



CONFLUENT

SEPTEMBER 2010



BUSINESS INTELLIGENCE





India's first BI Suite + Dashboard



1KEY Dashboard and 1KEY KPI are some of the many modules of 1KEY Business Intelligence (BI) Reporting Analytics Software which connects to multiple applications, multiple database to give a comprehensive data analysis, data mining, and multi-dimensional visual reporting solution, able to slice and dice information efficiently providing an extremely intuitive experience. 1KEY BI is powerful enough & conceived to help the business user to understand their data, to compare and contrast scenarios, and to deliver this information inside and outside of their organization which helps make informed decisions at all levels in an organization.

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The next generation more likely known as the “*Net Generation*” has been glued to technology since their childhood. Decision-makers of the new generation are on the horizon that will radically change the future. Internet is like a second home where instant messaging, blogs, gaming, social networking are like buddies. The way they work, think, analyze, use the information or solve problems is completely varied from the primitive approach. Expectations are soaring high and the technology better not let them down. In the world of information, the decision makers work in a baffling situation. Is there any room for creative thinking? If the workflow has a fixed routine, flexibility of the innovative mind stops right there. Decision making has historically been seen as a stand-alone activity. The focus is on the analysis and hopefully creative thinking that follows. We ask ourselves this very question that “*What’s next?*” When an existing process is still going on or was modified, the change may be visible but simple and remain in line with the process structure—implementing new leads to the world of business.

An IBM researcher Hans Peter Luhn came up with the term “Business Intelligence” that was later defined as a hub of concepts and processes to improve business decision making. The IT age, where availability of information and invent of new technologies do not stop even in the case of business, has an open platform to business approached in any form. Sufficient information and adequate knowledge about market scenario is required for a successful business strategy. BI made it easy to access by managing all kinds of information.

In the previous days, before the advent of information age, accessing information without the use of smart technologies was not a piece of cake. Hence, most of the decisions taken were intuition based. The picture has completely taken a revolution in the modern globalize world where the application of Businesses Intelligence technology is becoming popular day by day in almost all kinds of businesses. In a way, every organization tries to promote their business by predicting the trends of the future where information is a vital tool to understand the current position in the market compared to its rivals.

Keeping the growing competition in mind, all those myths like “Business and IT do not go hand in hand” can be erased off. It’s time to *know thyself, know thy competition*. What the next generation will expect of BI applications? How generational shift will drive changes in BI tools and technology? How the roles of BI professionals will be transformed? How the uses of BI systems will grow and change?

You will find all your answers in the next few pages. HAPPY READING!!

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Meaning - Hitting the sweet spot

The function of a report with data visualization is to communicate critical information to your audience in a way they can understand, delivered when and where they need the information.

Need - Information Deficiency

- Exploration of large data sets is an important but difficult problem
- Location component of data, while critical, often not understood
- Many companies still don't have a clear picture of their overall performance, which may be why they cannot assess it. *They prefer to fumble around in the dark.* But they may not like what they see when the lights go on

Ways - Information Discrimination

Dashboard content must be organized in a way that reflects the nature of the information and that supports efficient and meaningful monitoring. Information cannot be placed just anywhere on the dashboard, nor can sections of the display be sized simply to fit the available space. Items that relate to one another should usually be positioned close to one another. Important items should often appear larger, thus more visually prominent, than less important items. Items that ought to be scanned in a particular order ought to be arranged in a manner that supports that sequence of visual attention.

BI Technology helps understanding data for actionable information. BI makes data visualization easy for quick decisions.



Purpose-Filled Dashboard

- Who is my audience?
- What value will the dashboard add?
- What type of dashboard am I creating?

Finding the right audience

- Role:
 - What decisions do they make?
 - What questions do they need answered?
- Work flow
 - In what context will they be reviewing the dashboard?
 - What information are they using on a daily basis?
 - How much time do they have to review the numbers?
- Data comfort and skills
 - How sophisticated are they using data?
 - Are they proficient in Excel?

- Do they enjoy digging into numbers?
- Business and data expertise
 - How familiar are they with key performance metrics?
 - Do they understand where the data comes from?
 - Are they familiar with internal company or industry terminology?
- Customizable – Functionality to let users create a view that reflects their needs
- Level of details
 - High – Presenting only the most critical top-level numbers
 - Drill-able – Providing the ability to drill-down to detailed numbers to gain more context

Value of the dashboard

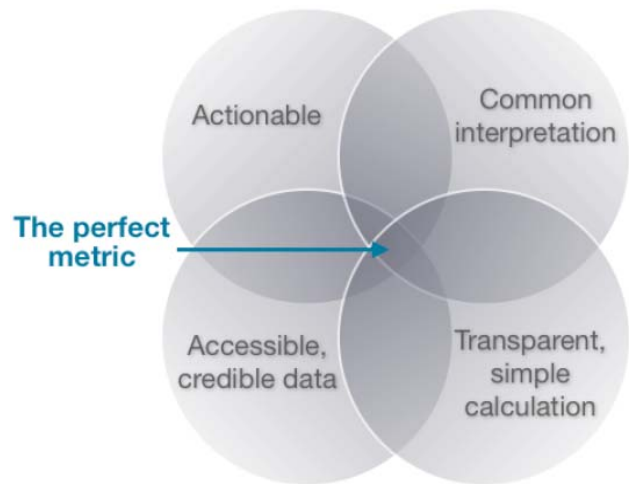
- Define what is important
- Educate people
- Set goals and expectations
- Know what's going on
- Specific actions in a timely manner
- Highlight exceptions and provide alerts
- Communicate progress and success

Type of dashboards

- Scope
 - Broad – Displaying information about the entire organization
 - Specific – Focusing on a specific function, process, product, etc.
- Business role
 - Strategic – Provides a high level broad, and long-term view of performance
 - Operational – Provides a focused, near-term, and tactical view of performance
- Time horizon
 - Historical – Looking backwards to track trends
 - Snapshot – Showing performance at a single point in time
 - Real-time – Monitoring activity as it happens
 - Predictive – Using past performance to predict future performance
- Customization
 - One-size-fits-all – Presented as a single view for all users

- Prescriptive – The dashboard explicitly tells the user what the data means and what to do about it
- Exploratory – User has latitude to interpret the results as they see fit

How to define a metric



Working Capital CFO Dashboard



Types of Data Visualization

- Chart
 - Column - Column, Stacked, Clustered, Cylinder, Stacked Cylinder, Clustered Cylinder
 - Line - Line, Smooth Line, Stepped Line, Line with Markers, Smooth Line with Markers
 - Shape - Pie, Exploded Pie, Doughnut, Exploded Doughnut, Funnel, Pyramid
 - Area - Area, Smooth Area, Stacked
 - Range - Smooth, Range Column, Range Bar, Stock, Candlestick, Error Bar, Box-plot
 - Bar - Bar, Stacked, Clustered, Stacked Horizontal Cylinder, Clustered Horizontal Cylinder
 - Scatter
 - Bubble
 - Polar - Polar, Radar
 - Pareto
 - Histograms
- Map
- Spark-lines & Data bars
- Indicators
- Gauge
 - Meter
 - Horizontal
 - Thermometer

Fundamentals of Chart Design

- Remove Chart Junk – let every pixel tell a story about your data
- Remove Chart Junk – let every pixel tell a story about your data
- Readable labels. Whenever possible, avoid rotated labels
- Don't repeat anything; repetition is bad
- Avoid Smoothing & 3D
- Careful use of gradients, if any
- Sort for comprehension wherever possible
- Use less color variants wherever possible

Conclusion Summary

- Determine your message and identify your data
- Determine if a table, graph, or combination of both is needed to communicate your message
- Determine the best means to encode the values
- Determine where to display each variable
- Determine the best design for the remaining objects
- Determine if particular data should be featured, and if so, how

Data Visualization Benefits

- You should produce effective business summaries for your company
- Help them show everything they want to know
- Give them well defined current reports depict relationships, bottlenecks, outliers, trends and value-drivers
- Quickly produce accurate views of important problem

YOU....

(By Amit Singh)

In this world such things and people are few,
When they are around, you feel like how special are you,
To have them feels like a precious dream come true,
I am happy to say that it includes "You".....

Little little moments of happiness they give,
Remembered in heart, make all life worth to live,
Every time you touch world seems new,
I am happy to say those moments include "You"....

No matter how often we meet,
Every day I wish something special to greet,
Wish your magical glance could just stay,
Forever your smile be there exactly the same way,
I am really glad to say that your mere glance always makes my day..... J

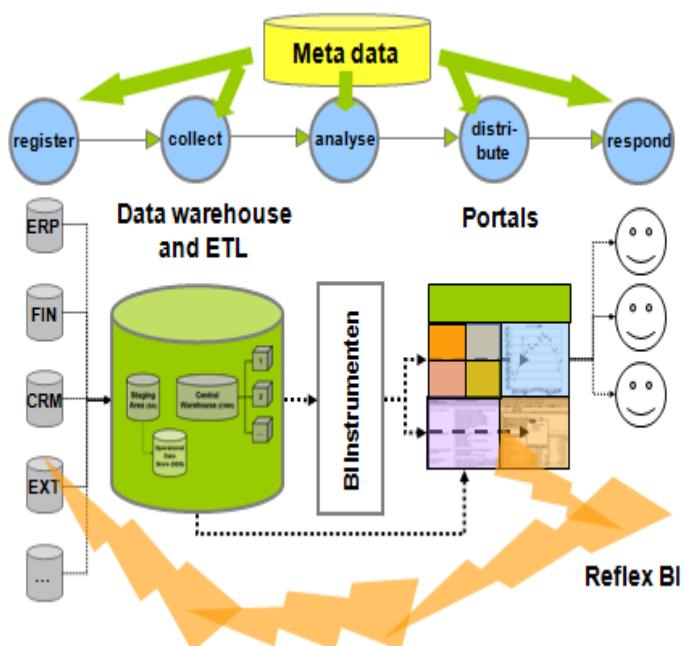
May you live happily ever after,
And life brings you each moment with lots of laughter.
A single promise I can make, with every word being true,
To love, to understand, to always care for "You"
I'll be always there for "You"....

