DECISION SUPPORT SYSTEMS

DSS (Decision Support Systems)

a. PEMBUATAN KEPUTUSAN
b. KONSEP DSS
c. TUJUAN DSS
d. MODEL DSS
e. CARA PENGGUNAAN INFORMASI PADA DSS
f. LAPORAN BERKALA dan KHUSUS
g. PEMODELAN MATEMATIKA
h. SIMULASI
i. CONTOH PEMODELAN
j. KEUNTUNGAN dan KERUGIAN PEMODELAN
k. KOMPUTER GRAFIK
l. GROUP DECISION SUPPORT SYSTEMS
m. PERAN DSS DALAM PEMECAHAN MASALAH

- DSS untuk pembuatan *specific decisions* dalam memecahkan *specific problems*.
- Konsep DSS:
  - HERBERT SIMON: pembedaan antara keputusan yang di-program/tidak diprogram serta fase-fase pembuatan keputusan.
  - G. ANTHONY GORRY & MICHAEL S. SCOTT MORTON: pembuatan kisi untuk struktur masalah dan level manajemen.
  - STEVEN ALTER: Dukungan empiris untuk pembentukan dasar topologi DSS

- DSS dikhususkan untuk mendukung manajer:
  - memecahkan masalah semi terstruktur,
  - lebih mementingkan efektivitas dibandingkan efisiensi
- DSS menyediakan informasi untuk memecahkan masalah **serta** kemampuan komunikasi.
- Informasi diperoleh dari: laporan berkala dan spesial, output model matematik dan output sistem pakar.
- Komunikasi dilakukan saat suatu grup manajer melakukan *problem solving*.

- **Komponen DSS:**
  - Pemodelan matematik merupakan komponen integral DSS yang menguntungkan manajer (walau masih terkandung beberapa kekurangan).
  - Komputer grafik: berdasar suatu penelitian grafik cocok utk situasi tertentu; pada situasi tersebut grafik lebih efektif dibanding yang lainnya.
- Group DSS (GDSS): meningkatkan komunikasi antar anggota grup dengan menyediakan lingkungan yang menarik (mencakup pemodelan matematik dan sistem pakar).

a. PEMBUATAN KEPUTUSAN

a.1. TINGKAT KEPUTUSAN (**Herbert A. Simon**):

Programmed Decision NonProgrammed Decision

- *Programmed Decisions*:
    - Berulang dan rutin pada tahap dimana prosedur yang pasti telah ditetapkan untuk menanganinya.
- *Nonprogrammed Decisions*:
    - Novel, tidak terstruktur, dan tidak consequential.
    - Tidak ada metode pasti untuk menangani problem krn:
        - problem belum pernah muncul sebelumnya,
        - struktur dan jenis problem kompleks, atau
        - sangat penting utk mendpt perlakuan *custom-tailored*.

a.2. Empat FASE PEMBUATAN KEPUTUSAN (Herbert A. Simon)

a. INTELLIGENCE ACTIVITY - searching the environment for conditions calling for solution,
b. DESIGN ACTIVITY - menemukan, mengembangkan, & menganalisis berbagai jenis tindakan,
c. CHOICE ACTIVITY - memilih jenis tindakan tertentu yang tersedia pada ad. b.
d. REVIEW ACTIVITY- memeriksa pilihan yang dibuat

ISYU & TREND SISTEM INFORMASI

1. **JUSTIFIKASI EKONOMI**
2. **JUSTIFIKASI NON EKONOMI**
3. **PENINGKATAN PENTINGNYA JUSTIFIKASI SUMBERDAYA INFORMASI**
4. **STRATEGI MENURUNKAN BIAYA INFORMATION SERVICES**
5. **REDESAIN PROSES BISNIS**
6. **FAKTOR-FAKTOR YG MEMPENGARUHI REDESAIN PROSES BISNIS**
7. **“SAFEGUARDING” SUMBERDAYA INFORMASI**
8. **KEAMANAN SISTEM (SYSTEMS SECURITY)**
9. **CONTINGENCY PLAN**
10. **PENTINGNYA ETIKA**

1. JUSTIFIKASI EKONOMI

- Economic justification (≈ cost-benefit analysis) is the comparison of monetary costs and benefits as a means of justifying an action

  - **TIGA PENDEKATAN JUSTIFIKASI EKONOMI:**

    1. BREAK-EVEN ANALYSIS

    - **membandingkan biaya (cost) dari sistem baru terhadap yg ada saat ini dan mengidentifikasi break-even point (cost kedua sistem bernilai sama)**

