

MIS

- Loosely used
 - Study of info sys in business and mgt
 - Specific category of info sys serving mgt level functions
 - As a dept or function
- MIS summarizes the report on a coy's opn using data from TPS
- Uses data from internal and not external events
- Serves routine (weekly, monthly, quarterly etc) questions specified in advance and with predefined procedure for answering them
- Give example

MIS from TPS databases

- Illustration of how MIS obtain data from TPSs or other corporate databases
- The illustration shows 3 TPS systems supplying summarized transaction data at the end of a time period to the MIS reporting system
- Mgrs gain access to organizational data thru MIS which provide them with appropriate reports
- Most MIS are inflexible and have little analytical power
- Use simple routines (summaries and comparisons as opposed to sophisticated math or statistical models)

DSS

- Also serves mgt level of the org
- Helps mgrs make decisions that are unique, rapidly changing and not easily specified in advance, hence procedure for arriving at a soln may not be fully predefined
- Uses internal info from TPS and MIS, also bring in external info (eg stock prices, inflation, product prices of competition etc)
- Have more analytical power than MIS by design since they are built with a variety of models to analyse data, condense large amount of data into a form that can be analyzed by decision makers
- Very interactive, users can change assumptions, ask questions and include new data sources
- Give example of Maersk voyage estimating system to develop bids for shipping contracts
- Given a customer delivery schedule and freight rate, which vessel should be assigned at what rate for max profit

Role of Mgrs in an org

- Managerial roles are expectations of the activities that mgr should perform in an org
- Mintzberg identified 10 roles categorized into 3
 - Interpersonal role: figureheads motivating, counselling, liason, among member of mgt and team
 - Informational: Nerve centre of the org performing information dissemination and spokesperson
 - Decisional: Allocate resources, resolves conflict, entrepreneurs, make decisions etc – most challenging

Managerial Role and Supporting systems

- Interpersonal
 - Figurehead ==> No IS
 - Leader (interpersonal) =====> No IS
 - Liason =====> Electronic communication
- Informational
 - Nerve center =====>MIS
 - Disseminator (info) =====> Mail, office systems
 - Spokesperson (processing) =====> office systems
- Decisional
 - Entrepreneur ==> No IS
 - Disturbance handler ==> No IS
 - Resource allocator ==> DSS
 - Negotiator ==> No IS

Mgrs and Decision Making

- Most challenging role, mixed success from IS
- DM can be classified into
 - Strategic: determines obj, resources and plan
 - Mgt: how efficiently and effectively resources are utilized
 - Knowledge: how to evaluate new ideas for prods and services
 - Operational: how to carry out specific tasks set forth by mgt and strategic decisional makers

Structured, semi and unstructured

- Unstructured:
 - decision maker must provide judgement, evaluation and insight into the problem
 - Each decision is novel, important and non-routine
 - No well established, well understood or agreed-on procedure for taking the unstructured decisions
- Structured
 - Repetitive, routine, and well established procedure for taking them
- Semi-structured
 - Part has clear cut answer, part does not

Stages of Decision making

- Intelligence:
 - Identifying and understanding the problem (why, where, what, how etc)
 - MIS provides info to identify problems esp MIS that provides exceptions
- (Solution) Design:
 - Possible alternatives for solving the problem
 - Smaller DSS operating with limited data and simple models
- Choice:
 - Selecting from among alternatives
 - DM might need larger DSS using larger dbases to provide cost, consequence, opportunities
- Implementation:
 - Putting the solution into effect
 - Mgrs can use simple reports from MIS or project planning tools

MIS/DSS Spectrum

MIS

- Problem: Routine, structured, to help mgrs monitor and control the business
- Data Type: Mainly all forms from TPS dbases
- Audience: Mgt level and mgrs
- Presentation: defined formats, summaries, exceptions, hard/soft, generated on demand, structured info flow
- Feature: Follows trad sys devt methodology and design,
- Examples

DSS

- Problem: Non-routine, unstructured decision making
- Data Types: Internal and external data of all types, emphasis on models
- Audience: Snr mgt staff
- Presentation: End user control of data, tools, sessions. Mainly graphical
- Features: Mainly iterative, never frozen
- Example: Well logging and drilling
- Also called Business intelligence systems

