Project Management

Project Types, Selection and Initiation

What is an ICT Project?

ICT Project is a temporary endeavor undertaken to create a product or service that includes a significant ICT component such as the implementation of a new system or substantial modifications to an existing one.

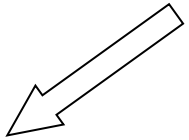
PROJECT TYPES

Greater chance of failure

Works methods well defined

	Yes	No
No	*Type 2 Projects* Product development	*Type 4 Projects* Research & Development
Yes	*Type 1 Projects* Engineering	*Type 3 Projects* Systems Development

Project goals well defined



Greater chance of success

Project Types

Works methods well defined

	No	Yes
	Type 2 Projects • Multi-disciplinary teams • Brainstorm • Define techniques Product Development	*Type 4 Projects* • Inspirational/ creative negotiation • Strategy definition • Communication R&D
	Type 1 Projects • Specialist implementers • Known techniques • Defined organisation Engineering	*Type 3 Projects* • Facilitator • Informed negotiation • Agreed goals Software Development
	Yes	No

Top-down approach

Bottom-up approach

Project goals well defined

PROJECT SELECTION

- Project selection is a three step process that involves:
  1. Evaluating
  2. Choosing
  3. Implementing

Criteria for Model Selection

- Realism
- Capability
- Flexibility
- Required Technologies and ease of use
- Cost
- Easy documentation

The Nature of Project Selection Models

- Models turn inputs into outputs
- Managers decide on the values for the inputs and evaluate the outputs
- The inputs never fully describe the situation
- The outputs never fully describe the expected results
- Models are tools
- Managers are the decision makers

Project Selection Models

- The two major categories of project selection models are:
  - Nonnumeric models
  - Numeric models

Nonnumeric Models

- Models that do not return a numeric value for a project to be compared with other projects
- These are really not “models” but rather justifications for projects
- Just because they are not true models does not make them “bad”

Types of Nonnumeric Models

- Sacred Cow
  - A project, often suggested by the top management that has taken on a life of its own
- Operating Necessity
  - A project that is required in order to keep the company in operation, protect lives or property
- Competitive Necessity
  - A project that is required in order to maintain the company's position in the marketplace

Nonnumeric Models

- Product Line Extension
  - Often, projects to expand a product line are evaluated on how well the new product aligns to existing product line rather than on overall benefits
- Comparative Benefit
  - Projects are subjectively ranked based on their perceived benefit to the company
- Sustainability
  - Focusing on long-term profitability rather than short-run payoff

Types of Numeric Models

- These are models that returns numeric value for comparing with other projects
- Numeric models includes:
  - Profit/profitability
  - Scoring
  - Window-of-opportunity analysis

1. Numeric Model: Profit/Profitability

- Models that look at costs and revenues
  - Payback period
  - Discounted cash flow or Net Present Value (NPV)
  - Internal rate of return (IRR)
- Net Present Value and IRR are the most common methods of revenue estimation

a) Payback Period

- The length of time until the original investment has been recovered by the project
- A shorter payback period is better
- Does not consider time value of money
- More difficult to use when cash flows change over time

b) Net Present Value (NPV)

- Also know as discounted cash flow or just discounting – the value of a cash inflows and outflows
- Requires a percentage to use to reduce future cash flows
- Widely used to evaluate profitability of a project

c) Internal Rate of Return [IRR]

- It is a metric used in financial analysis to estimate the profitability of potential investments.
- The higher the IRR, the better the project
- Finding the IRR requires a financial calculations and computations

Advantages of Profitability Models

- Easy to use and understand
- Based on accounting data and forecasts
- Familiar and well understood
- Gives a go/no-go indication
- Can be modified to include risk

Disadvantages of Profitability Models

- Ignore nonmonetary factors
- Some ignore time-value of money
- Biased toward the short-term
- Payback ignores cash flow after payback
- All are sensitive to errors
- Dependent on determination of cash flows

