

## Konsep Sistem Informasi

Pertemuan 3

### Dimensions of Information Systems



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### Pustaka

- O'Brien, J. A. 2009. *Introduction to Information Systems*. Universities of Kansas-Lawrence, New York : Irwin/McGraw-Hill.

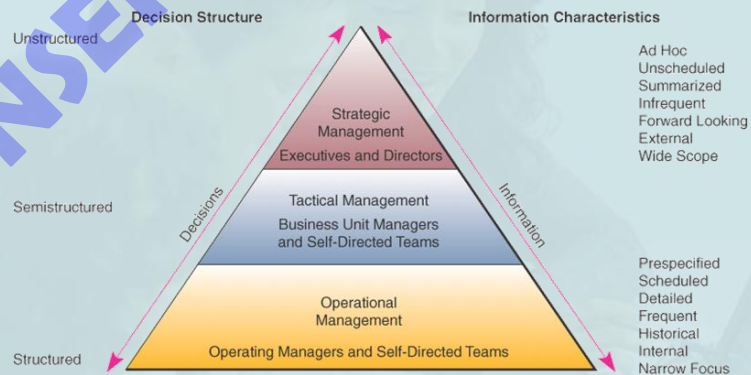
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## Tujuan

- Mahasiswa mampu memahami konsep dasar dari sistem informasi untuk bisnis
- Mahasiswa mampu memahami konsep dasar dari lingkungan sistem, mengetahui klasifikasi sistem informasi berdasarkan level organisasi, area fungsional, dukungan yang diberikan.

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## Information required at different management levels



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## Levels of Management Decision Making

- **Strategic management**
  - eksekutif mengembangkan tujuan, strategi, kebijakan dan sasaran organisasi
  - Sebagai bagian dari *strategic planning process*
- **Tactical management**
  - manajer dan profesional bisnis dalam tim yang bekerja sendiri
  - Membangun rencana jangka pendek dan menengah, jadwal kerja dan anggaran
  - menentukan prosedur, kebijakan dan tujuan bisnis untuk subunit mereka

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## Levels of Management Decision Making

- **Operational management**
  - manajer atau anggota tim bekerja sendiri
  - Membuat rencana jangka pendek seperti jadwal produksi mingguan

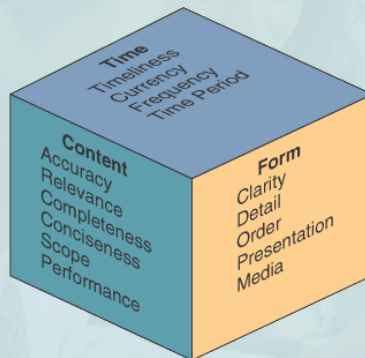
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## Information Quality

- Produk dari informasi yang mempunyai karakteristik, atribut atau kualitas Yng memnjadikan informsi lebih berarti
- Informasi mempunyai tiga dimensi, yaitu:
  - Time / waktu
  - Content / isi
  - Form / bentuk

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## Attributes of Information Quality



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## Decision Structure

- Structured – situasi di mana prosedur yang harus diikuti pada saat keputusan sangat dibutuhkan dapat ditentukan terlebih dahulu
- Unstructured – situasi dimana tidak mungkin untuk menentukan terlebih dahulu prosedur pengambilan keputusan untuk menentukan keputusan
- Semi structured - prosedur pengambilan keputusan yang dapat ditentukan terlebih dahulu, tetapi tidak cukup untuk menghasilkan keputusan yang direkomendasikan

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## Information Systems to support decisions

	Management Information Systems	Decision Support Systems
Decision support provided	Provide information about the performance of the organization	Provide information and techniques to analyze specific problems
Information form and frequency	Periodic, exception, demand, and push reports and responses	Interactive inquiries and responses
Information format	Pre-specified, fixed format	Ad hoc, flexible, and adaptable format
Information processing methodology	Information produced by extraction and manipulation of business data	Information produced by analytical modeling of business data

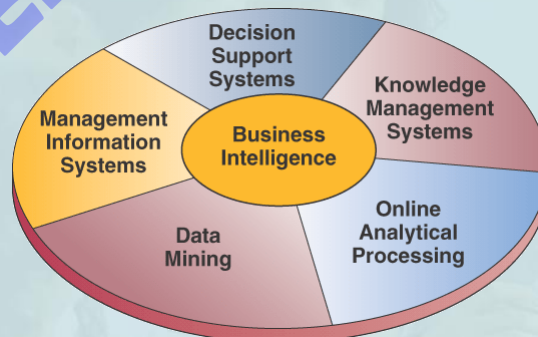
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## Decision Support Trends

