

# 1 The Survival of the Information-rich

2 A container arrives at a Ford Assembly plant with thousands of valuable spare parts waiting for its turn to be unloaded. Another container arrives a little later, carrying parts probably a fraction of the value in the first container, yet is the first to be unloaded. Partiality? No. The second container had parts more crucial to the assembly line for that day.

Examples like this are common at Ford. Rather than rely on conventional practices, business managers are simulating and analyzing the impact of each and every action — even the unloading of a container — aimed at extracting the last bit of value. Ford is just one of the many intelligent enterprises that has understood how to use data effectively to derive business benefits. With every human generating about 800 MB of valuable information in a year, approximately three times what they generated three years ago, enterprises now have much more data in store. The challenge of converting this data into information, knowledge and therefore profits is now well and truly on!

## Blame it on the competition...

With growing competition and the decreasing importance of product-differentiation as a selling point, business managers are demanding critical informa-

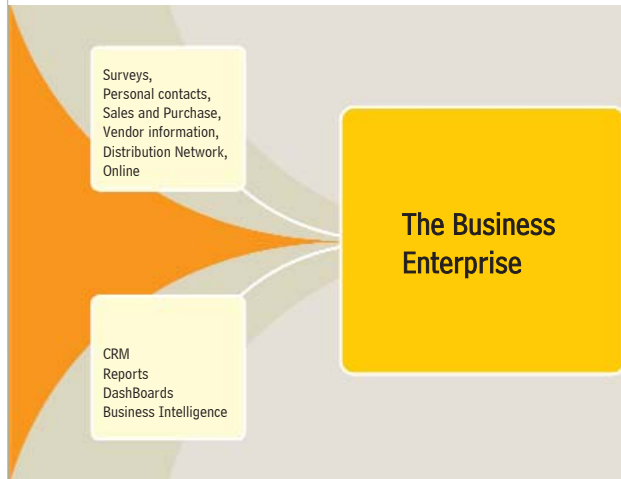


Figure 1.1: The multi-channel, multi-level sources of data

tion at a time and place that helps them take decisions faster to maximize profits. Business managers now want the know-how that would help them be “fast, flexible and focused.”

### The Data Spiral...

Traditionally, a customer walking into a supermarket and buying a toothbrush from your company was viewed as a happy, but isolated fact. Today this fact raises a host of related questions – When did he buy a toothbrush last? Was it the same brand? What else did he

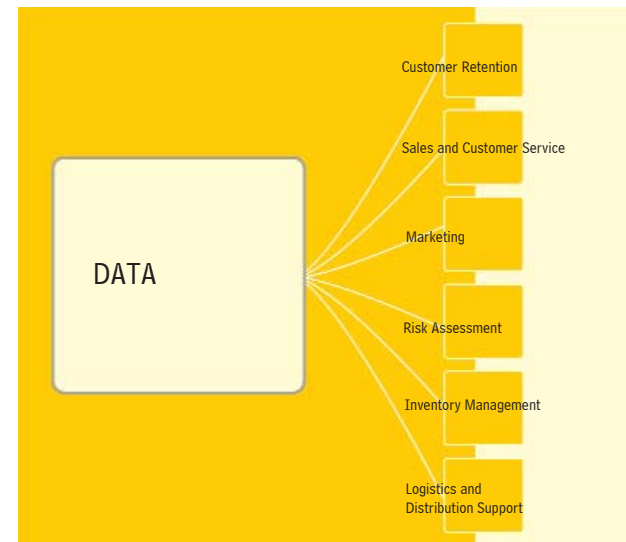


Figure 1.2: How companies are making use of collected data for strategic decision-making

buy? How long did he spend in making that decision? Answers to these questions can lead to deep insights into the consumer’s mind and purchasing behavior, reveal market patterns, identify product characteristics and explain in-store behavior.

### ...That leads to Data Overload

Timely and targeted information is crucial for survival and growth in a competitive environment. And you never know which little nugget might reveal insights. So the solution—capture just about every piece of data. Capturing consumer information at each touch-point, whether it is the retail outlet, or the Web

or the mobile phone is now mandatory. Swipe cards, loyalty cards, discount coupons, membership forms are just some of the popular means to capture consumer data that is ported to enterprise applications such as Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) systems.

