FEASIBILITY ANALYSIS

The following are the results of the Information gathering phase:

- Deficiency of the current system are found
- Consensus is arrived based on requirements
- SRS Document is prepared

What's next????

Feasibility Analysis

STEPS IN FEASIBILITY ANALYSIS

- Define the goals and sub-goals of the proposed system
- Quantify the goals and sub-goals

  For example: **Send bill soon after month end**

  Quantified statement of the same goal:

  Send bill within 5 days of month end

- Find out whether it is possible to meet these goals.
- Determine the cost of meeting each goal
- Find cost benefit if quantified

GUIDELINES FOR SEARCHING GOALS

- Identify the deficiency by pinpointing
  - Missing Functions
  - Unsatisfactory performance
  - Excessive cost of operations

CHARACTERSTICS OF A GOAL

- Must be quantified
- Realizable with the constraints of the organization and the system
- Broken down into Sub-Goals
- Agreeable to all concerned
- In general goals must not only remove deficiency but also give a system which is superior to those of the competitors of the organization

CASE STUDY-HOSTEL INFORMATION SYSTEM

DEFICIENCIES OF CURRENT SYSTEM IDENTIFIED

MISSING FUNCTIONS

1.1 Stores requirement not forecast

1.2 Purchases not consolidated

1.3 Daily rate calculation not frequently updated

1.4 Menu not planned for balanced nutrition and low cost

CASE STUDY-HOSTEL INFORMATION SYSTEM

DEFICIENCIES (BAD PERFORMANCE)

2.1 Billing not accurate and prompt

2.2 Student bills not itemized

2.3 Stores issue to cooks arbitrary

2.4 Payments to vendors not prompt

2.5 Large variations in mess bills every month

CASE STUDY-HOSTEL INFORMATION SYSTEM

DEFICIENCIES (HIGH OPERATIONAL COST)

3.1 Unpaid and long outstanding bills from students

3.2 Extras and rebates not reflected in stores issues

3.3 Frequent small purchases at high cost

3.4 High transport cost due to not consolidating stores requirements

CASE STUDY-HOSTEL INFORMATION SYSTEM

FORMULATIOIN OF GOALS

MAIN GOALS

MI. Send bill to students within 5 days of the end of month

M2. Control inventory of items in stores & issues to cooks to bring down mess bill by 10%

M3. Balance menu to meet nutritional requirements

M4. Cost of new menu not to exceed current cost

CASE STUDY-HOSTEL INFORMATION SYSTEM

FORMULATION OF SUB-GOALS

S1.1 Itemize bills showing extras and rebates with dates

S1.2 Ensure less than 5% variations of bills from month to month

S1.3 Bills not paid within 10 days of issue brought to the attention of chief warden

S1.4 Update daily rates every day

Main goals M1 and sub-goals S1.1,S1.2,S1.3 remove deficiencies 1.3, 2.1, 1.2, 2.5, 3.1

CASE STUDY-HOSTEL INFORMATION SYSTEM

FORMULATIOIN OF SUB-GOALS

S2.1 Ensure payment to vendors within five days of supply of items

S2.2 Maximum 4 trips per month for purchases. Cartage less than 1% of item cost

S2.3 Reduce inventory level. Level not more than 10% of requirements in a month

S2.4 Issue to cooks every day not to exceed 5% of calculated values

Main goals M1& sub-goals above remove deficiencies:

1.1, 1.2, 2.3, 2.4, 3.2, 3.3, 3.4

EXAMINING ALTERNATIVE SOLUTIONS

HOSTEL INFORMATION SYSTEM

ALTERNATIVE SOLUTIONS

A: Improve manual system

B: Use PC based periodic update system

C: An on-line system with server and several clients

SOLUTION A: MANUAL SYSTEM

Manual System may be improved as follows

- Keep up-to-date running total of extras and rebates for each student
- Use look up table to find material needed each day based on number of extras
- Cost each day's issue and keep running total
- Calculate standard quantities needed and use for vendor order
- Track student payments to find overdue payments
- Solution does not ensure reduction in bill variations and prompt payment to vendors
- Solution not scalable to large student population

SOLUTION B

Use a single PC to

- Prepare students bills-itemize bills
- Prepare number of members who will eat for next two days
- Alert warden when bill not paid within 10 days of issue
- Vendor order generation
- Inventory control of store
- Menu planning

SOLUTION B

PC configuration needed based on data base sizes

PC with:

- 1 TB disk
- 2 GB main memory
- Core i7 Processor
- Printer and Uninterrupted Power Supply (UPS) etc

will cost around Rs.70,000.