- Personalisasi analisis keputusan secara proaktif
- Web-Based applications
- Keputusan di tingkat lebih rendah dari manajemen dan oleh tim dan perorangan
- Business intelligence applications

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## Business Intelligence Applications



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## Decision Support Systems

### • DSS

- Memberikan dukungan informasi interaktif untuk manajer dan profesional bisnis selama proses pengambilan keputusan
- Menggunakan :
  - Analytical models
  - Specialized databases
  - A decision maker's own insights and judgments
  - Interactive computer-based modeling
- Mendukung semi structured business decisions

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## Decision Support Systems

**A Novel Hydro-information System for Improving NOAA's AWIPS DSS for Disaster Management**

**1. Motivations**

The National Oceanic and Atmospheric Administration (NOAA) is the primary U.S. agency responsible for the protection of the nation's coasts and the environment. NOAA's mission is to understand and predict the weather, climate, and oceans, and to provide the information needed to protect and enhance the quality of the nation's coastal and marine resources. NOAA's current DSS for disaster management is based on a legacy of systems that were developed over a long period of time. These systems are often siloed and do not interact with each other, leading to inefficiencies and a lack of comprehensive information for decision makers.

**2. Ideas and Framework**

The proposed system is based on a data integration framework that combines remote sensing information (e.g., precipitation, soil moisture) with hydrological models and other data sources. This framework is designed to provide a more comprehensive and integrated view of the hydrological cycle, enabling better prediction of natural hazards such as floods and droughts.

**3. Remote Sensing Data, Models, and Their Interactions**

The system integrates data from various remote sensing satellites (e.g., TRMM, AMSR2, SMAP, Sentinel-1) and hydrological models (e.g., HEC-HMS, SWAT). The data is processed and analyzed to provide real-time information on soil moisture, precipitation, and other hydrological variables. The system also includes a user interface for data visualization and analysis.

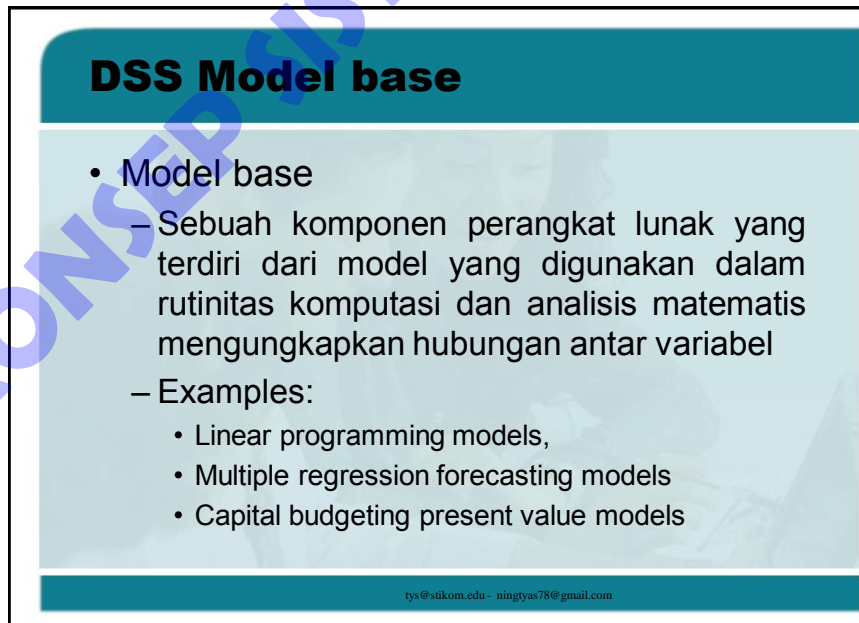
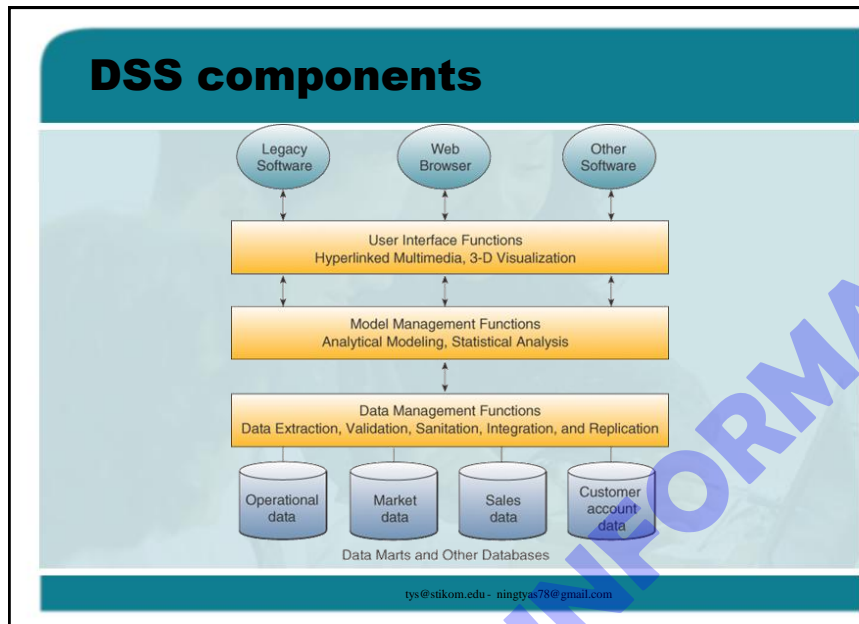
**4. Initial Results**