Types and Components of DSS

- Types:
 - Model-driven:
 - What if analyses using models from standalone systems with good GUI to make models easy to use. E.g. the voyage estimating system of Maersk, IS investment value calculator, etc
 - Data-driven:
 - Use large pools of data in TPSs and other sources (internal or external)
 - Uses Online Analytical Processing (OLAP) and datamining to analyze the data from TPSs or
 - Assignment: Distinguish between OLAP and datamining
 - Trad queries vs queries like compare sales of product A relative to plan by quarter and sales region for the past 2 years

OLAP vs Data Mining

- More discovery driven than OLAP
- Uses hidden patterns and relationships to provide insight into corporate dbases and inferring rules from them to predict future behavior
- The pattern and rules can then be used to guide decision making as well as forecast the effect of those decisions
- The following information can be yielded from data mining:
 - Association: occurrence linked to a single event. E.g. when chips are purchased, Cola is always purchased 67% of the time, but when there is promotion, Cola is purchased 85% of the time
 - Sequence: Events are linked over time. E.g. if a house is bought, then a generator is bought within one week in 48% of the time
 - Classification: Recognizes patterns that describes a group to which an item belongs by examining existing items that have been classified and by inferring a set of rules. E.g. predicting customers who would leave a credit card system, and proactively handling them

Datamining

- Clustering: Similar to classification when no groups have been defined
 - A DSS tool will then discover different groupings or partitioning dbase based on demographics and personal investments
- Forecasting: Uses a series of existing values to predict what other values will be.
 - Give example
- Datamining uses statistical analysis tools as well as neural networks, fuzzy logic, genetic algorithm

Components of DSS

1. DSS Dbase: A collection of current and historical data from a no of applications or groups. Data may also come from extracts from TPSs
2. DSS Software System: Contain s/w tools used for data analysis.
 - May contain several OLAP tools, data mining tools, and a collection of mathematical and analytical models that can be made accessible to the DSS user
- Model: An abstract representation that illustrates the component or relationships of a phenomenon:
 - Physical model (airplane, building etc)
 - Mathematical model: equation
 - Verbal model: e.g a description of a procedure for cancelling orders
 - Examples of models:
 - Optimization models(using linear programming) to derive optimal resource allocation
 - Forecasting models to forecast sales
 - Sensitivity analysis model: Widely used. Uses what if analysis to determine impact of changes in one or more factors on outcome. E.g.

Component of a DSS

- 3. User Interface: Permits interaction between the DSS software tools and users of the system
 - Interface are intuitive, user friendly and easy to use GUIs
- 4. Users: Executives or manager with little of no computer knowledge
- Examples include:
 - Price and route selection by American Airline
 - Customer buying pattern and fraud detection by General Accident Insurance
 - Texas Oil and Gas Corporation: Evaluation of potential drilling site
 - Price, advertising and promotion selection of Frito-Lay, Inc
 - GIS is a special category of DSS that can analyse and display data for planning and decision making using digitized maps. Eg, GIS can help state and local govts to calculate emergency response times to natural disaster or banks to identify the best location to cite a new branch and/or ATM
 - Web-based DSS have become popular in recent times. E.g the web-based DSS of GE that allows u to search a repository of product spec info

GDSS

- GDSS is an interactive computer-based system that facilitates solutions to unstructured problems by a set of decision makers working together as a group (DeSanctis and Gallupe, 1987)
- Groupware and web-based tools for electronic meetings and Vcs are GDSS that are geared explicitly towards communication
- Electronic Meeting Systems (EMS):Used by IBM to make meetings more productive and facilitate communication

Characteristics of GDSS

- 3 elements of a GDSS
 - Hardware: conference facilities (room, tables, chairs, electronic display boards, audio-visual, computer and networking equipments)
 - Software tools
 - Applications to aid group meetings and group decision making. E.g. policy formulation tool, questionnaire tools
 - People: participants, trained facilitators, and support staff

How GDSS Enhance Group Decision Making

- Improved Planning: Outlook meeting scheduling, Webinars, electronic questionnaires etc
- Increased Participation: 5 pple is optimum no without GDSS and GDSS increase productivity with >5pple
- Open Collaborative Meeting atmosphere: Guarantee anonymity of input
- Criticism-free idea generation: Reduces interpersonal conflict by way of anonymity
- Evaluation Objectivity:
- Idea organisation and evaluation:
- Setting priorities and making decisions:
- Documentation of Meetings:
- Access to external information
- Preservation of 'organization memory':

