

## Class 3



## BI-what?

- Business intelligence is NOT transaction processing
  - **Online transaction processing (OLTP)**  
Each request is a transaction (computerized record of a discrete event)  
CRM, ERP are stored as OLTP  
“Black hole”: information goes in but never comes back; hard for end-user ad-hoc queries, reports; everything should be programmed by IT staff

## BI-what : OLAP

- To resolve the “black-hole” problem DW, OLAP, and BI were created
  - **Online analytical processing (OLAP)**  
Enables the user, while at a PC, to query the system, conduct an analysis, and so on. The result is generated in seconds

<http://www.dundas.com/Products/Chart/NET/OLAP/Multimedia/index.htm>

<http://demos3.dundas.com/OlapDemo62/>

[http://www.sas.com/technologies/bi/touext/olapviewer\\_itour\\_noflash.html#](http://www.sas.com/technologies/bi/touext/olapviewer_itour_noflash.html#)

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## BI-what : Information Factory

- The information factory view
  - *Enterprise information factory* as a way to describe how companies conduct and organize BI efforts.
  - A cornerstone component of that factory concept is the DW

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# BI-what : Information Factory

An information factory has:

- *Inputs*
  - Data sources
  - Acquisition
- *Processing of inputs*
  - Analysis
  - Data mining
- *Storage*
  - DW
  - Data marts
- *Outputs*
  - Data delivery
  - BI applications

# BI-what : Information Factory

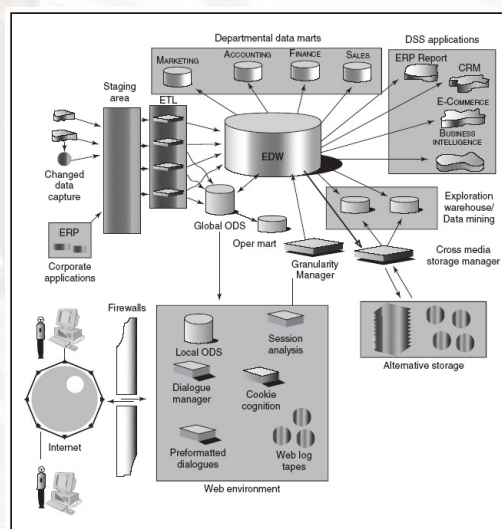


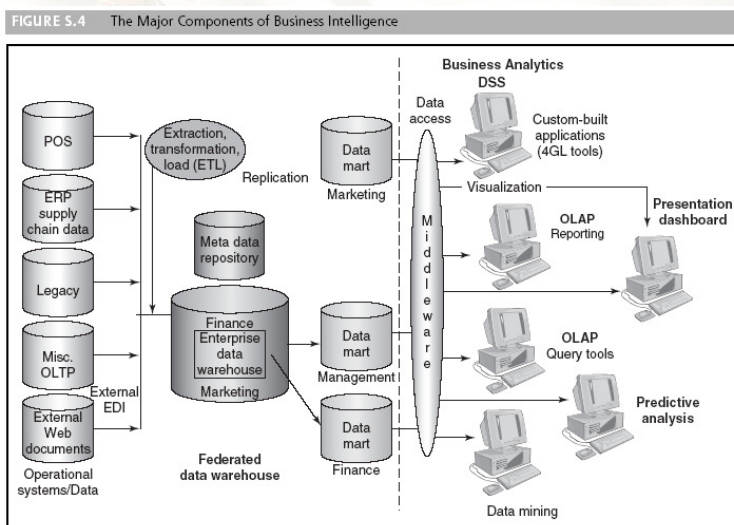
FIGURE S.2 The Corporate Information Factory

## BI-what : DW

- Data warehouse
  - Data flows from operational systems (e.g., CRM, ERP) to a DW, which is a special database or repository of data that has been prepared to support decision-making applications ranging from those for simple reporting and querying to complex optimization

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## BI-what : DW



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## BI-what: DW and real-time reports

- Traditional BI systems use a large volume of *static* data that have been extracted, cleansed, and loaded into a *DW* to produce reports and analyses.
- Users need business monitoring, performance analysis, and an understanding of why things are happening.
- These can alert users, virtually in real-time, about changes in data or the availability of relevant reports, and so on

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## BI-what: DW and real-time reports