The initial results of the system show improved accuracy in predicting natural hazards and better integration of data from different sources. The system is currently being tested and evaluated for use in NOAA's AWIPS DSS.

**Hydrological Integrated Data Environment (HIDE)**

Better prediction of natural hazards

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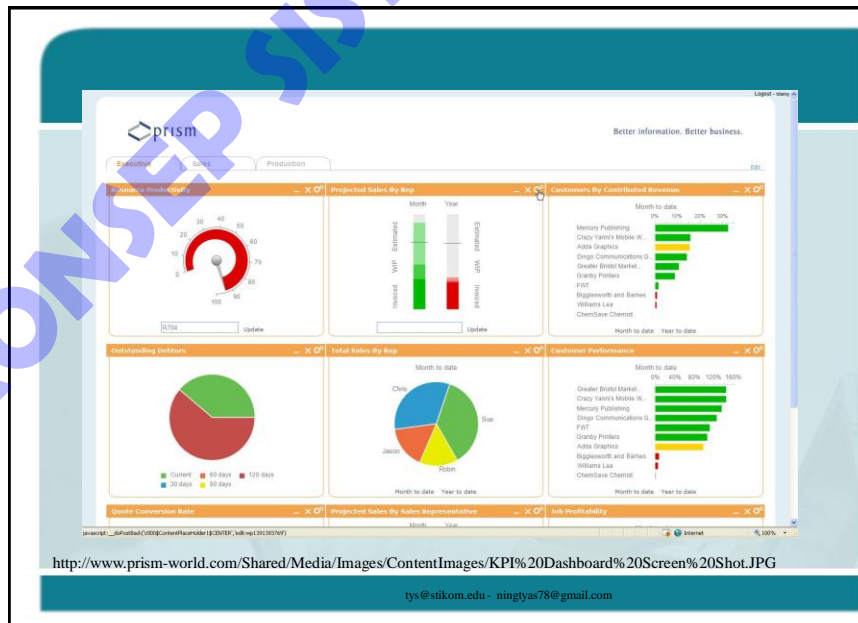


## Management Information Systems

### • MIS

- Menghasilkan produk informasi yang mendukung kebutuhan pengambilan keputusan setiap hari oleh manajer dan profesional bisnis
- Laporan yang ditetapkan sebelumnya, menampilkan informasi dan tanggapan dari informasi
- Mendukung structured decisions

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## MIS Reporting Alternatives

- **Periodic Scheduled Reports**
  - Pre specified format on a regular basis
- **Exception Reports**
  - Reports about exceptional conditions
  - May be produced regularly or when exception occurs
- **Demand Reports and Responses**
  - Information available when demanded
- **Push Reporting**
  - Information pushed to manager

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## Online Analytical Processing