Business Intelligence solutions from Collaborative commerce perspective

- Ram Kinkar Jha

BI is an abbreviation of the two words Business Intelligence, bringing the right information at the right time to the right people in the right format. It is a 5-step process to run your business smarter, starting with registering the right data correctly, collecting the data from multiple sources, transforming, combining and storing it in a data warehouse.

The figure below shows these steps.



This data should be reported, analyzed and distributed to the right people at the right time in the right format. Business Intelligence is about connecting people using a proper information infrastructure and performance driven culture, enabling them working more closely together towards company and personal goals.

The world is rapidly moving towards convergence and a new business and connection paradigm is emerging: c-commerce. C-commerce stands for Collaborative Commerce that means optimization of supply and distribution channels in order to capitalize upon the global economy and use new technology

efficiently. Collaboration promotes fresh views of suppliers, competitors, and customers. The goal is for a business to move away from production and sales, shifting towards the integration of various businesses. Technology and services for enterprise knowledge management will evolve to support the extended, collaborative enterprise. This will bring in a flood of information. Surviving the information flood and effectively managing it will be a critical success factor for enterprises to survive and have a distinct competitive edge. In a c-commerce business world 'knowledge and information' will be the basis for giving an enterprise its competitive edge. And Business Intelligence provides the foundation on which C-Commerce rests.

So what is Business intelligence? Business intelligence (BI) is a broad category of applications and technologies for gathering, storing, analyzing, and providing access to data to help enterprise users make better business decisions. Business intelligence solutions help a company in making business decisions faster, accurate and market-oriented. Concept of business intelligence is new in India and according to Gourish Hosangady, it is 'limited to either a traditional database analysis tool or mistaken for a concept similar to market intelligence.' Business intelligence market in India was very small at the beginning of this millennium. According to Frost & Sullivan report on the Business Intelligence market in India, wherein Business Intelligence has been categorized to include query & reporting tools, data warehousing & mining technologies, and business performance management- the BI market was estimated at Rs. 26 crore (\$ 6 million approx) for Jan-Dec 2001 and increased by 40-45 percent in 2002, to approximately Rs. 37.5 crore (\$10 million approx.)'. The Business Intelligence market in India could be in the range of \$32-35 million by 2005. The Asia-Pacific market for BI solutions is estimated to be \$1 billion by 2007, according to analyst Gartner. There has been a slow but steady growth of Business Intelligence market in India. A growing number of vendors are delivering products that are more of a solution and less of a tool. Vendor software has become more closely intertwined with business processes. To conclude, we can say that there is a very promising journey for Business Intelligence lie ahead.

Business Intelligence (BI) – The ethical genius

- Anamika Datta

Walls are pretty thin when it comes to eavesdropping on issues you really want to know. In business, the most relevant details do not come from within but the external facts matter the most. What's your rival up to? How much revenue are they targeting to bring you down? Are you aware of the storm ahead? BI seems to be the answer to this major mess. The information required will not only be spotted on but also analyzed in such a way that the entire set of data can be retrieved with very little knowledge.

Is BI the key to simple future?



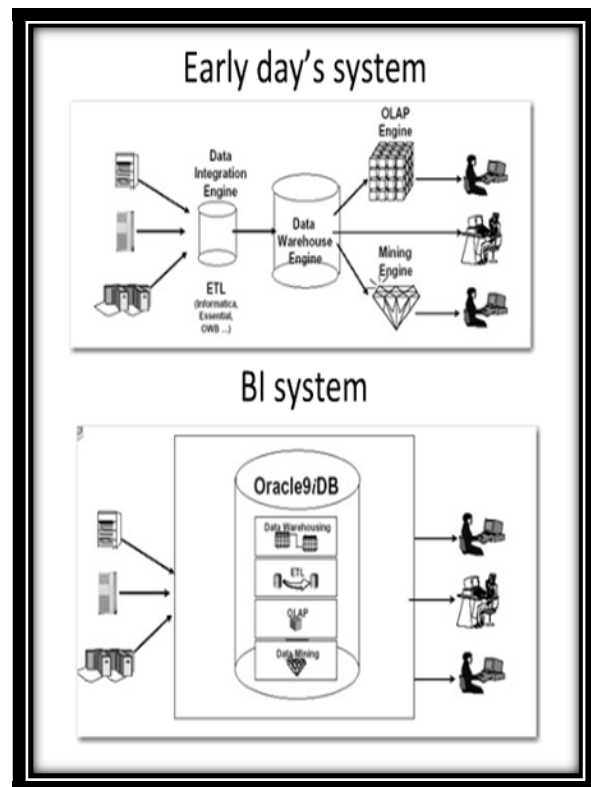
Let's have a look at what BI is doing to *make business easy*. The various processes, technologies & tools that help us to change useful data into information, information into knowledge & knowledge into plans is what guides & drives an organization. Using business intelligence, technologies go hand in hand for gathering, storing, analyzing & providing access to data for helping enterprise users to make better business decisions.

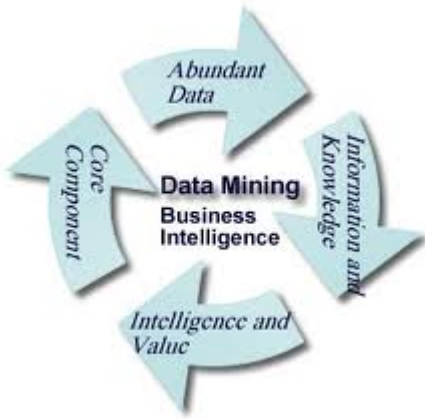
Factors to be kept in mind while managing business

- **Decisions based on daily updates** - It is not feasible to manage business if the right updates do not emerge at the right time. The

managers need to be aware of the current scenarios while taking any decisions.

- **Enterprise information from all across the globe** – Since, most of the business deal with the international market, it's always safer to be aware of the trends (both rise and fall).
- **Relevant information**- There is a lot of garbage out there. One needs to grab the data which will serve some purpose to the organizational benefits.
- **Collaborative decision making techniques** – Ideas may be wrong but that does not mean that one avoids the inputs from others. It may provide better answers if experts and professionals from other fields are included when a decision is being made. Accuracy drives the force in business.





What's in store?

This is an era where decisions are made at many organizational levels and not just the top management level. To sort this out, a new class of analytic tools is coming up that serves a much wider range within the organization. These new tools are referred to as “*BI for the masses*”. Challenges to be faced while implementing BI for the masses are:

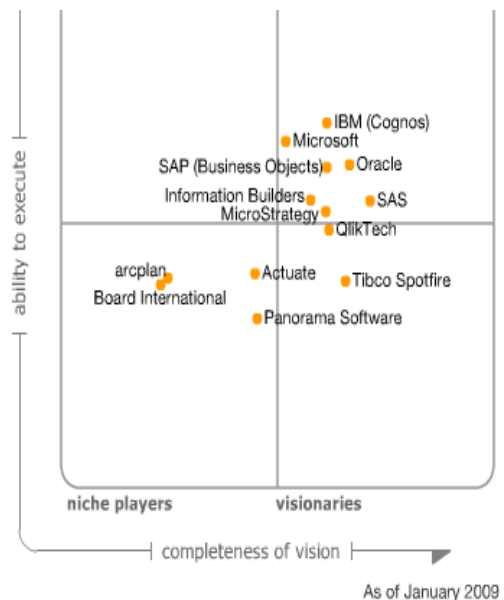
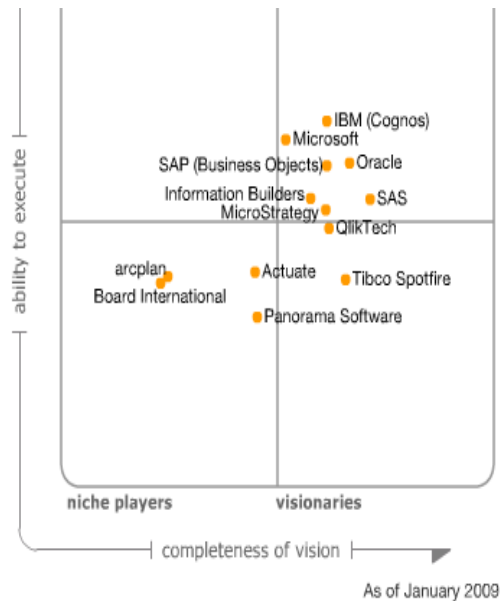
- Report creation to be made easy
- Information delivery to be made secured
- User friendly interfaces

Deployment of BI tools to multiple staff members is a sign of organizations being ready to expand to all levels. *Business Objects* deployed its BI tools to 70,000 users at France, Telecom, 50,000 users at US Military Health System, and to several other firms at the 20,000 user level range [Schauer, 2003].

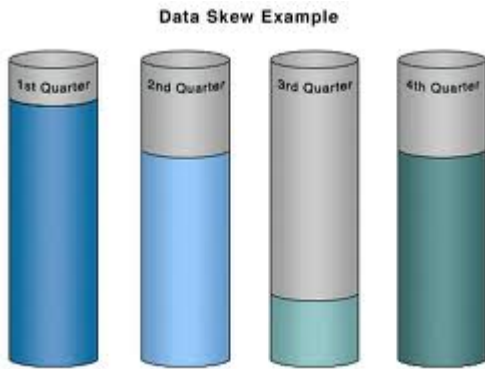


Open Source BI tools

Open source software is evolving into the BI tools market. The traditional BI tools which are deployed on open source environments fall back in front of the true open source BI software. **Pentaho, JasperSoft, and Actuate** are the niche vendors in providing such tools. Even though the grab in the market has been very alluring for BI tools, survey tells that it's going to last only for the next five years.



Barriers to BI



The current face of BI is struggling with the factors like isolating business processes which are to be automated but are integrated very poorly in systems. At first data fragmentation helped in managing the enormous amount of information but then it ended up creating a blockage when it comes to extracting the required data. There are too many sources for retrieving the data for the business. Every source has its own set of complexities and is unique in every single way. All in all, processing and overcoming the workload fails due to specialized servers.

What will drive the next wave of BI?

- **Conformity** - BI can help drive consistency in decision making. Every employee needs to follow a similar pattern of decision processes.
- **Pressures** – BI simply cannot report and predict on the past trends. Since this data is valuable but of limited use, dashboards need support predictive analytics.
- **Connectivity** - Linking the business processes with suppliers, clients and prospective partners is crucial to have a more comprehensive view of what happens outside the organization.