- Attaining real-time, on-demand BI
  - The demand for instant, on-demand access to dispersed information has grown as the need to close the gap between the operational data and strategic objectives has become more pressing
  - New data-generating technologies, such as RFID, is accelerating this growth and the subsequent need for real-time BI

<http://www.oracle.com/corporate/press/2778896.html>

<http://video.sybase.com/rfid/TempSensDemoVideo.html#>

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## BI-what: Application Examples

TABLE S.1 Business Value of BI Analytical Applications

Analytic Application	Business Question	Business Value
Customer segmentation	What market segments do my customers fall into, and what are their characteristics?	Personalize customer relationships for higher satisfaction and retention.
Propensity to buy	Which customers are most likely to respond to my promotion?	Target customers based on their need to increase their loyalty to your product line. Also, increase campaign profitability by focusing on the most likely to buy.
Customer profitability	What is the lifetime profitability of my customer?	Make individual business interaction decisions based on the overall profitability of customers.
Fraud detection	How can I tell which transactions are likely to be fraudulent?	Quickly determine fraud and take immediate action to minimize cost.
Customer attrition	Which customer is at risk of leaving?	Prevent loss of high-value customers and let go of lower-value customers.
Channel optimization	What is the best channel to reach my customer in each segment?	Interact with customers based on their preference and your need to manage cost.

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## BI-why?

- Organizations are being compelled to capture, understand, and harness their data to support decision making in order to improve business operations
- Business cycle times are now extremely compressed; faster, more informed, and better decision making is therefore a competitive imperative
- Managers need the *right information* at the *right time* and in the *right place*

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## BI-why: Competitive Intelligence and Advantage

- Strategic imperative because:
  - Barriers to entry of a new competitor to an industry are being significantly diminished
  - An organization that has a strong position within its industry could easily face new competitors because the costs and other constraints to becoming a player in the market have decreased
  - Due to globalization:
    - Cheaper production
    - Cheaper delivery (FedEx, UPS, DHL)

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## BI-why: Competitive Intelligence and Advantage

- Competitive intelligence (CI)
  - CI implies tracking what competitors are doing by gathering sources of materials on their recent and in-process activities
  - BI initiatives use some [outside sources](#) of data are included in the analysis process, but they are often available from third-party vendors
    - [Demographic data](#)

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## BI-why: Competitive Intelligence and Advantage

- Competitive strategy in an industry
  - Focus on a particular market niche, perhaps through some form of product or service differentiation
  - BI applications in this context might include:
    - Making sure customer needs are met and loyalty is built
    - Tracking and remembering customer preferences in the next customer encounter

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## BI-why: Competitive Intelligence and Advantage

- Sustaining competitive advantage
  - Most strategic analysts agree that low-cost leadership may not yield a sustainable advantage unless the low cost can be sustained
  - BI projects and DW are becoming increasingly important weapons in sustaining competitive advantage across industries

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## BI-who?

<i>Types of Users</i>						
<i>Functionality IT</i>	<i>Power Users</i>	<i>Executives</i>	<i>Functional Managers</i>	<i>Occasional Information Consumers</i>	<i>Extranet: Partners and Customers</i>	
Number of users	Few	Dozens	Dozens	Dozens to hundreds	Hundreds to thousands	Hundreds to thousand
BI tools and functions	Developer, administrator, metadata, security, data management	Ad hoc query, OLAP reports, data mining, advanced analysis	Dashboard, scorecard, reports, CPM	Reports, spreadsheets, OLAP view, business activity monitoring (BAM), corporate performance management (CPM)	Reports, spreadsheets	Reports
Strategic value	High	High	Medium	Low	High	
<p style="text-align: center;">← Intranet →</p> <p style="text-align: center;">← Extranet →</p>						

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## BI-how?