- **OLAP**
  - Memungkinkan para manager and analysts untuk meneliti dan memanipulasi banyak data detail dan penggabungan dari berbagai sudut pandang
  - dilakukan secara interaktif secara real time dengan respon cepat

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## Online Analytical Processing

The screenshot displays an OLAP grid interface. The main data table shows the following data for FY 2002:

Category	Subcategory	Order Quantity	Product Gross Profit Margin	Total
Accessories		1 923	48,38%	48,00%
Bikes	Mountain Bikes	4 951	4,84%	12,00%
Bikes	Road Bikes	10 331	18,38%	12,00%
Bikes	Training Bikes			12,00%
Bikes	Bikes	15 282	12,31%	12,00%
Clothing		4 084	-5,37%	20,00%
Components		2 853	8,84%	10,00%
<b>Total</b>		<b>24 096</b>	<b>12,13%</b>	<b>12,00%</b>

Below the table, there are two charts:

- The products sales in action:** A 3D bar chart showing sales for Accessories, Bikes, Clothing, and Components.
- The total products sales:** A pie chart showing the distribution of sales across the same categories.

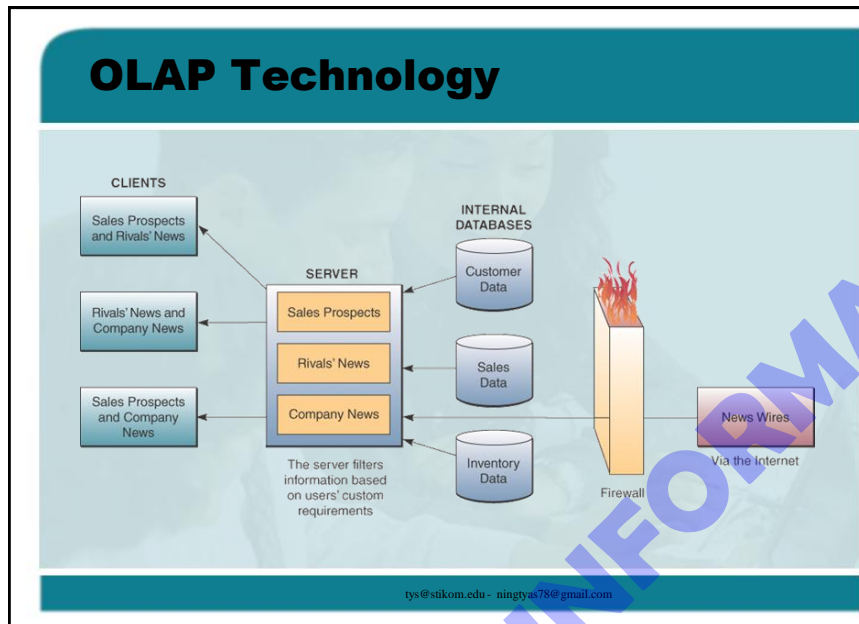
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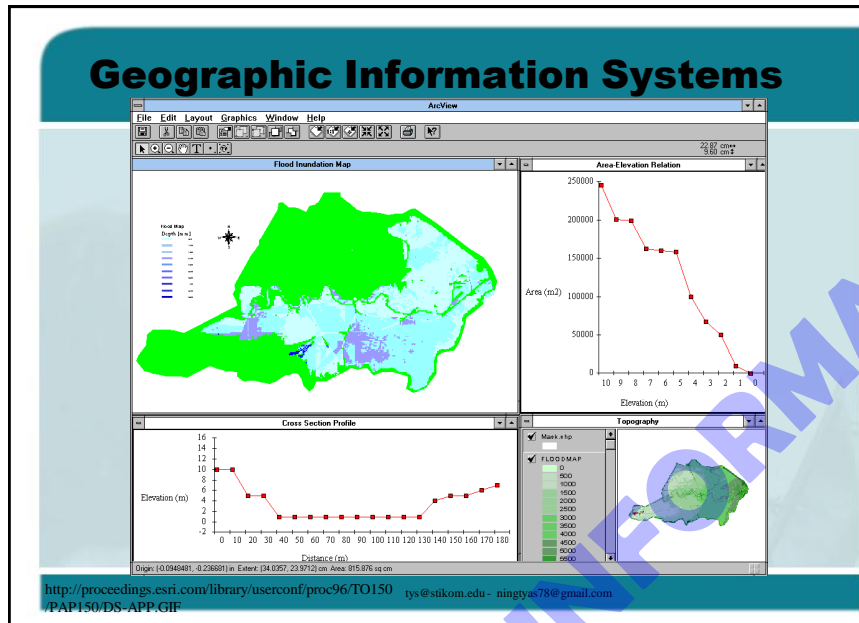
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## OLAP Analytical Operations