Strategic Planning

- Strategy therefore is a collection of specific, hard-to-imitate activities or efforts an organization makes in its chosen business in order to gain competitive edge
- Thompson and Strickland strategic management processes:
 - Forming a strategic vision of what the company's future business make-up will be and where the organization is headed so as to provide long-term direction and infuse the organization with a sense of purposeful action.
- Setting Objective, which entails converting the strategic intents into actionable outcomes for the company.
- Crafting a strategy in order to achieve desired outcomes.
- Implementing and executing the chosen alternative paths (strategies) in an efficient and effective manner.
- Evaluation of results of the above four actions in order to initiate (if need be) corrective actions in response to intra and inter organizational dynamics.

Strategy vs Operational Effectiveness

- **Operational effectiveness is not strategy**
- Porter distinguished operational effectiveness as performing business activities better than rivals (faster, or with fewer inputs and defect)
- Strategy however is achieving sustainable competitive advantage by preserving what is distinctive about a company. It means performing different activities from rivals or performing similar activities in different ways
- Strategic positioning has 3 principles:
 - Strategy as a process being the creation of unique and valuable position, involving different set of activities.
 - Strategy from the content perspective requiring the need to make trade-offs in competing i.e. to choose what not to do.
 - Strategy as a process involving creation of fit or alignment among various company activities.

Organisation Strategy Dimensions

- Strategic, managerial and operational level decisions
- Environmental turbulence
 - Formulated and realised (extent to which the strategy has been implemented)
 - Planned and actual strategy (strategy with turbulence)
 - Planning and Implementation of strategy

INTRODUCTION Contd.

- Need for strategy in an organisation
 - Gives direction.
 - “glue” to mould independent decisions.
- Types of organisational strategy
 - Corporate strategy (Diversified companies)
 - Business strategy (Single business firms)
 - Functional strategy (The “hows” for each functional unit e.g IS)
 - Operational strategy (Front line organisational mgt. tactics)

INTRODUCTION Contd

- Information Systems Strategy (ISS): Definition
 - ISS brings together the business aims of the company, an understanding of the information needed to support those aims, and the implementation of computer systems to provide the information. (Wilson, 1989)
 - ISS is something which is essentially a planning process in the mind of decision-makers, users and developers of the systems. (Reponen, 1993)

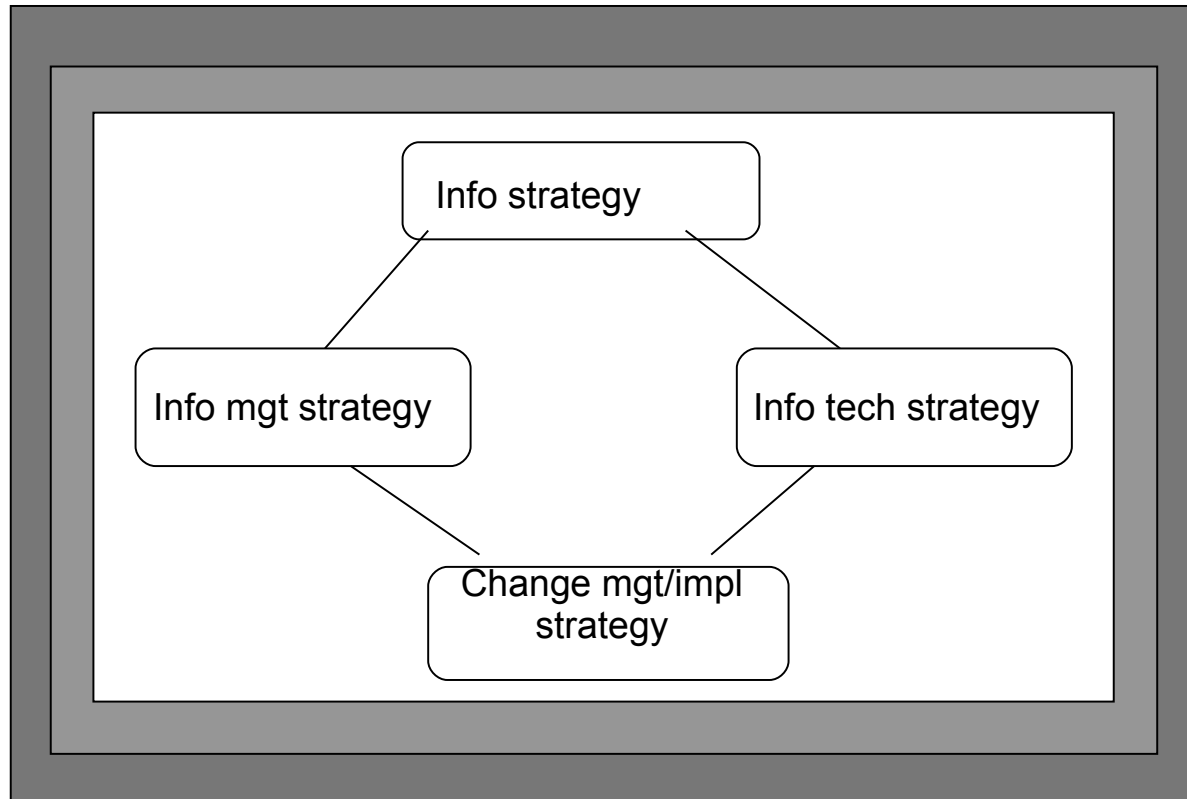
INTRODUCTION Contd.