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[2]. <http://www.01.ibm.com/software/data/cognos>

[3]. <http://www.oracle.com/us/solutions/ent performance-bi/index.htm>

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Amazing & Beautiful

(By Ritesh Dass)

Sometimes life turns up in such a way,
Where one has nothing around but a mad fray.
Legions of people are around but still you're single,
The bell of happiness inside you doesn't jingle.

When the way ahead of you is full of mist,
Finding someone you love is a real tryst.
Pleasure of meeting someone you love,
Seems as if your hand got touched with a dove.

Time doesn't pass away without listening to her voice,
How to nurture a relationship is always a matter of choice.
Waiting for the moment when I can hold her hand,
When I can write her name on the dunes of sand.

My soul finds an unknown solace within her,
Not sensing her presence around gets my sight blur.
Packed with care, love & surprises, she is a sparkling beauty,
Warding her off from any evil is my humble duty.

Being unique is her way which no one can don,
Found a shoulder where I can sob and rest my hands on.
Small are the things that make her happy,
No need of buying her something whacky.

The way she has impacted my heart is very deep,
Can be awake my entire life to watch her sleep.
Want to see two different souls submerging in one,
The very purpose of my life on this earth will be done.

from the pens of Adam Husain, Karan Jariwala, Nikhil Sarup, Pragathi MS and Sharendran Mannar

Introduction

Imagine you are the CTO of a company. Obviously it is very challenging for you to quickly, effectively and economically get access to all your reports, analyze it and share the information you need to achieve your corporate objectives. Distressed? Well then, there are two words for you – Business Intelligence.

Businesses Intelligence, also known as BI, refers to computer-based solutions used in spotting, digging-out, and analyzing business data. This includes sales revenue by products and departments or associated costs and incomes regarding the business. Business Intelligence technologies provide historical, current, and analytical examinations of business operations. General functions of business intelligence technologies are reporting, analytics, data mining, online analytical processing, business performance management, benchmarking, text mining, and predictive analysis.

Business Intelligence aims to maintain more effective and efficient business decision-making. Therefore, a BI system can be termed as a decision support system (DSS). Business intelligence is often used to describe competitive intelligence, because they both support decision making. However, there exists a difference between the two concepts. BI uses technologies, processes, and applications to analyze mostly internal, structured data and business processes. On the other hand competitive intelligence is done by gathering, analyzing and disseminating information with or without support from technology and applications, and focuses on all-source information and data (structured or unstructured), mostly external, but also internal to a company to support decision-making.

Best Practices

Business Intelligence can be practically implied to the following business practices in order to make the business more efficient:

- **Measurement:** This is a program that creates a hierarchy of Performance Metrics and Benchmarking. It informs business leaders

about progress towards business goals. This is also known as business process management.

- **Analytics:** This program develops quantitative processes for a business to arrive at optimal decisions. Additionally it helps to perform Business Knowledge Discovery. It frequently involves data mining, statistical analysis, Predictive Analysis, Predictive Modeling, and Business Process Modeling.
- **Reporting/Enterprise Reporting:** – This is a program that builds infrastructure for Strategic Reporting. It helps to serve the strategic management of a business. It is not operational reporting. This type of program often involves Data Visualization, Executive information system, and online analytical processing (OLAP).
- **Collaboration/Collaboration platform:** This program gets different areas (both outside and inside the business) to work together. This is achieved through Data Sharing and Electronic Data Interchange.
- **Knowledge Management:** This is a program to make a the company data driven through strategies and practices that identify, create, represent, distribute, and enable adoption of insights and experience that is true business knowledge. Knowledge management shows the way to Learning Management and Regulatory Compliance.

How does it work?

Business intelligence (BI) delivers on a simple promise: *improved business performance by delivering better decision making throughout your entire organization.* When you know that your insight into corporate data is sound, informed, and complete, you can trust every decision you make. With that level of confidence securely in hand, you can improve business

performance, create competitive advantage, and achieve corporate objectives.

Let's look into a few key players in the intelligence arena:

➤ **Microsoft BI**

Microsoft has a habit of invading every territory in the InfoTech domain, then why would it leave Business Intelligence aside? It probably has one of the best BI products in the market which is implemented and licensed to most enterprises. Microsoft Business Intelligence—a complete, fully integrated set of BI technologies that can help reduce the complexity of organizing and distributing information and lead to competitive advantages, overall better decisions, and an improved bottom line.

Microsoft BI consists of three layers of workload: data warehousing, reporting and analysis, and performance management. This three tier structure is designed to provide a consolidated, comprehensive data source and tools to help decision making. In our view, the promise of Microsoft BI is to help decision makers at all levels throughout the organization have confidence that their decisions support the company's goals and initiatives.

Step 1: Quality data

Microsoft BI give users a way of finding data they need in an easy-to-understand format that helps them make decisions. Microsoft SQL server 2005 can aid in improving data process as a whole. It is enterprise-ready and a proven relational engine that stores huge amounts of data, supports high query loads, delivers high performance, clustering and scales to the largest enterprise needs.

Step 2: Tools to gain deeper insights

Did you know that Microsoft Excel is business intelligence software? It provides end users with the resources that help them make accurate and confident decisions. With its latest release, Microsoft has made a huge investment in the ability to analyze, visualize and gain insight into data with this tool. The analysis environment provides us with access to more information, easier and more robust analysis, and a simple connection to the data in SQL Server 2005 in a more secure, intuitive, and managed way.

Step 3: Decisions aligned with corporate goals

The first two steps help individual employees make individual decisions. This next step helps improve corporate-level decision making all across your organization. Microsoft Office Per-

formancePoint Server 2007 makes this possible by providing informational views that consolidate all your corporate data—from sales to HR and operations to finance. Decision making now has a greater context that captures the workings of your entire company.

Result:

What do we get ultimately? Individuals have access to better quality data. They can make better decisions and can trust that their decisions are aligned with corporate goals. Microsoft BI supports business environments from small to enterprise. It grows as the company grows, and it's a small investment for a large return on trust that can help you build your business.

➤ **IBM Cognos**

IBM is not far behind in this arena. It already had taken its step into the world of business intelligence with its product, Cognos. On September 29, 2009, IBM announced the launch of Cognos Express, a new product specially designed to meet the needs of the midsized market.

- Cognos Express is a Web-based tool composed of three base products:
- Cognos Express Reporter (a reporting and querying tool)
- Cognos Express Advisor (a tool for data analysis and visualization)
- Cognos Express Xcelerator (data analysis and planning tool based on Microsoft Excel)

The best part is that all these can be managed by the Cognos Express Manager. The idea behind this three-part system is to create a complete set of BI tools, giving the user the option of installing only the needed functionality. Each module can be installed separately and each can complement each other.

Cognos express can be installed with ease, and there is no special rule or trick to it. A free trial version of Cognos Express is readily available if you wish to test it. Once the installation process is finished, you can open the IBM Cognos Express Manager, a Web interface defined to serve as a centralized administration tool for Cognos Express.

IBM Cognos has made a big effort to keep things simple: the manager interface has a user-friendly appearance, and it's easy to detect the graphical location of almost every task in the Cognos Express Manager Web interface due to its simple design.

Creating users is also very simple. There are already some pre-configured features, like user groups, that can be used to create a group of up to 100

users—if the product is licensed. It's possible to create users immediately, and attach them to specific workgroups, like Express Administrators or Express Users. With these functionalities, it's possible to create an acceptable and secure user access policy.

The various Cognos Express products which have been included are:

Cognos Express Reporter

Creating a report in Cognos Express can be done using the Query Studio. It also has features to format data, fonts, decimal places, etc. All of the report creation process can be done very fast. It's also possible to create a chart from a set of chart types with the data previously selected.

Cognos Express Advisor

This is the online analytical processing (OLAP) data engine that enables all data analysis. This tool enables users to analyze data collected from relational data sources in a dimensional way by creating data cubes that enable fast and flexible data analysis. Again, the tool was designed to keep things simple. Users can improve the decision-making process by basing their decisions on Advisor-enabled data analysis.

Cognos Express Xcelerator

It enhances Microsoft Excel with a new set of report and business analysis tools. But the description of this product will have to wait until another time; it brings a hot topic to the BI market that deserves more than a couple of lines.

It's a commendable effort on IBM's side to launch Cognos Express in the market for midsized organization. Midsized organizations need new technology to help them accomplish their goals. But, as they often have only a limited budget to do it, Cognos Express could be another BI software solution to consider for this type of company.

Innovative approach to BI

➤ In Memory Analytics - The Game changer

In-memory analytics or In-memory computing has started creating waves in the market. This is a game changer innovation technology which can empower companies to plan smarter, perform better and run faster!

Why the buzz? What is in-memory analytics is all about?

As the name implies difference is in the way data is queried. Conventional BI tools query on the disk once the data from database moved to processor whereas in in-memory analytics data is queried on RAM (Random access memory), this leads to results in no time! Magical isn't it! Let's see in detail. Prior to in-memory analytics BI tools used to query against a typical data warehouse, the query normally goes to a database that reads the information from multiple tables stored on a server's hard disk as against server based in-memory database in which all information is initially loaded into memory i.e. to say reports which use to take minutes to get generated, takes less than a second to build!

In-memory analysis and reporting delivers rapid access to visually rich, interactive dashboards that anyone can build quickly and modify easily. As shown in fig 1, by associating data into memory from any source, it can combine data with high performance, regardless of how those sources perform on their own. This provides the fastest way to gain insight into how different parts of a business relate. It enables users to see and know their businesses in new ways and interactively explore data without limits. Now, users can engage their data with blazing speed, resulting in more informed, proactive decisions. For IT departments, it means - far less time spent on query analysis, cube building, aggregate table design, and other time-consuming performance-tuning tasks.



The main reason why In-Memory Analytics is thing of today and tomorrow is because of the lower-priced 64 bit computing which came along with the adoption of 64-bit architecture that enables larger addressable memory space.