- **Consolidation**
  - Aggregation of data
- **Drill-down**
  - Display detail data that comprise consolidated data
- **Slicing and Dicing**
  - Ability to look at the database from different viewpoints

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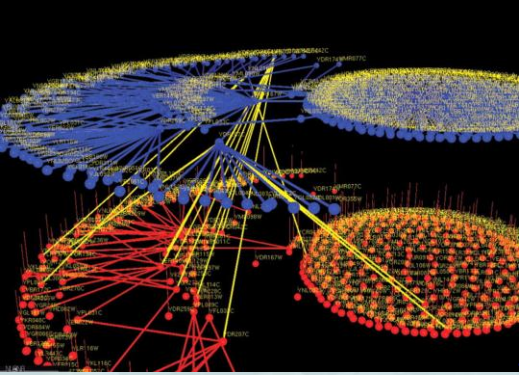


## Data Visualization Systems

- **DVS**

- DSS yang mewakili data kompleks dengan menggunakan bentuk grafis interaktif tiga dimensi seperti bagan, grafik, dan peta
- Peralatan DVS membantu pengguna untuk secara interaktif menyortir, membagi, menggabungkan, dan mengatur data sementara itu dalam bentuk grafiknya.

<http://bioinformatics.oxfordjournals.org/content/25/4/543/F1.expansion.html>



**BioCichlid**

BioCichlid 3D hierarchical visualization of an RNAPII-related network of yeast. Blue nodes indicate proteins while red nodes indicate genes. Blue edges indicate physical interactions, red edges indicate genetic interactions and yellow edges indicate transcriptional regulations from transcription factors to genes.

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## Using DSS

- **What-if Analysis**
  - End user makes changes to variables, or relationships among variables, and observes the resulting changes in the values of other variables
- **Sensitivity Analysis**
  - Value of only one variable is changed repeatedly and the resulting changes in other variables are observed

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## Using DSS

- **Goal-Seeking**
  - Set a target value for a variable and then repeatedly change other variables until the target value is achieved
  - How can analysis
- **Optimization**
  - Goal is to find the optimum value for one or more target variables given certain constraints
  - One or more other variables are changed repeatedly until the best values for the target variables are discovered

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## Data Mining

- Tujuan utama adalah untuk memberikan dukungan keputusan pada manajer dan profesional bisnis melalui **knowledge discovery**
- Analyzes vast store of historical business data
- Tries to discover patterns, trends, and correlations hidden in the data that can help a company improve its business performance
- Use regression, decision tree, neural network, cluster analysis, or market basket analysis

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## Market Basket Analysis

- One of most common data mining for marketing
- The purpose is to determine what products customers purchase together with other products

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## Executive Information Systems

- **EIS**
  - Combine many features of MIS and DSS
  - Provide top executives with immediate and easy access to information
  - About the factors that are critical to accomplishing an organization's strategic objectives (**Critical success factors**)
  - So popular, expanded to managers, analysts and other knowledge workers

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The screenshot displays the Accra Applications software interface. The main window shows a 'Business Summary As Of 11/6/2002 16:11:23' for 'Computers, Inc.'. The interface is divided into several sections:

- Navigation Tree (Left):** Lists various report categories such as Executive Information System, Sales, Purchasing/Vendor, and Assets/Liabilities.
- Main Data Table:**

Sales Order		Purchase Order	
th To Date	Calendar Y.T.D	Month To Date	Calendar Y.T
0	300	0	21,8
<b>Receivable</b>		<b>Accounts Payable</b>	
950,380		Current Balance	311,822
138,000	5,976,713	Purchases	339,577
39,111	3,967,452	Average Purchase	14,721
99,889	2,009,221	Payments	21,002
75,388	2,670,272	Average Payment	7,001
0	0	Trade Discounts	0
0	0	Terms Disc. Taken	0
<b>cash</b>		<b>Inventory</b>	
11,000,000		Average Cost	1,521,640
- Assets By Account Category (Bottom):** A pie chart showing the distribution of assets across different categories.

