MSc Enterprise Software Systems
Business Intelligence

- BI Emerging Trends

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Learning Objectives

- Describe the importance and issues in integrating BI technologies and applications
- Understand Web 2.0, social networking concepts, selected applications and their relationship to BI
- Current and future trends of BI

Opening Vignette…

"BI Eastern Mountain Sports Increases Collaboration and Productivity"

- Company background
- Integrating BI with Social Software
- Proposed solution

BI and Integration Implementation

- Why integrate?
  - To better implement a complete BI system
  - To increase the capabilities of the BI applications
  - To enable real-time decision support
  - To enable more powerful applications
  - To facilitate faster system development
  - To enhance support activities such as blogs, wikis, RSS feeds, etc.

Connecting BI Systems to Databases and Other Enterprise Systems

- Virtually every BI application requires database or data warehouse access
- Integrating BI applications and back-end systems
  - Web scripting languages (e.g., PHP, JSP, ASP)
  - Application integration servers (e.g., WebLogic)
  - Enterprise application integration (EAI)– integration of large systems (BI to ERP, SCM, CRM, KM, etc.)
- New Platforms – Hadoop and MapReduce solutions: http://searchcio-midmarket.techtarget.com/video/Avoid-data-latency-with-Hadoop-Sears-CTO-says?asrc=EM_ERU_19136644

The Web 2.0 Revolution

- Web 2.0: a popular term for describing advanced Web technologies and applications, including blogs, wikis, RSS, mashups, user-generated content, and social networks
- Objective: enhance creativity, information sharing, and collaboration
- Difference between Web 2.0 and Web 1.x

  Use of Web for collaboration among Internet users and other users, content providers, and enterprises

The Web 2.0 Revolution

- Web 2.0: an umbrella term for new technologies for both content as well as how the Web works
- Web 2.0 has led to the evolution of Web-based virtual communities and their hosting services, such as social networking sites, video-sharing sites
- Companies that understand these new applications and technologies—and apply the capabilities early on—stand to greatly improve internal business processes and marketing

Online Social Networking – Basics and Examples

- A social network is a place where people create their own space, or homepage, on which they write blogs; post pictures, videos, or music; share ideas; and link to other Web locations they find interesting.
  - The mass adoption of social networking Web sites points to an evolution in human social interaction
- The size of social network sites are growing rapidly, with some having over 100 million members – growth for successful ones 40 to 50 % in the first few years and 15 to 25 % thereafter

Online Social Networking – Social Network Analysis Software

- It is used to identify, represent, analyze, visualize, or simulate networks with agents/organisations/knowledge and relationships from various types of inputs
- SNA software tools include
  - Business-oriented social network tools such as InFlow and NetMiner
  - Social Networks Visualizer, or SocNetV, which is a Linux-based open source package

Mobile Social Networking

- Social networking where members converse and connect with one another using cell phones or other mobile devices
- MySpace, Twitter, LinkedIn, Facebook etc offer mobile services

Implications of Business and Enterprise Social Networks

- Business oriented social networks can go beyond "advertising and sales"
- Emerging enterprise social networking apps:
  - Finding and Recruiting Workers
    - See Application Case 14.2 for a representative example
  - Management Activities and Support
  - Training
  - Knowledge Management and Expert Location
  - Enhancing Collaboration
  - Using Blogs and Wikis Within the Enterprise ...>

RFID and BI

- Wal-Mart's RFID mandate in June 2003
- RFID is a generic technology that refers to the use of radio frequency waves to identify objects.
- RFID is a new member of the automatic identification technologies family, which also includes the ubiquitous barcodes and magnetic strips.

How does RFID work?

- RFID system
  - a tag (an electronic chip attached to the product to be identified)
  - an interrogator (i.e., reader) with one or more antennae attached
  - a computer (to manage the reader and store the data captured by the reader)

RFID

	ACTIVE RFID	PASSIVE RFID
Power	Battery operated	No internal power
Required Signal Strength	Low	High
Communication Range	Long range (100m+)	Short range (3m)
Range Data Storage	Large read/write data (128kb)	Small read/write data (128b)
Per Tag Cost	Generally, $15 to $100	Generally, $0.15 to $5.00
Tag Size	Varies depending on application	"Sticker" to credit card size
Fixed Infrastructure Costs	Lower – cheaper interrogators	Higher – fixed readers
Per Asset Variable Costs	Higher – see tag cost	Lower – see tag cost
Best Area of Use	High volume assets moving within designated areas ("4 walls") in random and dynamic systems	High volume assets moving through fixed choke points in definable, uniform systems
Industries/Applications	Auto dealerships, Auto Manufacturing, Hospitals – asset tracking, Construction, Mining, Laboratories, Remote monitoring, IT asset management	Supply chain, High volume manufacturing, Libraries/book stores, Pharmaceuticals, Passports, Electronic tolls, Item level tracking

RFID for BI in Supply Chain

- Better SC visibility with RFID systems
  - Timing/duration of movements between different locations – especially important for products with limited shelf life
  - Better management of out-of-stock items (optimal restocking of store shelves)
  - Help streamline the backroom operations: eliminate unnecessary case cycles, reorders
  - Better analysis of movement timings for more effective and efficient logistics

Reality Mining

- Identifying aggregate patterns of human activity trends
- Many devices send location information
  - Cars, buses, taxis, mobile phones, cameras, and personal navigation devices
  - Using technologies such as GPS, WiFi, and cell tower triangulation
- Enables tracking of assets, finding nearby services, locating friends/family members, ...

Emerging Topics in BI – An Overview
The Future of BI

1. Mobile Analytics
2. Social and Textual Analytics
3. Predictive Analytics
4. Real-Time Analytics

"From now through 2020, a series of triggers will take analytics on a journey toward pervasiveness for all types of data at the point of decision." – Gartner

4 January 17, 2013 Business Analytics: A 2013 HorizonWatching Trend Report © 2013 HorizonWatching Creative Commons Attribution License

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5. Interest grows in data visualisation
6. Self service
7. Hadoop matures
8. Data scientists
9. Education and training

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- Drivers:
  - Growth in Big Data
  - Tools needed
  - Advances in analytics algorithms
  - Advances in open source platforms
- Challenges:
  - Complex tools
  - Integration/embedding
  - Security, performance, scalability

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- Implications:
  - Competitive differentiation
  - New processes, skills/training, leadership
  - Better dashboard tools needed, designed for business users and available on mobile devices

Emerging Topics in BI – An Overview
The Future of BI

Trends

From	To
Offline/Back office	Embedded/real time
Detailed reports	Dashboards
Historical	Predictive