the whole information lifecycle.

We have the expertise to help organizations understand and make the most of their information. Only by addressing business information holistically can an organization truly become an Intelligent Enterprise.

telephony), providing a rich source of information;
- as cost of storage dropped, organizations started collecting more and more of such touch point data and also developed the ability to integrate customer data from multiple touch points meaningfully. This spurred them to make better use of such data;
- economic cycles continue to shrink and fickle consumer tastes aided in most part by social networking sites and rapid innovation, have reduced the window of opportunity for businesses to make money;
- the combined effects of such data proliferation and shorter economic cycles have made it impossible for individual power users to slice and dice through the information in a relatively short time on a purely intuitive basis.

As a consequence, some important trends have emerged in the BI space. These are:

- the need to sift through vast amounts of data fairly rapidly and understand the significance of the trends and patterns that emerge at the individual customer level;
- the need to use such data to predict the future - understand what is likely to happen, when, where and why; and all this as fast as you can;
- the ability to understand the implications of these insights and integrate them into operations.

Data Analytics

With data analytics applied to data organized in Data Warehouse and data marts, we take the first step towards CBI. In a limited way, organizations have started applying predictive data analytics techniques to specific aspects of the business to understand what is likely to happen. Popular examples of the use of predictive analytics include: in the telecom industry to understand churn, attrition and fraud; in banking and financial services to predict loan defaults and risk management in general; in insurance and retail to understand consumer behavior. It is also now applied in sports to identify athlete potential and predict win plays; in traffic management in big cities to reduce congestion and promote good road usage; on web sites to suggest articles of interest and in airline reservations as well.

While not all pervasive, data analytics have begun to play an important role in predicting the future, and organizations that adopt this strategy are reaping huge benefits. It is beginning to spell the difference between success and failure in a sharply competitive market place. Offshoring has increased the access to qualified Subject Matter Experts (SMEs) in quantitative analytics and sophisticated models are built on easy-to-use software and maintained in faraway places. For example, a statistician in India, using sophisticated statistical tools, can pull together a list of customers of an American bank who are likely

to default on a personal loan, with an accuracy of about 70% to 80%. When this information is provided to a risk manager, he can then develop payment alternatives for these customers – e.g., reduced installments or skipping a couple of installments – thereby avoiding default.

It is fairly obvious that without the data neatly organized and accessible, the statistician cannot provide the insights. However, in many organizations the typical BI analyst and the analytics people do not talk to each other and the functions are more or less separate and not integrated. Going further, within the analytics function, the analyses apply to discrete events and are never combined into a process view. A simple example to illustrate this point is as follows: Multiple attempts to withdraw a large amount of money from an ATM after midnight tend to be viewed by a bank as three discrete events:

- number of attempts to access ATM;
- amount of money withdrawn;
- time of transaction.

The ability to combine these three discrete events into a single fraud attempt is essential for a good security solution and is at the heart of process analytics. While some banks do check back with the customer on their transactions, not all banks combine isolated security events to take a process view – in this case a security threat.

Integrated Business Process Analytics

In the earlier example of ATM withdrawal, business process analytics, besides monitoring events in isolation, also determine security situations based on a series of and/or repetition of events. The security monitoring solution should be able to correlate such events and raise appropriate alerts. The correlations can be defined in terms of:

- event origin;
- event volume;
- event type;
- business process;
- time.

The data points listed above are readily available but the ability to process them in a particular way to address a business concern is not. The ability to use pre-defined correlation processes or a self-correcting algorithm to analyze the data and initiate appropriate action, has become essential now that electronic consumer activity has increased phenomenally. Organizations are increasingly required to anticipate bad events and deploy systems that will prevent them.

In a recent survey, CIOs have identified Business Process Improvement as their number one concern. And the number one technology initiative that they plan to undertake is Business Information Management (BIM). While the link between the two is not apparent, when you look at it closely, in order for business process improvements to

take place, you first need a business process monitoring solution. By analyzing information gathered from business process monitoring, one can develop innovative solutions that provide a quantum leap in process improvement. This is achieved best by applying the science of process analytics and integrating the results of such analytics into the processes.

Business Process Analytics – An Example

Extending business process analytics and integrating it with operations will provide tremendous business benefits. One such example is in the retail industry where stock-outs are a $10 billon problem (estimates vary between $6 billion to $12 billion). While most BI programs have provided information on lost opportunities, retailers are still struggling to prevent such losses. In our view, the solution has three pieces that are essential to addressing this problem.

The first piece is to gather demand data at the store level and extrapolate or forecast that demand into the future. Predictive algorithms can take into consideration geography, demography, regional consumer behavior and preferences, seasonality, weather conditions, historical buying patterns and immediate off-take from the store to determine short-term demand (next 3-6 weeks) and medium-term demand (8–12 weeks).

The second piece is to provide a composite and integrated view of demand and supply. Demand information, as provided by predictive analytics and including POS (point of sale) data, invoices, shipments, etc., needs to be integrated with supply information such as store inventory, DC (Distribution Center) inventory, in-transits, ASN (Advanced Shipment Notification) and vendor inventory. This provides immediate visibility of potential gaps at an aggregate level and possible sources of supply.

The third piece of our solution is optimization. Knowing what the demand is likely to look like 3–6 weeks out, we need to find the best way to address this projected demand, based on different supply choices. There could be many ways to address this short-term demand and some of the options are:

- move stock from a nearby store where it is in surplus of projected demand;
- advance planned replenishments to that store;
- re-route planned replenishments from areas of surplus to areas in demand;
- create new routings and/or replenishments from the DC;
- move from vendor warehouse direct to store (Direct Store Delivery – DSD - or drop shipments);
- create new work orders (WIP) for increased demand and release for production.

Each of these options comes with a cost and by using optimization routines one can make trade-offs to identify the optimal solution to address the projected demand. These are the demand fulfillment choices that need to be presented to key decision makers. Where standardized, they can be integrated into the appropriate application and automated for fulfillment.

Achieving the above solution would require bringing multiple technology pieces together, such as:

- real-time data integration platform to source POS data and other demand information and integrate it with supply chain information;
- means of making sense of unstructured data from social networking sites to understand interest and propensity;
- Radio Frequency Identification (RFID) and/or Global Positioning System (GPS) technologies to track inventory and shipments;
- statistical tools to develop and run statistical models to predict demand;
- optimization algorithms and tools to determine optimized fulfillment choices;
- BI presentation tool to present the findings to the user and initiate action;
- Service Oriented Architecture (SOA)/Enterprise Application Integration (EAI) solution to integrate the findings into the operational application.

Thus solving a particular business problem involves the orchestration and synchronization of multiple tools and technologies. A clear problem definition and a solution that is driven by the business problem (not by a tool or technology) are critical. A solid solution architecture, with appropriate tools and technologies that can be seamlessly integrated, is essential. In order to fully exploit the power of BI, one has to deploy additional technologies and the knowledge of different physical sciences. Such a collaborative approach to BI will ensure that problems are anticipated and successfully addressed, delivering greater benefits to businesses and to the public at large.

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About Capgemini

Capgemini, one of the world's foremost providers of consulting, technology and outsourcing services, enables its clients to transform and perform through technologies. Capgemini provides its clients with insights and capabilities that boost their freedom to achieve superior results through a unique way of working, the Collaborative Business Experience™. The Group relies on its global delivery model called Rightshore®, which aims to get the right balance of the best talent from multiple locations, working as one team to create and deliver the optimum solution for clients. Present in more than 30 countries, Capgemini reported 2009 global revenues of EUR 8.4 billion and employs 90,000 people worldwide.

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