At the bottom of the screenshot, there is a URL: [http://www.accrasoft.com/comp\\_executive\\_information\\_system.htm](http://www.accrasoft.com/comp_executive_information_system.htm) and an email address: [tys@stikom.edu - ningtyas78@gmail.com](mailto:tys@stikom.edu - ningtyas78@gmail.com).

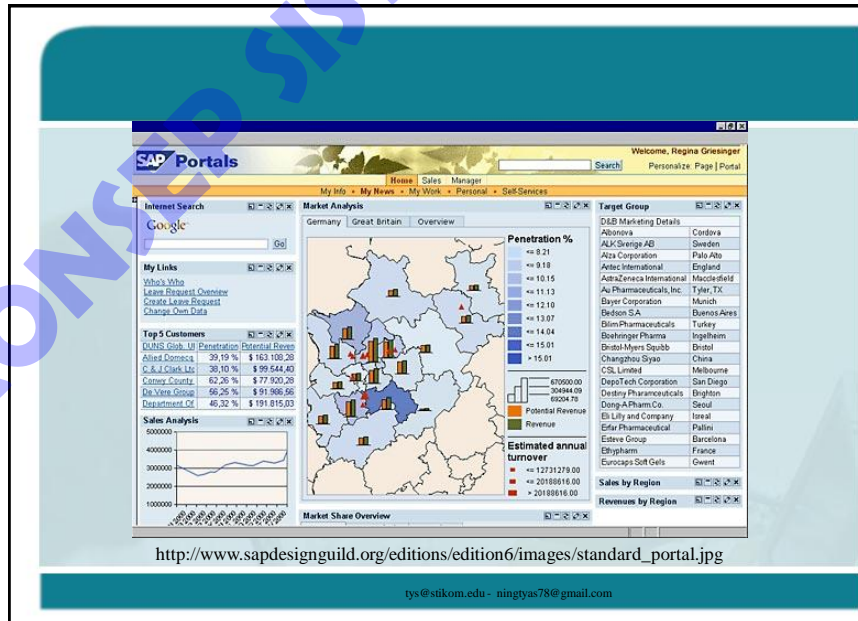
## Features of an EIS

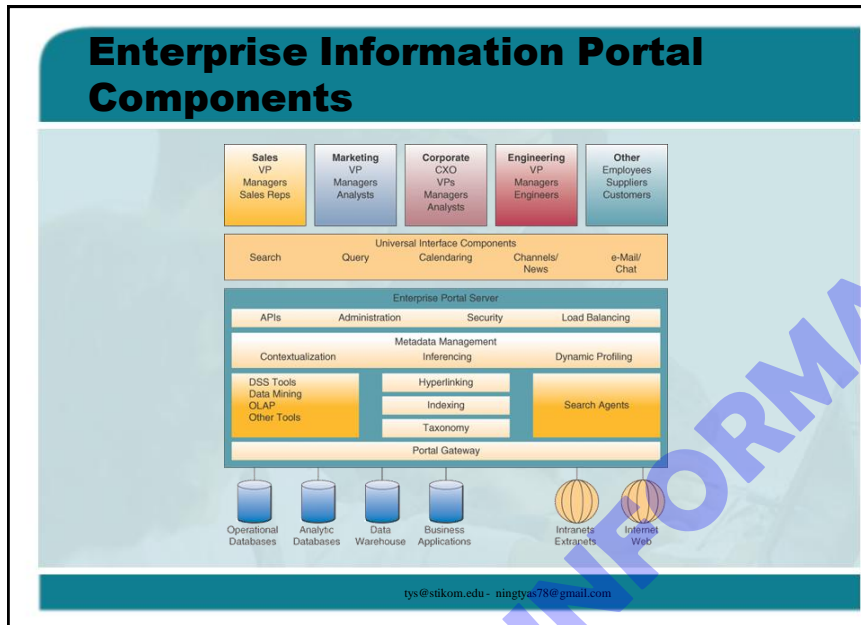
- Information presented in forms tailored to the preferences of the executives using the system
  - Customizable graphical user interfaces
  - Exception reporting
  - Trend analysis
  - Drill down capability