- Developing or acquiring support systems
- Justification and cost-benefit analysis
  - Prioritizing the steps of BI
- Security and protection of privacy
  - BI handles critical information
- Integration of systems and applications
  - CRM, ERP, e-commerce, legacy
- The Web in DSS/BI implementation
  - Information portals and MSS

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## BI-how: Development Cycle

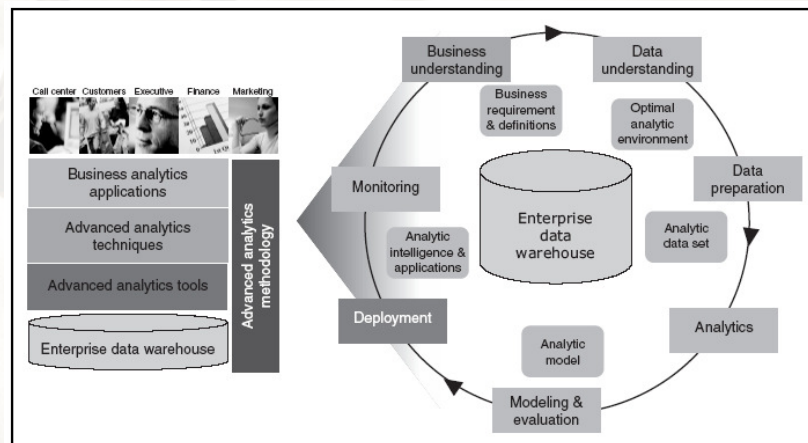


FIGURE S.3 Teradata Advanced Analytics Methodology

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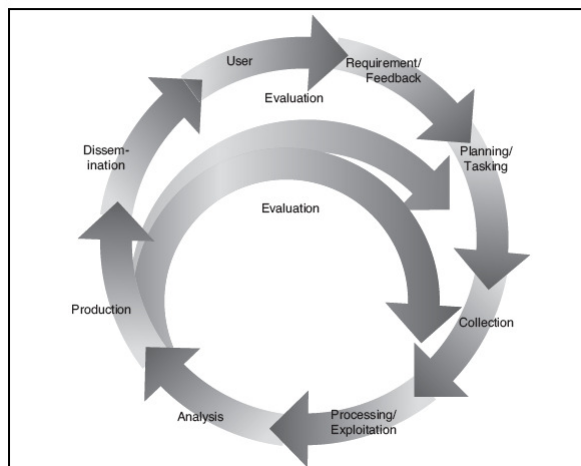
## BI-how: General Process of Intelligence Creation and Use

- Key questions as a framework for BI analysis:
  - How can enterprises maximize their BI investments?
  - What BI functionality do enterprises need, and what are they using today?
  - What are some of the hidden costs associated with BI initiatives?

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## BI-how: General Process of Intelligence Creation and Use

FIGURE S.1 Process of Intelligence Creation and Use



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## BI-how: General Process of Intelligence Creation and Use

- Intelligence creation and use and BI governance
  - **BI governance**
    - Project prioritization process
    - Issues for the BI governance team is to address the following:
      - Creating categories of projects
      - Defining criteria for project selection
      - Determining and setting a framework for managing project risk
      - Managing and leveraging project interdependencies
      - Continually monitoring and adjusting the composition of the portfolio

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## **BI-how: Successful Business Intelligence Implementation**

- The fundamental reasons for investing in BI must be aligned with the company's business strategy
  - Not a technical exercise for IT staff!
- BI must serve as a way to change the manner the company conducts business by improving its business processes and transforming decision-making processes to be more data driven

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## **BI-how: Successful Business Intelligence Implementation**

- A framework for planning is a necessary precondition
  - At the business and organizational levels, it is important to define strategic and operational objectives while considering the available organizational skills to achieve those objectives
  - Upper managers must build enthusiasm for those initiatives and procedures for the intraorganizational sharing of BI best practices
  - Plans to prepare the organization for change must be in place

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## BI-how: Successful Business Intelligence Implementation

- If a company's strategy is properly aligned with the reasons for a DW and BI initiatives, if the company's IS organization is or can be made capable of playing its role in such a project, and if the requisite user community is in place and has the proper motivation, it is wise to start BI and establish a BI competency center (BICC) within the company

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## BI-how: Case study

- [http://businessobjects.com/pdf/success/France Telecom.pdf](http://businessobjects.com/pdf/success/France_Telecom.pdf)

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## **Business Intelligence Today and Tomorrow**

- Recent industry analyst reports show that in the coming years, millions of people will use BI visual tools and analytics every day
- Today's organizations are deriving more value from BI by extending actionable information to many types of employees, maximizing the use of existing data assets

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## **Business Intelligence Today and Tomorrow**

- A potential trend involving BI is its possible merger with artificial intelligence (AI)
- BI is spreading its wings to cover small, medium, and large companies
- BI takes advantage of already developed and installed components of IT technologies, helping companies leverage their current IT investments and use valuable data stored in legacy and transactional systems

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