Gartner, a U.S based leading technical research firm says by 2012 70% of global 1000 organizations will incorporate in-memory technology into their business intelligence (BI) applications to optimize performance and flexibility. Bigwigs like SAP and Oracle are already chasing real time. Waiting is really going to be the thing of past!

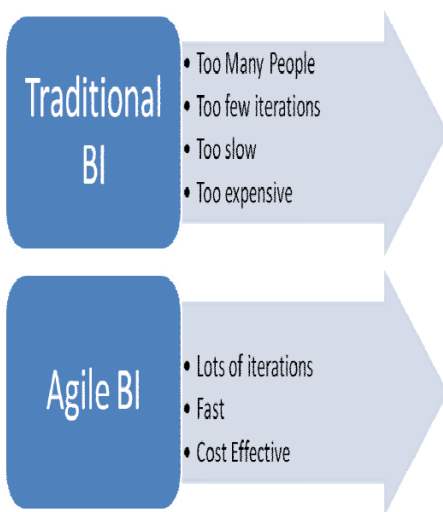
➤ Agile Development for BI

Agile is a software development methodology which may take 1 to 4 weeks to develop a piece of software. It follows iteration process; each iteration is treated as an entire software project which includes planning, designing, coding, testing and documenting tasks.

Using Agile BI, the system is, from its inception, frequently exposed to stakeholders - no matter how immature it is, you'll learn how these early versions will help your stakeholders shape their visions and provide meaningful feedback about the system, and enable developers to respond by continuously maturing the system to align with the stakeholders' vision.

One more use is, since successful BI project must be able to adapt to changing requirements along the way, and must be extremely flexible in terms of the data provided to the end-user. BI projects **must** be driven by Agile methodologies if they are going to succeed.

The difference between traditional BI which follows Waterfall model of software development and agile BI which uses agile software development methodology is as shown in fig 2.



➤ BI in Cloud

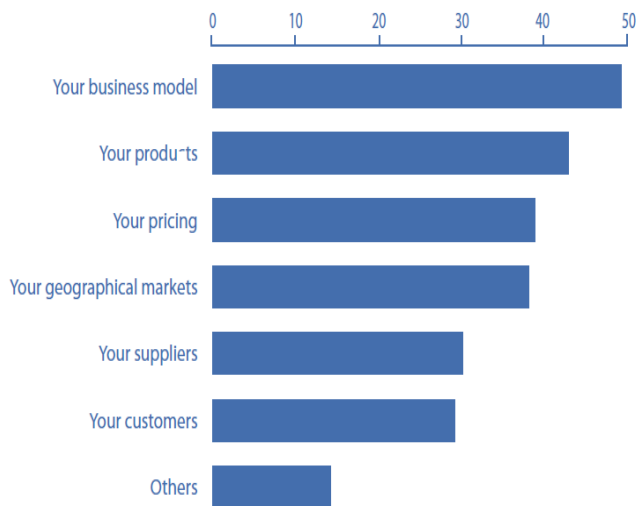
As we all know Cloud computing offers a lot of promise. By virtualizing hardware and software infrastructure and paying a third party to deliver services as you go on a subscription or usage basis, companies can save a lot of money and time, and speed the deployment of business solutions.

Initially, cloud-based solutions were designed for small- to mid-size companies that didn't have available IT resources or capital to spend on creating and managing a software and hardware infrastructure. Today, many large companies are investigating the cloud as a way to add new business solutions quickly and augment existing data centre capacity.

This has helped organizations to use BI applications without purchasing and implementing new IT infrastructure, they can use, no large upfront costs, pay as you go facility. BI infrastructure can be expanded and contracted with the companies requirements.

Does Business Organisation have the right Information to be prepared for Future?

The execution of any business model or strategy is often hampered due to lack of trusted information. In today's competitive market, it's more important to have a continuous market insight and have the manpower and technology to react quickly. The future of business is promising, organizations have realised that they need to adapt to the current trends to succeed. As shown in the recent research conducted by KPMG, more than half of the organisations worldwide expect to adopt new business model. Business Intelligence will be an integral part of this evolution, placing information at the heart of all decisions.



Source: *Never catch a falling knife* global business survey 2009, KPMG International.

Making large investments in IT doesn't guarantee better information. The methodology to collect information should be changed so it is processed and presented in a better way.

To find out whether businesses are ready for such a change, KPMG collaborated with Cambridge University to conduct a review of Business Intelligence and results suggest that, despite an annual global outlay of around US\$60 billion, many organisations are not seeing the expected benefits. Some of the key findings are

- Less than 10 percent of business organizations have successfully used business intelligence to improve their organizational and technological infrastructures.
- More than 50 percent of business intelligence projects fail to deliver the expected benefit.
- Two thirds of executives feel that the quality and ease of accessibility to data is poor and not consistent. Seven out of ten executives do not get the right information to make business decisions.

Hence even huge amount is invested there is relatively little to show for outlay and most of the data is inaccurate, which make decision making more difficult and risky. The companies which use business intelligence effectively outperform the market by more than 5% in terms of return on equity as they are able to deliver the right information, at the right time, to the right people. They discover how

information gives them a competitive advantage at both a strategic and a tactical level while costing less to provide.

Impact of Business Intelligence on an Organization

Organizations today face dual challenge of managing intra-organizational information and monitoring a vast pool of information from the external environment. Survival of organizations in today's competitive market requires effective use of information and decision technologies to gather, manage and utilize knowledge. Information management in itself is insufficient to sustain a strong competitive position i.e. mere acquisition and sharing of information or knowledge does not automatically lead to improved firm performance. Instead, information needs to be first internalized and transformed into knowledge, which then has to be applied in new products, services and processes before improving a firm's performance.

Technologies ranging from groupware, databases and expert systems allow the storage and codification of knowledge, access to existing organizational knowledge sources and communication of ideas across organizational units. In addition, there are a variety of Business Intelligence (BI) technologies such as digital dashboards which visually presents summaries of business data of an organization. Many common BI tools are equipped with Online Analytical Processing (OLAP) capability which supports interactive examination and analysis of large amounts of data by mathematical simulation and modeling and the impact of possible risks.

Business intelligence technologies incorporate a broad range of applications and practices for the collection, integration, analysis and presentation of business information. The primary objective of business intelligence is to support better business decision making. In the past BI tools such as decision support systems were only available to senior executives. However, with the advent of internet and proliferation of Web 2.0 applications, BI has been made accessible to employees at lower levels also. Though senior executives, managers and analysts have access to more specialized BI tools like digital dashboards, reporting and querying software, OLAP and data mining; junior employees can use spreadsheets and search engines. The junior employees can also subscribe to RSS feeds to monitor competitors' performance and behavior, and customers' feedback on new media such as blogs. Most organizations also prefer to use Knowledge Management Systems (KMS) to integrate internal information with externally acquired information.

With the advancements

in groupware technologies like Microsoft Office SharePoint, organizations can now more effectively share and use its acquired knowledge which would thereby help in effective decision making. Thus, the greater the use of BI technologies in the organization, the higher the degree of organization's absorptive capacity which will positively influence sustained competitive advantage.

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Collapsed Triumph

(By Mousumi Ray)

I had been "the love" for many

I had been the source of energy

Unaware of this I moved ahead

As, this was the battle against my destiny.

Moving faster than the speed itself

Success had been my only concern

Conquering each and every milestone

Made "victory" my absolute obsession.

The unfortunate diva finally arrived

The day I reached the zenith

Turned around with joyous heart

Found no one whom i could share it with.

He found the diary

(By Anamika Datta)

Their friendship was green

Their friendship was blue

The love in their hearts was genuinely true

A secret it was, for a long time indeed

The bird was confused of how to proceed

They danced to the tunes, to the proms, to the bands

With a smile on his face, and lust on his hands

Years numbered four, but he wanted more

The three words of life wasn't said before

The fear! The fear! That wiped him with a smear

"No" is the word which he couldn't afford to hear

The time had come for her to leave

A new life, a new degree of tortured-eve

Vincent: Did you see Julia?

Julia's friend: No, but she gave your locker keys back. She wanted some stuff which she kept there.

Vincent: Thanks. If you see her, will you tell her that I was looking for her?

Julia's friend: Don't you know? She's leaving the country.

Vincent: WHAT?!

Julia's friend: Yes, she's leaving in a few hours. She got admission to another university...

A diary of eyeses and sentiments so deep

A gift in his locker, which she had to keep

He found the diary and turned to the first page

Entry # I met this great guy called Vincent. He's sweet and has a killer smile...

*turns a few more pages *

Entry # today, Vincent asked me to be his prom date. I couldn't be more excited...

keeps turning

Entry # I think I'm in love with Vincent. Should I tell him? What if he doesn't feel the same way...?

crushed, and with tears in his eyes...tries to turn some more pages

Entry # Vincent danced with me all evening. It's the best day of my life...

turns to the last page

Last entry # Vincent, you are my first and last love. :)

He crunched the last page, and held the diary close to him.

SEARCH FOR FORTUNE: USE OF DATA MINING

- Richa Singh

I read a definition of business intelligence somewhere which states that "business intelligence is analysing the past data to predict the future". The question here is who is interested to know the future. Guess I wouldn't be wrong if I compare a manager with an astrologer. One sees the pattern of the stars and the other is interested in the pattern of data.



The thing is easy to talk about but will not be less than a herculean task to achieve. Just imagine of a situation: A man made to stand with a carton full of stuffs. Now ask him for say thing one. Now he peeps in the bag takes out one two three four and so on stuff before reaching to the desired stuff. If things sound too messed up don't worry because with the amount of data that company's collect from their business the situation would have been more or less the same. Business houses are expanding with SBU's to new enterprises to outsourcing and so on. But thanks to the tools of data mining managers can mine out the gold out of the ounce of dirt. And the sophisticated tools available have made the sorting even easier.

To understand data mining let us again go back to the stars. Remember your science classes when your teacher taught you to see stars not as individuals but as constellations by considering the arbitrary shape of a spoon or a hunter. The same is true for data. Managers tend to put on their internal intuition and then cluster them to draw inference or conclusion. This is science for the managers.