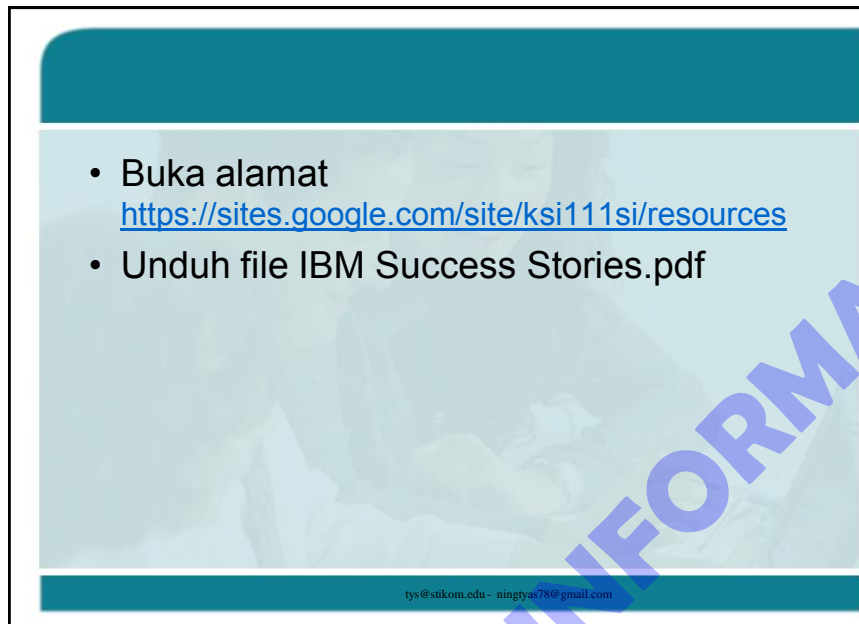
## Enterprise Interface Portals

- EIP
  - Web-based interface
  - Integration of MIS, DSS, EIS, and other technologies
  - Gives all intranet users and selected extranet users access
  - To a variety of internal and external business applications and services
- Typically tailored to the user giving them a personalized **digital dashboard**

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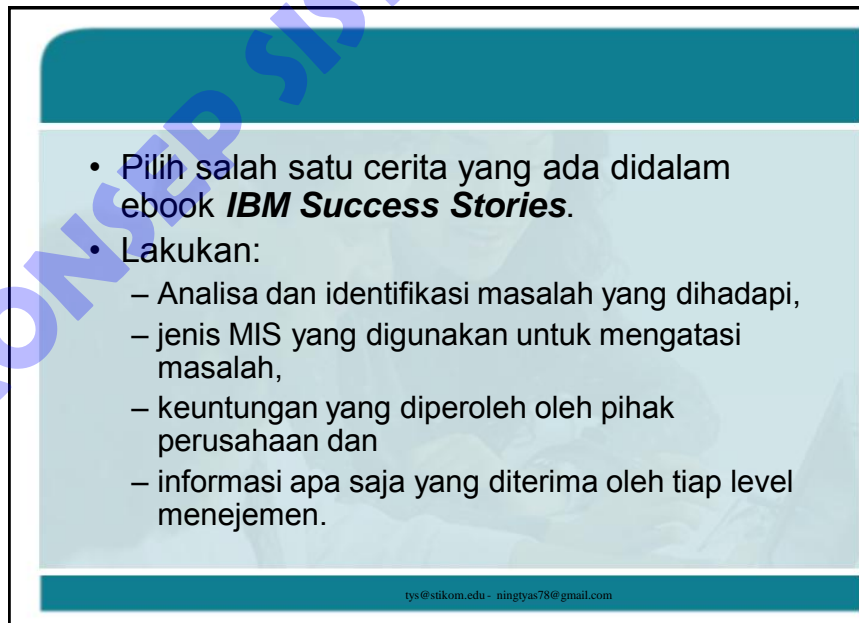




• Buka alamat  
<https://sites.google.com/site/ksi111si/resources>

• Unduh file IBM Success Stories.pdf

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• Pilih salah satu cerita yang ada didalam ebook **IBM Success Stories**.

• Lakukan:

- Analisa dan identifikasi masalah yang dihadapi,
- jenis MIS yang digunakan untuk mengatasi masalah,
- keuntungan yang diperoleh oleh pihak perusahaan dan
- informasi apa saja yang diterima oleh tiap level manajemen.

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- Tuliskan pada blog masing-masing paling lambat 24 September 2012, pukul 20.00 WIB
- Jangan lupa tuliskan referensinya

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