- Applications of ISS
 - Corporate ISS
 - Business unit ISS.
- Primary role of ISS
 - Align with business aim of the firm

INTRODUCTION Contd.

- Information Systems becomes strategic when it accumulates resources that are:
 - Rare
 - Valuable
 - Non-substitutable.
 - Difficult to imitate.

INTRODUCTION Contd.



Galliers (1993) - Holistic nature

INTRODUCTION Contd.

- ISS and Organisation's Performance
 - IT increases productivity. (Dewan & Min, 1997; Rai et al, 1997).
 - Shin (2001) showed in a US firm-level study that:
 - Increased IT spending improves net profit.
 - No evidence for increases in performance ratios: ROA, ROE.
 - Explanation for Shin's results: (Tam, 1998, Rai et al, 1997)
 - Parallel investment in ICT by competitors.
 - Need to combine ICT investments with other factors.
 - Need for studies in Nigeria.

INTRODUCTION Contd.

- Evaluation of IS spending
 - CIOs and IS Mgrs. Face ROI justification for IS investments.
 - IS expenditure patterns:
 - 2% of turnover in UK and England. (Willcocks and Lester 1994)
 - 1.75% in Italy. (Francalaru and Maggiolini, 1995)
 - 1.25 in Spain (Huerta and Sanchez, 1996).
 - Nigeria ???

Recommended Texts

- Essentials of Mgt Info Systems: Organization and Technology in the Networked Enterprise. 4th Edition by Keneth Laudon and Jane Laudon. Prentice Hall
- Information Systems: The Fundamentals of E-Business. 4th Edition. Steven Alter. Prentice Hall
- Blog - <http://fsc746.blogspot.com/>

Business – ISS Alignment

	Enablers	Inhibitors
1	Senior executives support for IT	IT/business lack close relationship
2	IT involved in strategy development	IT does not prioritize well
3	IT understands the business	IT fails to meet commitments.
4	Business-IT partnerships	IT does not understand the business
5	Well prioritized IT projects	Senior executives do not support IT
6	IT demonstrates leadership	IT management lacks leadership

Strategic Information Systems

- Distinguish between Strategic information systems and information systems strategy?
- Why are OLAP and Data mining important concepts in DSS
- Some management activities are known to be enablers while some are inhibitors of business-IS alignment. Discuss
- What features characteristically distinguishes DSS and GDSS. Give examples

ESS

- Senior managers are more concerned with strategic issues and long term trends, both in the firm and external environment. E.g
- ESS helps snr mgrs makes this decision by addressing non-routine decisions requiring judgement, evaluation, and insight cos there is no agreed-on procedure for arriving at a solution
- Often times uses a portal to present integrated personalised business content
- Usually uses data from external environment but also draw summarized info from MIS and DSS
- ESS filter, compress and track critical data, displaying data of greatest importance to snr mgrs in a dashboard. Eg LAPO ESSportal
- Draw a model of ESS: 3 workstations linked to a box of internal & external data