2. Numeric Model: Scoring

- The numeric Scoring delection model has three submodels that includes:
  - Unweighted 0–1 factor model
  - Unweighted factor model
  - Weighted factor model
  - Window-of-Opportunity Analysis

a) Unweighted 0-1 Factor Model

- A set of relevant factors is selected by management & then listed in a preprinted form.
- One or more raters score the project on each factor, whether or not it qualifies for an individual criterion.
- Each project gets a total score
- Main advantage is that the model uses multiple criteria
- Major disadvantages is that it assumes all criteria are of equal importance

b) Unweighted Factor Scoring Model

- Scores with factor score in a typical 1-5 scale e.g.(very good, good, fair, poor and very poor)
- Column of scores is summed
- Projects with high scores are selected

c) Weighted Factor Scoring Model

- Each factor is weighted relative to its importance
  - Weighting allows important factors to stand out
- A good way to include nonnumeric data in the analysis
- Factors need to sum to one
- All weights must be set up, so higher values mean more desirable

Example

		Requirement score		
Criteria	Weight	A	B	C
X	50%	70	45	40
Y	30%	40	85	30
Z	20%	40	80	50
Weighted Scores	100%	55	64	39

		Requirement score				
Criteria	Weight	A	B	C	D	E
Value	20%	80	45	40	15	35
Risk	20%	60	85	30	20	75
Difficulty	15%	55	80	50	15	25
Success	10%	30	60	55	65	30
Compliance	5%	35	50	60	50	50
Relationships	5%	80	70	50	85	80
Stakeholder	15%	25	50	45	60	60
Urgency	10%	60	25	40	65	80
Weighted Scores	100%	54.8	60.0	43.3	38.0	52.3

		Requirement score		
Criteria	Weight	A	B	
X	50%	70	45	
Y	30%	40	85	
Z	20%	40	80	
Weighted Scores	100%	55	64	

50% x 70
+ 30% x 40
+ 20% x 40
55

Advantages of Scoring Models

- Allow multiple criteria
- Structurally simple
- Direct reflection of managerial policy
- Easily altered
- Allow for more important factors
- Allow easy sensitivity analysis

Disadvantages of Scoring Models

- Measure is relative
- Can have large number of criteria
- Unweighted models assume equal importance

d. Window-of-Opportunity Analysis

- Is a chance/opportunity to do something that will only last for a short time
- It needs to be taken advantage of rapidly; before the **window** is gone
- Example timing in launching of a new product

Choosing a Selection Model

- Weighted scoring models favored:
  - Allow multiple objectives to be considered
  - Easily adapted
  - Not biased toward short-run like the profitability models
  - One can do a combination of the selection methods

PROJECT INITIATION

- Project initiation involves creating and assessing goals and expectations for a new system
- Identifying the business value of the new project is a key to success
- Feasibility study is concerned with insuring that technical, economic, and organizational benefits outweigh costs and risks

How Do Projects Begin?

- Business needs should drive projects.
- Project sponsor recognizes business need for new projects and desires to see it implemented.
- Business needs determine the system's functionality (what it will do).
- The project's business value should be clear.
- Then the process of project initiation begins

Project Initiation Process

1. Initial System Request

Document describing business reasons for project and system's expected value. It lists project's key elements

- Project funder/sponsor– who is funder
- Business need – new market share or improve service to existing customers
- Business requirements - provide online shopping
- Business value – return on investment
- Special issues or constraints - System must be operational by holiday shopping season

Project Initiation Process

2. Preliminary Project Acceptance

- System request is reviewed by approval committee
- Based on information provided, project merits are assessed.
- Worth/promising projects are accepted and undergo additional investigation

FEASIBILITY ANALYSIS

The feasibility analysis based on the following:-

- Economic - Identify costs and benefits, Assign values to costs and benefits, Assess financial viability (NPV, RoI, Break even Point)
- Operational -Cost Benefit Analysis, Tangible benefits (increase efficiency, Reduce costs and errors, prompt reports for decision making), In tangible benefits (competitive advantage, increased staff motivation), operational costs
- Technical – can we manage to do it are we familiar with the technology, do we have the resources, is the technology compatible with existing technologies

Feasibility Analysis

- Schedule – Based on the time frame is it achievable
- Legal and contractual – Do we meet all the legal and contractual requirements
- Political – What is the view of key stake holder in this project. Do they support it?
- Organizational – If we pursue this project how well does it align with the organization goals (mission and vision) and objectives

Risk Analysis

- Risks can be categorized as follows:-
  - Low Risk
  - Medium Risk
  - High Risk

  It is important to identify all the risk factors which can affect the project and rate them e.g.
  - Resource persons may leave,
  - The management may not support the project,
  - Procurement process may delay,
  - For systems end users may reject the system