SOLUTION C

- Use a server which is accessed by 3 clients one each in the mess, the stores and the accounts sections; perform on-line transaction processing.
- Advantage: Up to the minute status can be found
- Number of transactions small and does not justify 4 computers
- Solution unnecessarily expensive and rejected

EVALUATING ALTERNATIVE SOLUTIONS

- Determine Technical feasibility of each solution
  - is technology mature to implement a solution
- Determine Operational feasibility of each solution
  - will the solution fit in
  - will it provide right information at the right time
- Determine Economic feasibility of each solution
  - are finances available to implement system?
  - will it be cost effective?
  - will the money spent be recovered by savings or by better services to users

TECHNICAL AND OPERATIONAL FEASIBILITY

- Solution B is selected for further consideration
- It is technically feasible as PC of necessary configuration is easily available.
- It is also operationally feasible as clerks in hostel office can be easily trained to use a PC. The necessary problems will be written by system analyst/ programmer hired for this purpose.

COST-BENEFIT ANALYSIS

- Needed to find economic feasibility of proposed solution
- Direct cost

  Cost of computer, software, space, human resource, materials, travel, training etc.
- Indirect cost

  Time spent by persons and data gathering
- Benefit

  Tangible - measurable

  Intangible - better management

  - better user satisfaction

BENEFITS

Direct - Savings due to reduced inventory, early collection of outstanding payments, reduced wastage, faster production, increased production

Indirect –Increased work done with same human resource

Intangible - better service to customers

- superior product quality
- accurate, reliable, timely and up-to-date strategic, tactical and operational information to management

COST – BENEFITS ANALYSIS

CASE STUDY OF HOSTEL INFORMATION SYSTEM

COST : PC, UPS, Printer + Salary (Systems analyst + programmer) for 3 months

Capital 70,000 + 60,000 = 1,30,000

Cost(Recurring) : Stationery, maintenance etc.

Rs. 2000 per month

Benefits : Inventory reduction 5% of mess bill of 400 students

Daily rate = Rs 45

Savings = 45*0.05*30*400=Rs 27,000

- Transport cost saving=Rs 800 per month

- Savings due to early payment to vendors (per day material cost = 37.5)

= material cost*1.2%=37.5*400*30*0.012=Rs 5400

- Savings due to early collection =40*1350*0.01=Rs 540 (40 defaulting students, 1% interest per month)

COST – BENEFITS ANALYSIS

Direct saving=33740

Indirect benefit : student satisfaction due to itemized bill, predictable daily rate, better menu

Net Direct Saving per month= 33740-2000 (recurring)

=31740

Total capital cost = l,30,000

PAYBACK PERIOD

SIMPLE:

Cost 1,30,000

Saving 31,740 per month

Cost recovered in 130000/31740 = 4.1 months

USING INTEREST ON CAPITAL:

Monthly interest = 0.015* 1,30,000

= Rs 1950 per month

Saving per month = 31740-1950 = 29790

Cost recovered in 130000/29790 = 4.4 months

PRESENT VALUE METHOD

Accounts for the fact that a benefit accruing **n** months later will be lower today as the money if available today would have earned interest

If ***r*** = Interest rate in % per month.

n = number of months

x = benefit

Present value of benefit accruing **n** months later is:

Present value = $x/(1+r)^n$

COST-BENEFIT

Present Value method

This account for the fact that benefits each month will also earn interest (interest rate: 1.5%) Present Value = $x/(1+r)^n$

Month	Cost	Net-Benefit	present value of Benefit	cumulative Benefit
0	1,30,000	0	0	
1		31,740	31271	31271
2		31,740	30809	62080
3		31,740	30354	92434
4		31,740	29905	122339
5		31,740	29463	151802

This also give us less than 5 months as pay back period

STRUCTURE OF EXCUTIVE SUMMARY

Feasibility report

- What the proposed system will achieve
- Who will be involved in operating the system
- Organizational changes to implement system
- List of benefits of the system
- Cost of system - Capital +Recurring
- Cost-benefit analysis

SYSTEM PROPOSAL STRUCTURE

- Introduction with outline of proposal
- Data flow diagram of existing system
- Modified DFD of proposed system
- Discuss alternative solutions
- List new equipment to be installed (if any)
- Technical, operational feasibility of analysis
- Cost- Benefit analysis
- New procedures, human resources and training needed
- Anticipated problems
- Implementation plan