However, this complex web of information and its growing density brings its own problems. Inundated with data from multiple sources, but lacking tools to organize and intelligently analyze it, companies run the risk of becoming “data-rich but information poor”. Companies that do this brilliantly, embrace change, identify patterns and predict trends are the ones who survive—the rest perish.

### How data became intelligent

Data is no longer an entry in a form, but a strategic planning tool. Business intelligence allows managers to interpret data and use it as a decision-support system. Says Rebecca Wettemann from Nucleus Research, a leading provider of ROI and TCO research, “.....companies are achieving significant return on investment



#### QUESTIONS ON BUSINESS INTELLIGENCE

Business Intelligence isn't an island to itself. There are several unresolved questions when we consider only a business intelligence solution.

? Does the Business Intelligence offer standard functionality such as querying, reporting and OLAP

from a single user interface?

? Does the Business Intelligence integrate with other information management technologies?

? Is there a tie-in between the business intelligence and the data integration process?

#### THE VALUE OF DATA ANALYTICS

Data Analytics provides clear-cut, measurable parameters to

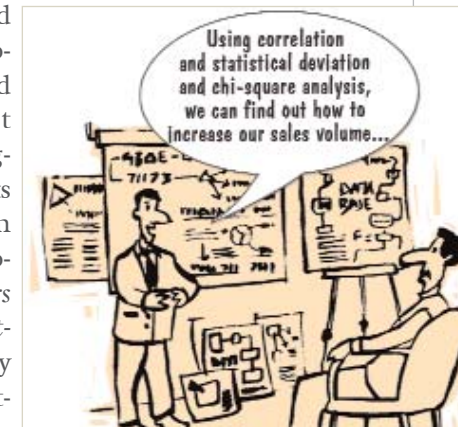
- Take timely action
- Respond immediately and effectively to competitive pressures
- Act proactively to emerging opportunities
- Reduce time taken in crucial decisions
- Reduce technical help involved in simple queries
- Allow any-time querying



by leveraging their existing application and data environment by investing in business intelligence solutions that integrate existing data sources and provide a better view on enterprise operations and performance.” A Forrester Research survey quoted in *Fortune's Tech@work* suggests that 44% of companies polled at the end of 2002 were considering buying business intelligence software in 2003.

#### Data on Desktop

Initial business intelligence and decision-support systems were limited in their ability to provide easily understood data. But the last decade has seen significant developments and investments in computing technology (see Box, “Key Factors Fuelling Data Analytics;”). Nearly, every process from market-





### IT WASN'T ALWAYS LIKE THAT

Operational systems and associated data (manufacturing, inventory, payroll, etc) were God in initial years of systems development. No one really felt the need for business intelligence. If at all someone had a query, it would be last priority. Mainframes added to the woes. All the data resided on the main-

frame which couldn't initially be ported to a new platform or application. These are the legacy systems for today's generation. And generating reports and extracts from these legacy systems required help of the IT group, and special programs had to be written each time.

ing, to operations to logistics to manufacturing or even managing contacts was turned over to a CRM or ERP application. According to Giga, a leading global IT advisory firm, business intelligence started "moving out of the realm of being a niche, departmentally controlled, boutique technology into the mainstream of the enterprise."

With new-found power on the desktop, managers could easily analyze key data for relevant information without having to bother the IT department with inane queries, leaving the IT personnel to do what they know best—maintain, gather, and ensure quality of relevant data.

A new generation of software tools also aided business managers to directly access data to create reports, charts and other models on a real-time basis. In addition, new tools and techniques such as data mining and online analytical processing (OLAP) helped in simplifying visualization and perception of data.

On the flip side, the extracted data addressed needs

of an individual manager and not multiple managers or business users. If only one business manager is using the system, this ends up being very expensive. After all, you don't want to spend millions for one person.

