

CSE4708: Software Project Management

Unit II : Project Evaluation & Estimation

Topic: Cost Benefit Analysis Techniques

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Economic Assessment

Cost Benefit Analysis

Cost/benefit analysis, comparing

- Expected costs
- Expected benefits

Issues

- Estimating costs
- Estimating benefits

Use of financial models to evaluate

Cost-Benefit Analysis-Two Steps

- Identifying and estimating all of the costs and benefits of carrying out the project and operating the delivered application
- Expressing the costs and benefits in common units

Cost Benefit Analysis

Cost Categories

- Development costs
- Setup costs
- Operational costs

Cost Benefit Analysis

Development Costs

- Salaries (base, incentives, and bonuses)
- Equipment for development
 - Hardware
 - Software

Setup Cost

- Hardware and software infrastructure
- Recruitment/staff training
- Installation and conversion costs

Cost Benefit Analysis

Operational Costs

- Costs of operating the system once it has been installed
 - Support costs
 - Hosting costs
 - Licensing costs
 - Maintenance costs
 - Backup costs

Cost Benefit Analysis

Benefit Estimation

- Estimate benefits of new system based on
 - Estimation of **cost savings and money generation** when deployed
 - Value of information obtained for **objective driven project**
 - Value of **intangibles**

Benefits Types

- Direct benefits
- Indirect benefits
- Intangible benefits

Cost Benefit Analysis

Direct Benefits

- Directly accountable to new system
 - Cost savings (e.g., less staff, less paper, quicker turnaround)
 - Money generation (e.g., new revenue stream, new markets)
- Measurable after system is operational
- Have to be estimated for cost/benefit analysis

Cost Benefit Analysis

- An indirect benefit is a return that cannot be directly observed but is nonetheless realized - as opposed to direct benefits like reduced headcount or increased sales that are more easily quantified.
- Worker productivity is the best example of an indirect benefit from a technology; greater efficiency doesn't always lead to the removal of an existing expense item but is realized in the sense that it enables employees to perform their jobs better and faster.

Cost Benefit Analysis

Intangible Benefits

- Positive side effects of new system
- External system (e.g., increase branding, entry to new markets)
- Internal system (increased interest in job for users, enabler for other systems)
- Often very specific to a project; not measurable even after a system is operational
- Part of strategic decision rather than cost/benefit analysis

Cost Benefit Analysis

In the nutshell:

- Identify all the costs which could be:
 - Development costs
 - Set-up
 - Operational costs
- Identify the value of benefits
- Check benefits are greater than costs

Cost Benefit Analysis Techniques

Cost Benefit Analysis Techniques

- Net profit
- Payback period
- Return on investment
- Net present value
- Internal rate of return