Chapter 1: Role of IS/IT in Organizations

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Course Objective

• Able to evaluate several IS/IT strategies to achieve business objectives
• Understand the potential & strategic use of information technology to organization & banking industry
• Understand the aspects of managing IS/IT from CIO’s perspective
Course Outline

Open word document
SYSTEM

INPUT → PROCESS → OUTPUT

FEEDBACK
FUNCTIONS OF AN INFORMATION SYSTEM

ENVIRONMENT

Customers                                                  Suppliers

ORGANIZATION
INFORMATION SYSTEM

1.12

INPUT → PROCESS → OUTPUT

FEEDBACK

Regulatory  
Agencies

Stockholders

Competitors
Perbedaan

• Sistem Informasi?
• Teknologi Informasi?
• Application: the use of IT to address a specific business process. Maybe custome tailored, maybe generic.
• Why some organization fail to realize any benefit from IT investment?
COMPUTER-BASED INFORMATION SYSTEMS (CBIS)

- FORMAL SYSTEMS
- FIXED DEFINITIONS OF DATA, PROCEDURES
- COLLECTING, STORING, PROCESSING, DISSEMINATING, USING DATA
COMPUTER TECHNOLOGY

- HARDWARE
- SOFTWARE
- STORAGE
- COMMUNICATIONS
- NETWORK

*
Demam “e-”

• E-business
• E-commerce
• Lantas apa bedanya dengan SI/TI? Adakah perbedaan dalam cara mengelolanya?
• Yang membuat Internet signifikan:
  – Pervasive
  – Interactive
  – Media penghubung banyak pihak
SCOPE OF INFO SYSTEMS

• 1950s: TECHNICAL CHANGES
• 60s-70s: MANAGERIAL CONTROL
• 80s-90s: INSTITUTIONAL CORE ACTIVITIES

GROWING IMPORTANCE
<table>
<thead>
<tr>
<th>KIND OF SYSTEM</th>
<th>GROUPS SERVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRATEGIC LEVEL</td>
<td>SENIOR MANAGERS</td>
</tr>
<tr>
<td>MANAGEMENT LEVEL</td>
<td>MIDDLE MANAGERS</td>
</tr>
<tr>
<td>KNOWLEDGE LEVEL</td>
<td>KNOWLEDGE &amp; DATA WORKERS</td>
</tr>
<tr>
<td>OPERATIONAL LEVEL</td>
<td>OPERATIONAL MANAGERS</td>
</tr>
<tr>
<td>SALES &amp; MARKETING</td>
<td></td>
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<tr>
<td>MANUFACTURING</td>
<td></td>
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<tr>
<td>FINANCE</td>
<td></td>
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<tr>
<td>ACCOUNTING</td>
<td></td>
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<tr>
<td>HUMAN</td>
<td></td>
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</tbody>
</table>
MAJOR TYPES OF SYSTEMS

• EXECUTIVE SUPPORT SYSTEMS (ESS)
• MANAGEMENT INFORMATION SYSTEMS (MIS)
• DECISION SUPPORT SYSTEMS (DSS)
• KNOWLEDGE WORK SYSTEMS (KWS)
• OFFICE AUTOMATION SYSTEMS (OAS)
• TRANSACTION PROCESSING SYSTEMS (TPS)

*
TRANSACTION PROCESSING SYSTEMS (TPS)

- Dimulai pada zaman “Data Processing”
- OPERATIONAL LEVEL
- INPUTS: TRANSACTIONS, EVENTS
- PROCESSING: UPDATING
- OUTPUTS: DETAILED REPORTS
- USERS: OPERATIONS PERSONNEL

EXAMPLE: ACCOUNTS PAYABLE
MANAGEMENT INFORMATION SYSTEMS (MIS)

• MANAGEMENT LEVEL
• INPUTS: HIGH VOLUME DATA
• PROCESSING: SIMPLE MODELS
• OUTPUTS: SUMMARY REPORTS
• USERS: MIDDLE MANAGERS

EXAMPLE: ANNUAL BUDGETING
MANAGEMENT INFORMATION SYSTEMS (MIS)

- STRUCTURED & SEMI-STRUCTURED DECISIONS
- REPORT CONTROL ORIENTED
- PAST & PRESENT DATA
- INTERNAL ORIENTATION
- LENGTHY DESIGN PROCESS
TPS DATA FOR MIS APPLICATIONS

TPS
- Order Processing System
- Materials Resource Planning System
- General Ledger System