### Intelligence is limited by the data

The quality of analysis and intelligence derived from data is highly dependant on the source data itself. And

### KEY FACTORS FUELLING DATA ANALYTICS

There are different factors that have led to the emergence of data analytics. The main factors, however, remain the developments in hardware and software technologies. Increase in computing power, and easy-to-use software has made analysis of terabytes of data a simple process. In addition, the growth of the Internet, Web-based applications and corporate Intranets have also fuelled the data analytics revolution. This allows data to be stored and accessed on networks at a significantly lower cost, and also does away with the need of replicating data across all regions. With as simple an application as a Web browser, most managers can now easily access key data and get multiple reports and views.

A global corporation has to take many parameters into considera-

tion—currency, economic trend, product taste—before rolling out new products or services. Imagine trying to analyze a country's risk with volatile currency and low growth rates without a consolidated data view, and you realize the importance of data analytics.

Equally, emergence of standard business applications from vendors such as SAP, Oracle, SAS and Baan are gradually replacing custom-built legacy systems.

Extracting information from such systems is simpler than from traditional ones.

Technologies that led to emergence of Data Analytics included the increased computing power, the easy-to-use software, the rise of the global corporation, use of standardised applications coupled with the savvy end-user.







## DEFINITIONS

**Business Analytics:** A tool that enables managers to query and report on information gathered from a data warehouse.

**Data Mart:** A Data Mart is a smaller Data Warehouse that can operate stand-alone or act as subset of a larger warehouse.

**Data Mining:** Data Mining is a form of business intelligence that is predictive and discovery-oriented in nature. It tries to forecast future trends or give insights into interesting details.

**Data Warehouse:** In a data warehouse, data and information is extracted in a co-ordinated, architected, and periodic fashion from various sources as they are generated. This data can be easily analyzed and queried.

**Discover:** This is the first of three logical steps that an organization will go through when it decides to start a warehousing project. The other steps are Prepare and Transform.

**EAI (Enterprise Application Integration):** This refers to the plans, methods, and tools aimed at modernizing, consolidating, and co-ordinating the computer applications in an enterprise.

**Extraction, Transformation and Loading:** A set of activities that are required to populate data

warehouses and OLAP applications with good quality, clean, and consistent data.

**Meta Data:** Meta data is data about data. This includes information about the original source, when it was modified and by whom.

**OLAP:** OLAP stands for Online Analytical Processing, and is part of the business intelligence tools required to query data and analyze what happened or why it happened.

**Prepare:** The second of three logical steps that an organization will go through when it decides to start a data warehouse project. Typically, an organization will use data cleansing and metadata analysis applications. The other steps are Discover and Transform.

**Real-time:** Real-time refers to the ability of two applications to share data with zero latency.

**Transform:** The third of three logical steps that an organization will go through when they decide to go for a data warehouse project. In the process, typically, an organization will use a data ETL application and metadata analysis tool. The other steps are Prepare and Discover.

## L'OREAL: DATA EVERYWHERE, NO INFORMATION

In 1997, L'Oréal had collected huge amounts of information on sales and marketing, but the data was absolutely disorganized. Few managers outside the IT department knew how to mine this information. Sales figures used to be on one set of files, data on returns in another place and net sales figures in a third set. Business managers had to tell programmers whenever they wanted information on par-

ticular products. Such requests took days to prepare and most reports used to run into 50 pages, increasing the difficulty of locating the information. Also, these reports were to pre-arranged in specific categories, so brand managers had a hard time trying to cross-tabulate information. In short, the system was too slow and inefficient. People spent more time getting the data than learning from it.

sources is exponentially increasing. Friendly interface, integrated features, usability issues, provision for porting stuff, multiple views.... These were just some of the new things that managers suddenly wanted. The business user actively sought nuggets of information across departments and functions. That's when it was time to call in the Data Analytics expert.

Data Analytics is a process that

- looks at data from the time it comes into the system;
- assists in the extract, transform and load (ETL) process;
- helps set up the warehouse to store the data and
- mines the data using data mining tools and OLAP for meaningful information.

Data Analytic solutions allow you to look at enterprise data closely. Business managers have the flexibility of preparing different scenarios and models.

How exactly does Data Analytics work? More on that in the next chapter.