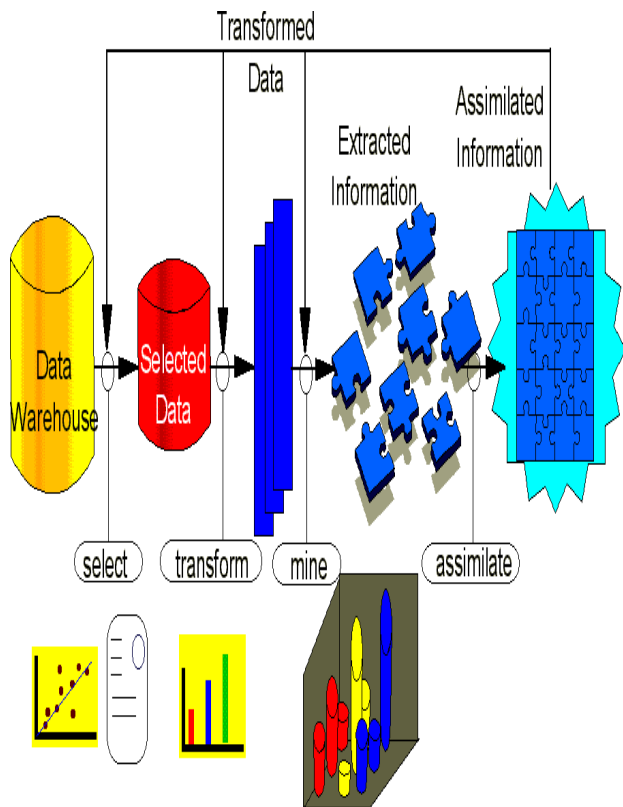
There are a variety of tools which are handy for the managers when they tend to do business intelligence through data mining. The most obvious one is statistics. Even basic statics tool like graphs and plots may tend to group data and help the decision makers on small amount of data. The problem arises when the size of the data increases from mega to tera to giga bites. Is there an effective tool for that scenario as well? Data mining library is big and comes with big terms like regression classification, clustering and so on.

But before I jump further it is essential to understand that data mining is no technology. It is just a tool to be used on data the output of which can yield some striking resembles and future trends could be predicted.

Data mining thrives on three basic things which are

- Collection of large amount of data
- Multiprocessor system to handle the large amount of data
- Data mining tools

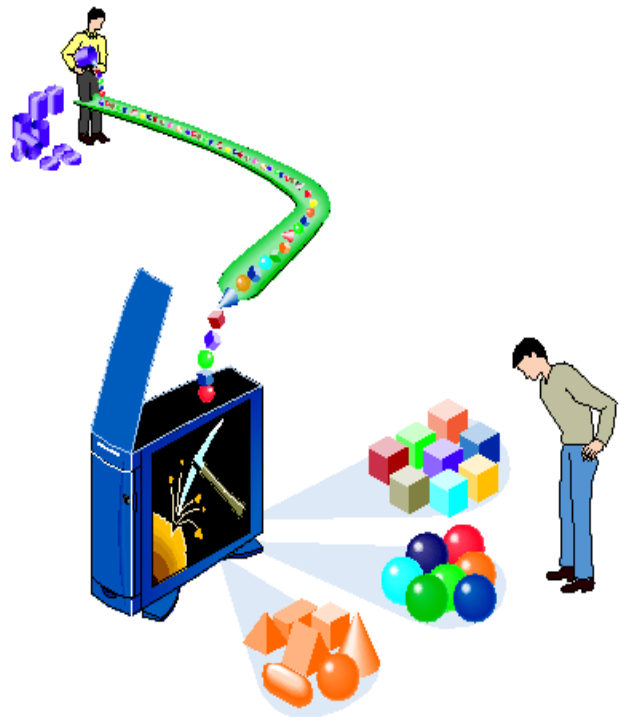
And I feel we are at the right point of time with all the above combinations available to us.



Data mining works on modelling of data. You go for building a model of the situation you understand and then try to figure out how the model fits into a new situation. The same is the scenario with data mining. Modelling as an activity is not new. The difference is what human has been doing for long time is to be simulated by the computers. Computers are loaded with large amount of data and are provided with situations where the answer is known. Data mining tools go through all these data build a model of the known situation and finally apply it to the situations where the answer is not known. These tools can be successfully employed in variety of situations. For example a hotel industry can successfully predict the trends its customers have been following and thus retain its most profitable customers. Or a sales team can make intelligent business decisions on its sales territories to make the most profitable numbers.

The more is the amount of data the better will be the analysis and the better will be the result. So as the capacity of databases increase companies can make it a point to track each and every record and transaction. Bring the data in the data warehouse and apply the techniques of data mining.

Why data warehouse for data mining?? It is the best place to find the appropriate data as data to be brought in there has already been selected by the analyst. The sole purpose of migrating the data from database to data warehouse is to have the data ready for the reporting purpose. On line analytical processing (OLAP) can also be used on the data warehouse to have data ready in aggregate cubes. Further refining can be done in the form of Data Marts that are the department wide data. So your data is finally ready. All you need is to give it the final touch up. Cleansing the data of the noise, filling of incomplete steps could be the final few things. Finally your data bride is ready. So I can freely talk of data mining on it.



Business is a game of numbers. Managers play with big numbers daily. The use of sophisticated tools like data mining makes this play a game of intelligence and strategy. It's an era of smart decision making.

Turning the Right Corner - Making Better Decisions to Harness Growth

Chris Field at Infor asks: As we make tentative steps into economic recovery, how can companies ensure they make the right decisions about their future performance?

As we move towards economic recovery, the decisions organisations make this year will be instrumental in their future performance. While short term cost management to ensure survival has remained top of the priority list for many organisations in the last 18 months, a renewed focus on investing in longer term growth initiatives is clearly emerging in 2010. But how can companies ensure they make the best decisions to lead the charge out of recession?

According to Gartner, organisations are taking decision-making seriously. Global sales of Business Intelligence (BI) systems are set to grow by an estimated 25% from 2008 to reach \$7.7 billion by 2012. Gartner also reports that of a survey of 1500 CIOs, BI tops their priority lists. So the sentiment is clear – companies recognise the need for better decisions. But what factors are necessary for better decisions to be made, and is a BI system enough?

Gartner describes BI as “the systems that help decision-makers throughout the organisation understand the state of their company’s world. A set of methods that support sophisticated analytical decision-making aimed at improving business performance.”

But as this definition illustrates, while BI can provide the information, BI alone cannot facilitate the decisions themselves. Information provided by BI systems is often raw and one-dimensional, and lacks

the wider context from which decisions should be based.

The recent financial crisis is a good case in point. In hindsight, few would argue that some monumentally bad decisions were taken: a 125% mortgage based on 7 x an individual’s salary anyone?

However it could be argued that those kinds of decisions were made on the basis of good information. Mortgage companies were lending large amounts of money based on short term historic information – in this case, that house prices had increased consistently and rapidly up until their peak in 2007, and based on that pattern, the risk of lending more than a property was actually worth, was deemed acceptable. However if contextual factors had been applied to this historical information, they would have highlighted that this level of growth was not sustainable. The decisions would most likely have been very different, and the extent of financial crisis which ensued would have been less severe.

And while the most common response to mistakes on this kind of scale is to demand more bureaucracy and regulation, such an approach would require the collation of even more information which can actually be counterproductive. The key to avoiding a recurrence of such mistakes at any level, is not to generate more information but to harness and apply existing information in a more intelligent and meaningful way.

Traditionally, people would apply this intelligence to information, but the scope and complexity of information in most organisations is too vast for this

approach to be viable. The human brain simply isn't capable of processing the millions of variables and pieces of information required to make good decisions. In today's complex business environments, to guarantee the best, most informed decisions, systems and processes must be capable of analysing information from a number of different perspectives – not just recent historical information such as sales figures or spending trends.

This

has

1 What are the quantifiable long term objectives for your company?

- 2 How will those objectives be met?
 - 3 What actions will be taken?
 - 4 How will you continually measure those activities?
 - 5 How does the competition perform against the same activities?
 - 6 How must these activities now change to outpace the competition?
 - 7 How will your company resources need to be allocated to make these changes happen?
 - 8 How are you performing, what adjustments do you need to keep making?
-

been the traditional problem with BI systems as they've been deployed as a standalone, tactical, internally focused systems to help save costs or identify revenue opportunities, not for gaining strategic value and competitive advantage. BI systems must be able to present information in the context of the total environment, both within an organisation and its external market, in order for it to be effective.

The ultimate aim is to use BI to help make insightful decisions about significant changes within a business and its markets. To do this must be complemented by systems which are capable of identifying and

flagging market information, future events, risk factors and trends. In practice these systems are like software probes which search through huge volumes of data from across all areas of an organisation and then create alerts to exceptions for nominated personnel, from which the events' importance and relevance can be ascertained. Once these contextual factors have been identified, they must be followed up and their resulting actions fed into the company's planning, budgeting and decision making systems, thus creating a comprehensive picture from which to base decisions.

Box out: 8 Questions to ask yourself to help you use BI strategically

Whether using this contextual approach for strategic or operational decision-making, a 360 degree picture of events can mean the difference between identifying a huge growth opportunity which might catapult a business into becoming a market leader, or see an organisation miss an opportunity, or increase exposure to risk. Of course, some good decisions will occasionally result in an adverse outcome. But through ensuring that all business decisions are good, informed, and factor in all relevant variables, risk is mitigated and business performance maximised.

One of the key lessons learned from the recent financial crisis is that organisations simply can't afford to gamble on important decisions about business performance. Availability of good information will help to establish a benchmark for growth, but in order for this information to add strategic value and drive growth, it must be harnessed and used in the right way.

As business becomes increasingly complex, BI has become a prerequisite rather than a differentiator. And while BI is an integral first step, it must be aligned with the

attributes and nuances of the company and markets which it serves. Only through this level of thoroughness will organisations achieve competitive advantage at this delicate stage in the economy's recovery, and avoid poor decisions which they simply cannot afford to make.