MIS FILES
- SALES DATA
- UNIT PRODUCT COST
- PRODUCT CHANGE DATA
- EXPENSE DATA

MIS

REPORTS
MANAGERS

TPS DATA FOR MIS APPLICATIONS

2.17
## Perbedaan DP dan MIS

<table>
<thead>
<tr>
<th></th>
<th>TPS/DP</th>
<th>MIS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td>Efficient transaction</td>
<td>Effective problem resolution &amp; decision making support</td>
</tr>
<tr>
<td><strong>Information sources</strong></td>
<td>Internal &amp; external transaction</td>
<td>Internal &amp; external transaction + research data</td>
</tr>
<tr>
<td><strong>Information time frame</strong></td>
<td>Recent history, current &amp; near future</td>
<td>Historical data, current &amp; future</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>Algorithmic (very predefined)</td>
<td>Sometimes need human intervention (esp. for decision making)</td>
</tr>
<tr>
<td><strong>Users</strong></td>
<td>Operators</td>
<td>Professionals &amp; middle managers</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>Mainframe/mini computers</td>
<td>Local processing linked to information resources</td>
</tr>
</tbody>
</table>
Lessons from DP era

• Understanding process, not just programming
• Requirement analysis is important
• IT investment financial justification
• Disciplined software engineering process
• Project management in software development
• Planning of interrelated set of systems in organization
Lessons from MIS era

• IS/IT investment can not be justified only in financial means
• The need for organizational policy (not just DP methodology)
• From producing data to serving users
• Data integration is important: using very large database
Strategic IS/IT Management

Difference with ‘traditional IT’ management:

• External factors has significant pressure on the IS/IT management, not just internal factors

• Senior management is involved in making IS/IT investment decision that will drive organization’s future business strategy

• IMPROVE COMPETITIVENESS BY CHANGING THE NATURE / CONDUCT OF BUSINESS
Strategic systems

• Connection to supplier & customer
• Effective use of information in the value adding process
• Enable to deliver new product/service
• Provide executive with strategic information
Revolutionary use of IT

• Business process redesign
• Business network redesign
• Business scope redefinition
Success factors in strategic IS

• External, not just internal focus
• Adding value, not cost reduction
• Sharing the benefits: internally, with supplier & customer
• Business driven not technology driven
• Incremental development
• Use information to develop business
Business, IS & IT Relationship

**Business Strategy**
- Business decisions
- Objectives and direction
- Change

**IS Strategy**
- Business based
- Demand orientation
- Application focused

**IT Strategy**
- Activity Based
- Supply oriented
- Technology focused

External & Internal Factors

Where is the business going & why?

Supports business

What is required?

Direction for business

Needs & priorities

How can it be realized?

Infrastructure & service
• Focusing on technology does not lead to success
• Must consider IT as part of the business solution
• Should be business driven!
• IS/IT strategy must also consider strategies of other functional units
Pertanyaan

• Apa perbedaan dari:
  – Strategic Information System, dengan
  – Information System Strategy?
Definitions

• IS strategy defines the organization’s requirement or ‘demand’ for information & systems to support the overall strategy of the business. It includes what applications to develop in the future.
  – Defines applications portfolio along with its priority

• IT strategy is concerned with outlining how the organization’s IS demand will be supported by the technology (‘supply’)
  – IT architecture, systems development, infrastructure, user support, operations, etc…
Definitions

- **Strategic IS:** Adalah sistem informasi yang dipakai perusahaan untuk mendukung pencapaian keunggulan kompetitif mereka.
Understanding the Boston Consulting Group (BCG) Matrix

- **STAR**
- **WILDCAT**
- **CASH COW**
- **DOG**

Funds $$
The IS Application Portfolio

**STRATEGIC**
Applications that critical to sustaining future business strategy

**HIGH POTENTIAL**
Applications that may be important in achieving future success

**KEY OPERATIONAL**
Applications on which the organization currently depends for success

**SUPPORT**
Applications that are valuable but not critical to success

Closely related and derived from “McFarlan Matrix”

Future
- Important

Present
- Important
- Less critical
Failures from not having IS/IT strategy

- Systems not integrated
- Poor management information: not readily available, inconsistent, inaccurate, too slow
- Misunderstand between users and IT specialist
- Technology strategy incoherent
- Inadequate infrastructure investment
- Localized justification of IT investment can result in inefficiency of overall business context
- Systems has shorter than expected usage
External Context of IT

- **Business Environment & Competitions in Industry**
  - Impact of competitor’s strategy
  - Redefines The Organization
  - Supports Information Technology
  - Disrupts IT Innovations

- **The Organization**
  - Provides novel opportunities

- **Information Technology**
  - IT Innovations