ESS and BSC

- 2 critical parts to developing an ESS
 - Determine information needs of mgrs i.e the really important performance information
 - Need to develop a system capable of delivering this information to the right pple in a timely manner
- Many methodologies for understanding what really matters. BSC is leading
 - A framework for operationalizing a firm's strategic plan by focusing on measurable outcome on four dimensions of firm performance
 - Performance on each dimension is measured by KPI. Eg of KPI
 - BSC is balanced cos
 - Figure: Firm's strategy and obj linked by 4 arrows to
 - Financial (cash flow, ROI, ROCE, ROE etc
 - Customers (delivery performance, quality performance, customer satisfaction & loyalty)
 - Bus Processes (no of activities, accident ratios, rework ratio, equipment downtime etc)
 - Learning & Growth (Internal promotion %, employee turnover, gender ratios, illness rate etc)

Business value of ESS

- Value is derived from flexibility and ability to analyze, compare and highlight trends with greater clarity and insight
- Timeliness and availability of data results in proaction rather than reaction - “sense and respond strategy”
- Well designed ESS
 - Improve mgt performance and span of control leading to decentralized decision making
 - Helps monitors activities of lower levels and take actions as appropriate

Enterprise Applications

- How do organisations manage disparate applications in org silos?
- Enterprise applications are the answer
- These apps span functional areas, focus on bus process across the firm, and includes all levels of mgt
- 4 major enterprise applications
 - Enterprise systems
 - Supply chain mgt systems
 - CRM
 - KMS
- Each of these enhances the performance of the org as a whole and not fractions or units of the org

Enterprise Systems aka ERP

- Discuss the implications of fragmentation of data. E.g sales selling without an idea of stock levels
- ERPs collect data from different business processes (sales, manufacturing, production, finance, acct, marketing) and stores the data in a single repository so that information can be shared across the firm
- Draw diagram of vendor and customer relationship with 4 org depts (F&A, S&M, M&P, HR) with Enterprise Systems in the middle

Supply Chain Mgt

- One type of inter-organisational system that manages flow of info across org boundaries
- Helps businesses manages relationship with suppliers
- The ultimate goal of SCM is to help organisations get the right amount of their products from their source to their point of consumption with the least amount of time and with the lowest cost

CRM

- CRM helps firms manage relationship with customers
- CRM helps firms identify, attract, and retain customers, provide the best service to existing customers and increase sales
- CRM consolidate customer info from multiple channels – tel, email, wireless devices, retail outlets, and the web
- Accurate info about customers and preferences helps firms increase the effectiveness of marketing campaigns and provide higher quality customer service and support
- CRM integrates info from sales, marketing, and customer service
- A leading provider of on-demand CRM is [salesforce.com](https://www.salesforce.com)

KMS

- KMS enables org to better manage processes for capturing and applying knowledge and expertise. They also help create new knowledge and integrate it into the org.
- These systems collect all relevant knowledge and experience in the firm and make it available whenever and wherever it is needed to improve business process management decisions
- KMS links the firm to external sources of knowledge
- KMS include
 - enterprise-wide systems for distributing documents, graphics and other digital knowledge objects. Eg. Image mgt system for Punch
 - Systems for creating corporate knowledge directories of employees with information
 - Office systems for distributing knowledge and information. E.g Lotus Notes
 - KWS to facilitate knowledge creation
- Other KMS use intelligent techniques that codify knowledge for use by other members of the org and tools for knowledge discovery that recognises patterns and important relationships in large pools of data

Others topics

- Intranets and extranets
- Collaboration and communication systems
 - Internet-based collaboration environments: E.g WebEx, Live Meeting (Microsoft) Google Docs, Adobe Connect
 - Email and instant messaging (210b legitimate email messages sent worldwide daily. 8 billion IM each day)
 - Cell phones and smart phones: >12m Blackberry subscribers. In the US, one third of 300m are business subscribers
 - Social networking: Facebook, MySpace and LinkedIn.com. Lotus Note now has built-in components for Social Networking features
 - Wikis : Wikipedia is perhaps the largest collaboratively referenced projects in the world
 - Virtual worlds – avatars (IBM and INSEAD)