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Lost Self

(Abhishek Roy)

are u so blind that you cannot see
the blood that oozes out of my wounds
peels of my empty heart tearing it apart
blinding my eyes
is there anything more to loose?
the cry of despair still haunting me
buzzing and echoing through my ears
making me so deaf
still you shout at me
those pain that you mercilessly shoot at me
is this all you wanted?
deserting me all alone
dumping me like a garbage
sorry
i have no more tears to shed
no more bloods to spill
the cold kiss of death just brushed my lips

but still i am alive
why?
cant u just see?
cant u just feel?
are u so tough to penetrate
dont u have emotions?
where are those warm touches that melted me
away?
huh...they are far lost i guess
lost in the ashes of time
but
i still crawl to them, try to heal my wounds with
those shattering memories
and now
i am tripping off the cliff
going forever..
a life is thy wasted
how could i say goodbye..HOW????
i can't just wipe u out
never dear.....
perhaps never....
oh god of death have mercy
let me be killed by the hands that gave me this
lyf...that warm touch of death..
huh...what an irony of life...!!!
i am waiting for her
still waiting in the darkness
wounded, crying out in pain, trying to stich my
broken pieces of heart
whr r you my love
where????

Rural BPO's : Innovatively Cheap

- Ninad Dhavase

A typical morning of a woman in Teekli village, 30 Km from Gurgaon, used to begin by milking cows, preparing lunch for their family and doing other chores. However, all this changed when a BPO (business process outsourcing) firm was inaugurated in the village. Now, a few of them get up early and walk to the BPO office and start working on Microsoft Office. Yes, BPO's are now cheaper and companies have a new reason to substantiate their outsourcing expenses.

In today's competitive age, organizations focus on their core competencies and outsource their support activities which are not directly related to the businesses but to firms in India and other low cost labor countries. As per Harvard Business Review, outsourcing is the most important management concept of the present times. Outsourcing brings cost efficiency for the companies and thereby contributes to their bottom line. Today, companies are evaluating their operations for the minutest expense and hence cost efficiency is the prime factor which gives a company an edge over others. BPO usually involves support activities and back office tasks such as data entry, customer support etc. Such operations are usually mundane in nature and do not add value directly to the customer. Therefore, organizations are not very keen on investing in these activities and hence prefer some vendors who can do these activities at cheaper rates for them. This very thought lead to the idea of outsourcing and companies in countries like India,



China, and Philippines who capitalized on the low cost labor available to muster this business.

Unlike the outsourcing of software services, BPO mainly deals with the back office support and data entry operations of an organization. Initially BPO's were located in the Tier-1 cities like Mumbai, Chennai, Bangalore, Hyderabad etc and targeted the young unemployed population in these cities. However, this very boom led to the increase in reality prices, employees demanding higher salaries which became difficult for these outsourcing companies to operate at profitable margins. During this period, rural areas were blessed with better roads, better IT infrastructure, better telephony services, and a sizeable class of educated unemployed rural population. Companies were wise enough to spot this trend and

are now ready to capitalize on these strengths and the concept of Rural BPO's.

It all began in 2006, when a few small entrepreneurs kicked off pilot BPO operations in villages that were near cities and had schools till standard 12. The benefits were evident from the

profit margins, and within a span of 4 years, about 50 rural BPOs have come up, reports NASSCOM. More than 70% of the BPO work is process driven and hence does not require any highly skilled labor. Simple operations like data entry and customer support even for Indian companies can be easily managed from these BPOs.

DesiCrew, one of the first entrants see a lot of growth potential in this kind of operations and plan

to have fifty centers and 5000 employees by 2015. It currently has 170 employees and around 12 clients. Even the large players in the BPO space like Aegis and Genpact are planning to venture into the rural operations, and increase their bottom lines. This operating model is not only limited to the private sector. eGramIT is an initiative which bagged the business for digitization of account opening records for State bank of Hyderabad. Companies prefer data entry work at these rural BPOs and they leave the voice support for their urban counterparts.

The key factor which will impede the progress of rural BPOs is the availability of three things viz. Internet, Power and People. The Telecom Evolution which India has witnessed has solved the first hurdle to an extent, however there is much more to achieve in this area. Government has a very important role to play in solving the second and



the third hurdle. Enabling education up to higher secondary standard will be the greatest challenge for the government. Companies can then harness the potential to create jobs in the rural areas. Apart

from these factors, clients were very apprehensive initially about such operations and have opted to visit the centre before they assigned the business. However, times are never the same and companies have been successful in convincing customers about the quality and the reliability of the operations.

Though on paper, rural BPOs look quite attractive, in reality they are a challenge for both the companies and the employees. Companies have to customize their processes of training and other support processes to incorporate this “special” employee base. This innovation will surely contribute to the management knowledge base and will lead to innovation in the way we conduct our businesses. Employees on the other hand have to be agile enough to learn the new processes and tools if they wish to ride this wave of jobs. Both the companies and the employees together must create a symbiotic relationship for the mutual benefit.

India has always been the most favored destination for outsourcing, be it Software or BPO. Given its democratic environment, sizeable chunk of English speaking people and a decent infrastructure it has become the most sought after place for BPO operations. Indian companies need not only compete within themselves, but should consider the competition from other countries like China and Philippines. We need innovation in every aspect in order to have a competitive advantage over others. Rural BPOs is surely the most innovative solution in order to sustain this competition. So, customers need no more look for cheap outsourcing vendors apart from India. Yehi hai cheap choice baby, Ah Ha!!

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A peek into Transmedia Storytelling

- Mousumi Ray (SCIT, Pune)

- Kumar Luv (IMI, Delhi)

April this year Producers' Guild of America agreed to a new credit : Transmedia Producer. It is in recognition of the important contribution of transmedia storytelling to the creative medium. Experts like Chuck Tryon believe that movies as we know them today are dying, to be replaced by more engaging formats of communication. We present here the features of this developing phenomenon, as put forth by Henry Jenkins:

achieved, would be drillable. Now, this will typically attract far smaller number of people, but the engagement would be longer too, demanding more energy & time. An example would be Nine Inch Nail's Artificial Reality Game built around Year Zero; or online forums that discuss how a case would be solved in CID; or groups discussing different interpretations of Joyce / Kafka.

Transmedia / Cross-media storytelling is unfolding of a story across multiple media, where each medium contributes something unique to the experience.

As a marketing tool, transmedia storytelling can foster strong audience engagement. It can initiate a powerful, creative dialogue between the producers and fans, build long term engagement between consumers and a brand, which ultimately increase the lifetime of the brand (as they say in Brand Mathematics: $1+1=11$). We would look at some examples as we move on with the features.

1. Spreadability / Drillability:

To begin with we have a core story or the main text, now transmedia can develop more stories around this core. These won't usually enhance our understanding of the core story, but may add to economic and cultural value of the text.

For ex, most of us would have seen Terminator, a lot of fan-fiction came around it over the net, that would be an example of spreadability. A big volume of such fan-fiction by J. D. Salinger has come to light, once it comes out in print it would enhance the economic value of the Terminator brand.

Another example would be Harry Potter Alliance, which brings together the fans of Harry Potter to work towards the social equality, and against social discrimination based on race/color/ethnic group etc. around the world. This certainly adds to the cultural value of the original text.

On other hand, fan engagement where new aspects are uncovered about the core story, or a better understanding of it is

2. Continuity / Multiplicity:

When multimedia storytelling aims for a unified experience, we would see a continuity in it. Like between season 3 & 4 of Pokemon a movie fits in. There is a continuity here. Helps a lot when brand is already recognized. Fans of pokemon would like to watch the movie as it enhance their experience. Of course it needn't necessarily be serial, it sure can jump somewhere else, but still be in the same universe. Like James Bond movies, they don't usually carry on one after the other, but are still based in the same universe, the rules don't change.

But another purpose can be served by transmedia storytelling, that of adapting it story for the target audience in that particular medium. For ex, Spiderman India wears dhoti and lives in Mumbai. Now, this a story set in a universe parallel to the core story of the DC comics. This parallel story derives a lot from the visibility and popularity of the comics/ films, but does not have any sort of continuity with it. The pleasure of alternative retelling can certainly add to the experience of the reader of original text. This can be seen in re-imagining of the classics. For ex, Tulsidas's Ramcharit Manas is an alternative retelling of Valmiki's Ramayana. Same goes for many fan-fiction around Transformers. But of course the cultural value added is very different.

3. Immersion / Extractability:

This about how we experience a transmedia story.

2. "Rural-BPOs-looking-good-to-become-Indian-outsourcing-story", an article in Economic Times dated 4th August 2010.

a-phenomenon-in-

Immersion is when we enter the world of the story. This is what happens when you go to a theme park, when you go to Disneyland you enter into the world of Disney. It was immersion that led to the popularity of cinema, and theme parks are coming up around the world.

On the other hand, when you take a mickey mouse toy or an Avatar toyfigure home, you are extracting something from the story's world into the real world. This is what happens with the McD happy meals, yeah, it works even on adults, toy-figure from their favorite movie makes them buy happy meals.

4. Worldbuilding:

This, for me, is the single biggest feature that makes transmedia storytelling so important. Now, a core story, even if it is very good, can live only for so long. A character will live longer, spanning multiple stories. But a world is entirely different ball game. It can have multiple characters, living in multiple story-line.

This isn't something new though. It has a long history in SiFi, like the Foundation world, and in high-fantasy like the middle-earth. Even Kalidasa took advantage of worldbuilding. But it becomes so much natural with transmedia, as impulsively we want all the interactive fictions to be 'encyclopedic'. The campaign to promote District-9 was aimed at building a world for the movie. More recently the campaign around Tron Legacy is banking on the world created by Tron & related media. The life size toy-bike that has come out 11 months before the movie is a step towards enhancing this world.

5. Seriality:

One can think of transmedia storytelling as a story whose plot unveils not as chunks spread in time across a single medium, but across multiple media systems.

Initially, the trend was to have the chunks designed such that they can be consumed in any order. But increasingly creative heads are creating a sequence in which transmedia components of the story are to be consumed. For example, first there is a built-up for the core story across different media (again as in case of District-9) & after the core story has been launched, we

have follow up stories, like the websites for the prawns and different documentaries exposing the agencies of District-9.

The order in which transmedia components are aimed at the audience is getting far tighter control now, as compared to the early days.

6. Subjectivity:

Transmedia extensions focus on the unexplored dimensions of the fictional world.

For example, as it happens when Star Wars games pick up on particular groups - like bounty hunters or podracers - and expands upon what was depicted in the films. Transmedia extensions may also broaden the timeline of the aired material. The thrid function of transmedia extensions may be to show the secondary characters and their experiences and perspectives.