    2. PAYBACK ANALYSIS

    - **membandingkan biaya kumulatif (cummulative costs) dari sistem baru terhadap keuntungan kumulatif (cummulative benefits)**

    3. NET PRESENT VALUE

    - **is the discounted current value of money that will be received in the future, taking into account a particular interest rate.**

2. JUSTIFIKASI NON EKONOMI

- Is the use of data other than that expressed in monetary terms as a basis for an action
- Pendekatan Justifikasi Non Ekonomi:

1. PORTFOLIO

- evaluation should not be limited to a single application, but rather, should consider the firm's entire portfolio of applications

2. INFORMATION ECONOMICS

- recognizes that a system has the potential to achieve a wide range of values, and incur a wide range of risks

3. SURROGATE MEASURES

- use 4 levels of nonmonetary benefits that can be observed after implementation of a new application

2.1. PORTFOLIO

- Certain components perform better or worse than others; the combined performance of all components is what is count
- Tiga strategy Portfolio Analysis:
  1. Minimize the number of high risk projects
  2. Include some sure winners, even if their expected payoffs are not large
  3. Scrap a project just as soon as the risk appears to be greater than the expected reward

2.2. INFORMATION ECONOMICS

POTENTIAL SYSTEM VALUES:

- Provide information to the elements in the firm's environment
- Support the firm's long-term strategy
- Provide the firm with a competitive advantage
- Enable management to track its critical activities
- Enable management to respond quickly to competitive actions
- Support the firm's strategic plan for information resources

POTENTIAL SYSTEM RISKS

A proposed system should not:

- Support a risky business strategy
- Depend on unproven capabilities within the firm
- Depend on cooperation from multiple functional areas of the firm when that cooperation might be difficult to achieve
- Be based on poorly defined user needs
- Depend on new and untried technology

2.3. SURROGATE MEASURES

The use of the computer as an information system can lead to:

1. Management Action; as a result of receiving information from the computer.
2. Management Change; the managers change the ways that they perform their functions & play their roles.
3. Increased Use of Decision Support Tools; managers acquire terminal/PC, learn & use softwares to solve problems.
4. Organization Change; the computer provides information that is used to change the organization's structure or the makeup of its personnel.

3. PENINGKATAN PENTINGNYA JUSTIFIKASI SUMBERDAYA INFORMASI

- Eksekutif harus melakukan justifikasi untuk keseluruhan information services operations.
- Pemicu situasi:
  - Depresi Ekonomi.
  - computer service companies anxious to take over the firm's computing operations.

4. STRATEGI MENURUNKAN BIAYA INFORMATION SERVICES

- Ada empat strategi:
  - KONSOLIDASI
    - mengurangi banyaknya lokasi information resources, mis. Menjadi INFORMATION CENTER.
    - Alasan: a few large concentration of resoures can operate more efficiently
  - DOWNSIZING
    - the transfer of computer-based applications from large equipment configurations, mis. Mainframe, ke konfigurasi yg lebih kecil, mis. Microcomputers.
  - OUTSOURCING
  - INSOURCING

OUTSOURCING

- Meng-kontrak-kan seluruh/sebagian operasi komputer ke outside service organization.
- Di-mulai akhir tahun 1960-an:
  - excess time ditawarkan ke organisasi lain dalam bentuk timesharing services.
  - sharing computer utilities (electricity, water, & gas).
- Antara 1970-1980 perhatian beralih ke distributed processing, tapi outsourcer tetap provide computer services.
- OUTSOURCER = *a computer service firm that performs part or all of a customer firm's computing for a long period of time*, kontrak 5-10 tahun).

Outsourcing Services:

- Data entry & simple processing.
- Contract programming.
- Facilities management:
  - is the complete operation of a computing center.
- System's integration:
  - is the performance of all the tasks of the system development life cycle.
  - Once the system is implemented, then outsourcer turns it over to the customer.
- Support operations for maintenance, service, or disaster recovery.

Objective of Outsourcing:

1. To do a better job of controlling costs: reducing costs, containing costs, and predicting costs.
2. To relief management from the problems of system maintenance so that attention can be given to systems that provide strategic value.
3. To acquire access to leading edge technology and knowhow.

INSOURCING

- is the action of a firm to regain the processing that previously was farmed out to an outsourcer.
- Alasan Insourcing:
  - outsourcers have no interest in controlling costs since they make money when costs go up.
  - turning over of the processing to *people who don't really know your business.*
  - a loss of control.