SISTEM MODELING

Materi 7

Implementation of Solution

Implementation

- Putting the tested solution to work
- Means translating the mathematical solution into set of easily understood operating procedures or decision rules
- Training all people involved for the proper application of the rules, executing the transition, and preparing complete documentation for future reference

Implementation

- Not easily handled by a systematic approach, good organization and coordination
- Fraught with difficulties that are largely of a human nature –e.g. consider the LOD

Problem of Implementation

1. Relating to the physical task of implementation
2. Relating to the problem user and other individuals affected by the solution –e.g. their personalities, their motivation and pride in the job
3. Relating to the environment of the project –e.g. support by the problem owners or other people at higher echelons in the hierarchy

Problem of Implementation

- OR/MS analyst pays attention of the first factor
- The tendency is to neglect and overlook the human factors of (2) and (3).
- Note: neglecting the human constraints in a system can easily lead to a solution that is **one on paper only** and **is not workable in practice.**

Problem of Implementation

The human constraints may be relaxed in a number of way:

- More involvement of problem user(s)
- Individual who could become obstacles to proper implementation could be transferred (?)
- Technical solution can be adjusted by simplifying the policy or solution rules

Problem of Implementation

For LOD case:

- The stock clerk was viewed as the most important stakeholder for the user' group (pulled in as an active project team member)
- The LOD manager was kept fully informed and regularly consulted during the project.
- Hence, a strong impression of active LOD participation and management support.

Planning for Implementation

- Starts at the outset of any project
- It is not sufficient to start planning for the implementation once the solution has been tested and the report submitted
- **Planning for Implementation Consists of the following elements:**
- Identifying all stakeholders of a problem situation

Planning for Implementation

- Establishing effective lines of communication
- Exploring and managing the prior expectation for the project
- Keeping the problem owners and problem users regularly informed
- Checking out availability and sources of all input data needed

Planning for Implementation

- Ordering of special equipment and commercial computer software
- Developing all software
- Planning and executing the actual process of implementation
- Regularly following-up sessions with problem users

Controlling and Maintaining the Solution

- The environment is constantly undergoing change
- Inputs into the system are also changing
- Such change may be quantitative or structural
- Any changes that only affect the magnitude of inputs –such as the volume of the annual demand for the LOD (quantitative changes)

Controlling and Maintaining the Solution

- A change in the form or nature of an input is called structural –affects the influence relationship between the input and one or more intermediate variables in the model.
- For example –LOD problem (?)
- This structural change **requires a new model**

Controlling and Maintaining the Solution

- **Establishing controls over the solution consists of:**
- Listing for each input (parameters, constraints) –the quantitative change
- Listing of structural form of all influence relationships between inputs and intermediate variables; intermediate and outcome variables.

Controlling and Maintaining the Solution

- How each input has to be measured to assess if a change is significant
- Assigning responsibility for the control of each item
- How the solution has to be adjusted in response to changes (quantitative and structural changes)

Following Up Implementation and Model Performance

Monitoring Implementation:

- The job of the OR/MS analyst is not finished once the solution has been implemented.
- After some time. Enforcement rules for using the solution becomes somewhat lax
- Short cut may have been taken by the users
- It is essential that analyst keeps monitoring the performance of the model

Following Up Implementation and Model Performance

- If any misapplication or misinterpretation of the solution show up, corrective action must be initiated.

Performance audit:

- Checking the extent to which the projected benefit or cost saving have realized.