Extensions of these kinds leave longstanding interest in comparing and contrasting multiple experiences of the same fictional events among the readers.

7. Performance:

There are two related concepts in Convergence Culture - cultural attractors and cultural activators. Cultural attractors draw together a community of people who share common interests and Cultural activators give that community something to do. Hardcore fans of the second season of Lost, created their own screengrabs, shared them online, constructed their own maps and tried to decipher the cryptic text and figure out how it related to the depicted events. Thus, the producers had the pressure on them to think about what the fans would be doing with their series and also design spaces for their active participation.

So, the features aren't too different from the features of traditional media. But are more into focus now coz the bet is higher.

Data is growing by leaps and bounds. You throw a query on Google about world's largest database and the returns would give numbers ranging from a few hundred terabytes to yahoo's 2 petabyte DB. They are known as Extremely Large Databases (ELDB). Yahoo and other giants have enough money to spend for turning that big data pie into intelligent information. The concern of this article is not the ELDBs. It is the second and the third tier of databases, where the DB sizes range from single digit TBs (called Large Databases or LDB) to a few hundred TBs (called Very Large Databases or VLDB), which the article would discuss. Most of the enterprises having an IT system have databases of the scale of LDB or VLDB.

The big player

According to IDC's Database Market Share Analysis (2008), Oracle has the highest market share (44.3 %) followed by IBM (21%), Microsoft (18.5%), Sybase (3.5%) and Teradata(3.3%). Though Gartner's numbers are different, but even in their report, Oracle is the market leader with 47.1 % market share (as in 2007). The problem here is that these traditional database vendors, to remain in the ascendancy, keep on pumping budgets for research on BI for ELDB (Extremely Large Databases). This article attempts to give an insight for those not so big databases in the midsize businesses. And as Oracle database has the highest share, let us concentrate more on oracle database.

The evolution

The IT system of any organization evolves over a period of time. A typical IT system would evolve in

three stages viz. Initial stage (Capturing transaction), intermediate stage (Process optimization) and Advanced stage (Business Intelligence). In the initial stage, the enterprise would try to build an application which can help in performing their day-to-day operations and capturing the events. Events like capturing the materials purchased by the purchase department and payment made to the vendor are examples of it. In intermediate stage, they try to find the trends in the processes followed in the organization and accordingly optimize those processes if required. For example, the vendor's payment clearance from the accounts department might be taking two days due to some batch processing or due to the clearance from other departments. The third stage or the advanced stage is the one where the realistic and intelligent information is to be squeezed out of the captured data. We know it as Business intelligence. The trends in the sales during the monsoon sale or effect of discounts on the buying behavior of the customer are the examples of the referred intelligence.



Maturity of IT system in an enterprise

In this approach, the advanced stage and the intermediate stage, to some extent, require large amount of data processing and number crunching. At this

point of time, the organization does not have a BI system neither it has a data warehouse to process its data intrinsic queries. At most the IT department could do is

- a) Replicate the database so that the processing does not affect production environment and
- b) b) merge, scrub, aggregate and organize the data to give some kind of OLAP(Online Analytical Processing)- like replica of the OLTP databases to the users for running their large queries. On top of this, they may also try to de-normalize the tables. But these activities do have a lot of complexities and hurdles if it needs to be done on a daily basis. It would be a nightmare for the DBAs to perform the replication and re-arranging the data. One option is to write a job, but even then, maintaining the job and keeping on tuning the job to match the growing volume of data would be tough. Is there a sustainable and inexpensive solution to this problem? Let us see. Let us try to study a few aspects which can be applied by the organizations at the second and third stage to improve the database performance without moving to the high-end solutions. Let me remind here, we are here referring to the oracle database.

Some Problems and some solutions

First, let us check out what oracle thinks that would be better to do with large tables and the complex queries it has to run. Oracle uses a tool called optimizer. Every time a query is fired in the database, it goes to the optimizer and the optimizer chooses the best plan to fetch the data. There are two types of optimizers- Rule based optimizer (RBO) and Cost based optimizer (CBO). Rule based optimizers are almost obsolete from oracle DBs. Each oracle query has multiple choices for execution plans. The execution plan includes a pointer to the index which

is to be used for a particular column, the order of the tables to be joined, the process to be followed while joining these tables(or which type of join is to be used- nested loop join, hash join, etc.), search for any parallel executions if possible and so on. These execution plans are selected based on the CBO algorithm. To get a glimpse of the execution plan, there are certain methods which Oracle provides, for example: 'explain plan' utility, SQLT or TKPROF.

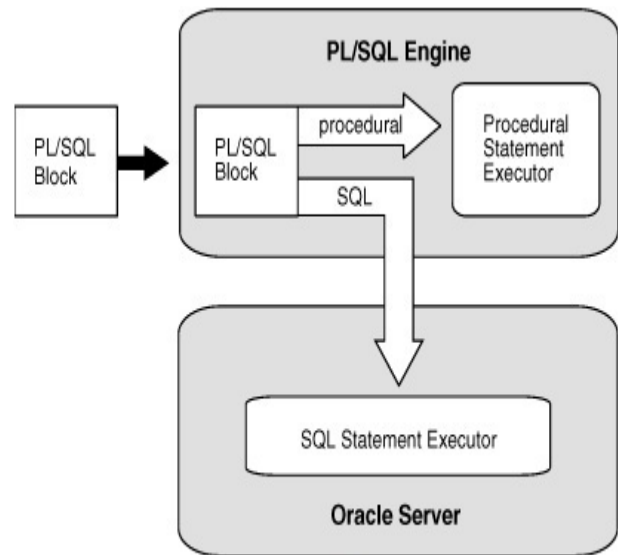
The question here is- how does this CBO makes these plans? Every database environment is different. So the CBO algorithm needs some inputs from the environment for generating these execution plans. These inputs are nothing but statistics generated by oracle for the tables. This statistics include the basic information about the table like the number of records and some calculated information like 'skewness' (elaborate later) of data. This algorithm of getting inputs and finding the best execution plan, works pretty good most of the times. But there are certain conditions where it fails to deliver. One of the flaws in calculating the statistics is that it needs a parameter in percentage which says that how much percentage of data is to be taken as sample for calculating those statistics. As we all would agree that sampled data is always subject to error. It has been observed that most of the DBAs prefer 10-15 % of data as sample. During an experiment we calculated it with 30% and there was a drastic difference in the results. Fortunately they were positive, but be prepared to expect the other way round.

One more problem while analyzing the DB objects is that it tries calculating the skewness of the data. Skewness here is defined as the difference between the largest and the smallest value of the column. If the data is more skewed, then oracle tries building a histogram for that column. This histogram helps in distributing the column values in different buckets

and help while retrieving the results. The limitation here is that oracle does not consider the values in between. For example, if column values are in range 1-10000 and 100000-200000 then oracle would try building histogram for range 1-200000. It does not understand that the range 10001-99999 is empty. We need to make oracle understand that indeed oracle is an efficient and intelligent system but there are such limitations to its intelligence.

One solution to the above discussed problems is to retain the statistics of the database. Other solution is to increase the sample size used to analyze the database objects. This may take time but the results would improve. Moreover changing the environment parameters may also work out. But while doing so, one need to take utmost care and should thoroughly understand the impact of that parameter. There are some more solutions to such problems which are beyond the scope of this article.

Any talk about performance improvement is incomplete without reference to OCI (Oracle Call Interface). We all know about PL/SQL. We make procedures and functions in PL/SQL to process and present the data. OCI can be said as the helping hand when PL/SQL objects become a bottleneck in performance. OCI is a wonderful C based API provided by Oracle for giving an interface to the Oracle database in a low level language like C. OCI provides all the facilities needed to access the database ranging from database administrative tasks to firing queries. Moreover it also fully supports the data types, calling conventions, syntax, and semantics of C and C++. Let us see how OCI can make a difference in overall performance over PL/SQL.



Working of PL/SQL Block

The above figure shows the working of a PL/SQL block. It would require 'PL/SQL Engine' to dismantle the block and fetch the data from the database. If the PL/SQL blocks are bulkier, then engine has to do more work. Now here is the key. Let such bulky operations be performed by a C compiler instead of giving it to PL/SQL engine, the former being faster. We can altogether by-pass the engine and directly throw the queries to the oracle server. It is apparent that OCI would work faster. But here too, we need to take utter care for building such programs. OCI is definitely a very powerful tool. And as with every powerful thing, even this can devastate the environment if not used cautiously.

These were the few aspects which can be helpful when enterprise does not have a full fledged BI system. But again, these measures would not be long lasting. Tuning the databases is very tricky and so is using programming languages to access the data. With the growth of data and complexity of requirement being increased, the organizations would definitely need one of the two – a BI system or an enormously efficient team of administrators and programmer. The choice is yours.

Headquartered in Norwalk, CT, USA, and with 130,000 employees in over 160 countries, Xerox is world's leading enterprise for business process and document management. Xerox has been socially responsible from day one. Since its inception, Xerox has helped shape the idea of corporate social responsibility.

Xerox realised that despite of worldwide initiatives by various organisations



o re-duce paper use, there is still a strong dependence on the printed page for reading and absorbing content. Xerox has estimated that as many as two out of every five pages printed in the office are for what it calls "daily" use, like e-mails, Web pages and reference materials that have been printed for a single viewing. And the global environmental implications of this huge paper demand and in many cases, its subsequent wastage is known to all.

Therefore, in November of 2006, Xerox Corporation announced the development of a technology that they call "erasable paper." The experimental printing technology, which is collaboration between the Xerox Research Centre of Canada and PARC (Palo Alto Research Center Inc.), could someday possibly replace printed pages that are used for just a brief time before being discarded. Erasable paper would make a great contribution to reducing paper usage and waste, and to the environmental problems

caused by the use of trees for wood pulp to make paper.

Scientists at Xerox Corporation have invented a way to make prints whose images last only a day, so that the paper can be used again and again. The technology, which is said to be still in a preliminary state, blurs the line between paper documents and digital displays and could ultimately lead to a significant reduction in paper use.

But there is still much to be done if the technology is to be commercialized. "This will remain a research project for some time," said Eric Shrader, PARC area manager, industrial inkjet systems. "Our experiments prove that it can be done, and that is the first step, but not the only one, to developing a system that is commercially viable."

In its annual search for breakthrough technologies, The Wall Street Journal cited Xerox Corporation's experimental erasable paper as a top innovation in the environment category. It was one of the 30 technologies selected from more than 800 entries in fields ranging from medical/biotech to network security and semiconductors.

According to Xerox's website "The ability to re-image a sheet of paper has enormous environmental implications since re-use is much preferred to recycling. For example, it takes about 202,000 Joules to manufacture one sheet of virgin paper. Even to recycle that sheet takes 114,000 Joules. To re-image every pixel on Xerox erasable paper takes only about 200 Joules, so every re-use can save an enormous amount of energy. At 30 to 100 re-uses per sheet this amounts to a very large savings in energy. Currently there are about 2.5 trillion pages printed worldwide."

There is still no concrete news on when Xerox's erasable paper will make it to stores. But what Xerox is doing with the erasable paper is amazing. Also whenever it is released into the market, a major problem can be its initial high price. However I hope that when it is released people respond well to it. Maybe consumers will overlook the price and try to be more environmentally conscious.

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A call that went crazy



Mr. K : Hello

Store : Hello, Sir. How can I help you?

Mr. K : I had a small complaint. The rice that you delivered to me this afternoon were full of bugs. Now, I paid a lot of money for this and..

Store : Please hold on, Sir. We'll connect you to our sales department.

Mr. K : How would that help?

Sales Department : Hello, Sir. How can I help you?

Mr. K : Your store delivered a pack of rice filled with bugs. I need a replacement right now because I paid a lot of..

Sales Department : Just a minute, Sir. We'll connect you to our renewal department.

Mr. K : Look, I don't need replacement. I just want my money back!

Renewal Department : Yes, Sir. How can I help you?

Mr. K : Give me my money!

Renewal Department : Sir, our financial department handles that. I'll patch you through..

Financial Department : How may I help you?

Mr. K : I need my money back. * yells *

Financial Department : What's the matter, Sir?

Mr. K : You gave me bugs in my rice!

Financial Department : I'll connect you to the food department.

Mr. K : How many departments do you have?

Food Department : Yes, Sir?

Mr. K : Bugs in Rice! Give me my money.

Food Department : Sir, our financial department handles the money affairs. I'll connect you..

Mr. K : Your financial department connected me to you, hoping you can solve my problem.

Food Department : Sir, please calm down. I'll connect you to our Manager.

Mr. K : * almost nears frustration *

Manager : Yes, Sir. How can I help you?

Mr. K : I've got money in my rice. I need my bugs back!

Manager : Excuse me?

Mr. K : * hangs up the phone and goes fishing *

WHY GOOD BUSINESS INTELLIGENCE APPLICATIONS START WITH A DATA MODEL

Data is a strategic differentiator in today's information-based economy. As more organizations realize this, more and more Business Intelligence (BI) initiatives are born. The backbone of any BI initiative is a data warehouse. If a BI report is the flashy sports car, the data warehouse is the engine. A data warehouse is basically a "warehouse for data"—a central storage point for all of the relevant information that is needed for the BI reports. And turning data into information is no small feat. A single piece of information on a report, such as "total sales", can involve the aggregation of hundreds of database tables from multiple geographic and functional areas. And each of these data sources can have different business definitions and physical structures. A major effort of creating a data warehousing is obtaining the "big picture" of what data exists, how it is defined, and what the end result should look like. This is where a data model can come in handy.

A data model for a data warehouse provides the following benefits:

Common language. A data model provides a single agreed-upon set of concepts, definitions, and business rules. Concepts such as Customer and Gross Sales need to be defined consistently. For example, 'Customer' as defined by Accounting must have consistency with the Sales Department definition for 'Customer'. This common language has a direct benefit for the many users of the warehouse, who will interpret the concepts the same way. Take for example this business question: *In what **regions** are*

sales down this year compared to the same period last year? The data warehouse model will have a single agreed-upon definition for all of the terms in bold in this question, therefore increasing the chances of making a profitable business decision based upon the response to this question.

Impact analysis. The data model can be an effective tool for determining overlap and touchpoints. An overlap is when two or more different development teams are impacting the same concept. A touchpoint is when two or more different development teams need to connect with each others' work. An example of an overlap is when two different development teams are both updating customer information. An example of a touchpoint is when one development team is working on Product and another development team is working on Order and there is a dependency of Order upon Product. The link from Order to Product must be successfully managed. The data model can be updated during the lifecycle of the development effort to indicate successfully managed touchpoints and overlaps, as well as those that are experiencing problems.

Scoping and prioritization. With the volume of information in the typical data warehouse, it is critical to provide scope and prioritization when analyzing this information. Creating data models broken down by subject area help provide scope, and allow users to more easily visualize the information at hand. For example, asking a business user to review

the definitions of 1,000 data elements can be overwhelming, but focusing the request on just the 20 elements that relate to Sales Orders makes the information more manageable, and puts it in business context.

Employee education. When new people join the data warehouse team, there is usually a fairly steep learning curve where the new person needs to learn about the system architecture, data architecture, and the business. Starting this person off on the first day with a one hour walk-through of the data model for the warehouse can give them a solid high-level understanding of the area in which they will work, raising their confidence and reducing the amount of time it takes for them to learn the details.

With the high volume of information and complexity between overlapping systems that are involved in creating business intelligence applications, a data model is a critical roadmap to both the technical data infrastructure, as well as the business meaning and context of the information contained within these applications.

CA ERwin® Modeling

www.erwin.com

This article is based on the book *Data Modeling for the Business*, by Steve Hoberman, Donna Burbank, and Chris Bradley, featuring CA ERwin® Data Modeler. CA ERwin® has been the name associated with data modeling for years. Today, we offer more than just data modeling and have expanded our offering to include data profiling, model validation, process modeling, ERP integration, metadata management, and model management. CA (NASDAQ: CA), the world's leading independent information technology (IT) management software company, provides software to unify and simplify the management of complex computing environments.

RIDDLE ME THIS

The more you have of it, the less you see.
What is it?

Ans: Darkness

What has a head, a tail, is brown, and has no legs?

Ans: A penny.

What English word has three consecutive double letters?

Ans: Bookkeeper.

You throw away the outside and cook the inside. Then you eat the outside and throw away the inside. What did you eat?

Ans: An ear of corn.

I am always hungry,
I must always be fed,
The finger I touch,
Will soon turn red

Ans: Fire

I give you a group of three. One is sitting down, and will never get up. The second eats as much as is given to him, yet is always hungry. The third goes away and never returns.

Ans: Stove, fire, smoke

SOLID STATE DRIVES: EXTENDING FEASIBILITY TO DATA STORAGE

- ANIKET RASTOGI

Introduction

To support better business decision making it is necessary that the parameters that support decision making should be stored in such a way that they are accessible whenever they are required. The storage mediums should be such that they are reliable and also they provide ease of access to data without much loss of time. These storage mediums have seen evolution in the past when all the required information was written by hand on papers to the most efficient storage mediums as flash drives and hard drives what we see today.

Evolution of Data Storage Mediums

The computer storage mediums have also seen a lot of evolution in the past decade or so. They have evolved from small capacity and unreliable floppy drives to large capacity and highly reliable flash drives and from magnetic tapes based hard drives to NAND no volatile memory based Solid State Drives (SSD).^{[1][5]} Although hard disk drives have been a faithful servant to computing for many years. But with head, platter, magnetic surfaces, spindle and an array of other complex moving parts, they are most certainly fallible. They can be slow, too: disks have to start spinning if they're not already doing so, then they have to get the head to the correct position on the disk to read or write the data. Add this to the physical problems occurring when a piece of dust or other foreign object gets into the mechanism, or when an impact jolts the drive, and we have a distinctly imperfect system. Solid State Drives address many of these timing and structural problems inherent in the hard disk drive.



Traditional hard disk drive



Solid state hard drive

Advantages of SSD's^[5]

- With no moving parts, the SSD is much less likely to fail in extreme outdoor temperatures and conditions of vibration and shock when, for instance, it accidentally falls.
- Unlike the HDD, which has high read access time, the SSD has practically no access time since it requires neither seek nor latency time. This significantly improves system boot and file access speed as compared with the HDD.
- With minimal power requirements, the SSD is more power efficient. This is particularly important for road warriors, enabling them to remain productive while in transit.
- Without need for a motor, bearings or a moving head, the SSD generates less heat than the HDD and makes no noise.
- Because of its faster boot-up and read/write speeds, the SSD enhances the overall user experience^[2] on computer notebooks equipped with new operating systems, such as Microsoft® Windows Vista™.

Quantifying the Benefits of SSDs using CPW-like OLTP Workload

On-line Transaction Processing (OLTP) applications are typically thought of as having a large number of users concurrently executing transactions to a database. The transactions vary by application, but usually each transaction produces a substantial amount of I/O to the disk subsystem. Such transactions expect that the response time is not only low, but also consistent throughout the business day.

Introducing SSDs into a production environment may offer many benefits including:^[3]

- An increase in I/O and data throughput
- A reduction in application and disk response time
- A reduction in energy and lab space
- A reduction in number of HDDs needed
- In some situations a reduction in purchase cost

Overcoming Cost Limitations

Cost, for one, has kept flash on the sidelines for notebook computer use. But today, advances in flash semiconductor technologies and lithography (also known as production process, or geometry) are maximizing silicon usage. Whereas the cost of a 32 gigabyte SSD just two years ago was well over \$1,000, today in the first half of 2007 it is available to original equipment manufacturers (OEMs) at \$350. This price is expected to continue to decline rapidly over the next few years^[2]

Catering to Notebook Computing Needs

Enterprise users want their notebook computers to be durable so that their data remains intact and accessible in conditions outside an office environment. They want fast access to their data so that they don't have to keep perspective customers waiting, and they demand an extended battery life so that they can remain productive while in transit.^[3]

A capacity point of 32 gigabytes lets users such as these store their critical programs, files and even personal data on their notebooks, while enabling IT departments to secure the majority of information on corporate servers to maintain control both over confidential data and the level of security that they deem appropriate.

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Once you are done reading, try to solve this

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