Chapter 2: Project Identification and Selection

Objectives

- Understand the importance of linking the information system to business needs.
- Be able to create a system request.
- Understand how to assess technical, economic, and organizational feasibility.
- Be able to perform a feasibility analysis.
- Understand how projects are selected in some organizations.

Successful Projects

- Cost

  At project completion, no more money has been spent than was *originally* allocated

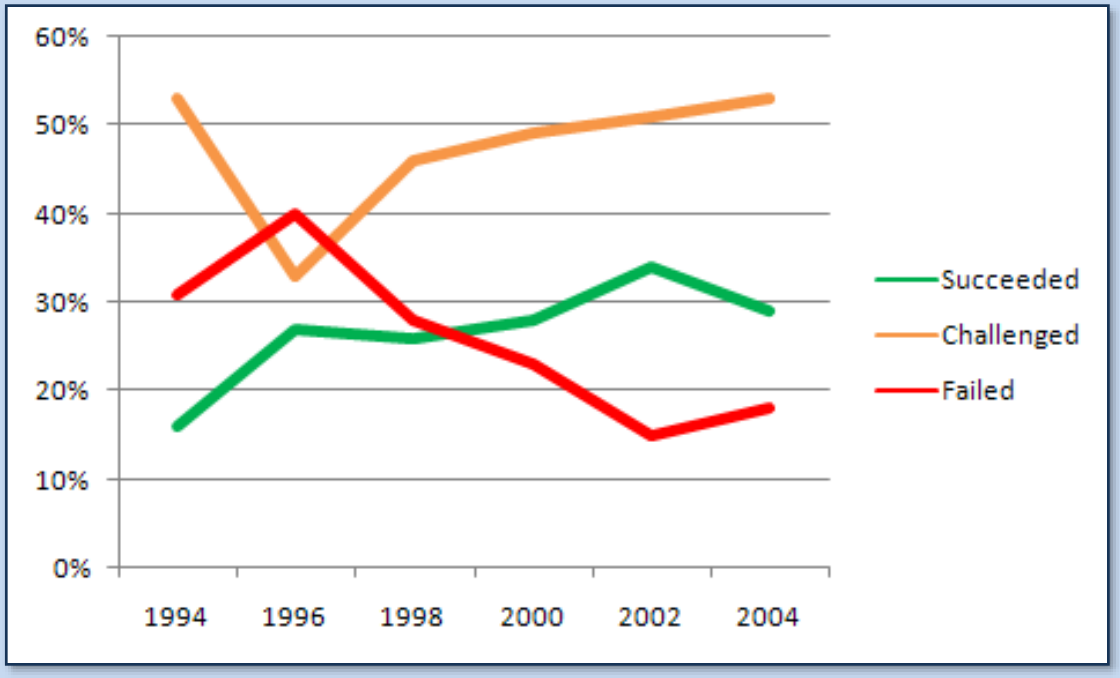
- Schedule

  The project is delivered no later than the original delivery date

- Performance

  When delivered, the project has all features and functionality that were originally required of it

Why Should We Care?



Would **you** buy a car that only had a 28% chance of driving off the lot with **no** problems?

Project Identification

Project Identification and Initiation

- Projects are driven by business needs or opportunity
  - Identified by business people
  - Identified by IT people
  - (better yet) identified jointly by business and IT

Project Identification and Initiation

- A project is a set of activities with a starting and ending point
  - Meant to create a system that brings value to business

Project Identification and Initiation

- Project initiation begins when someone (or some group) (called project sponsor) identifies some business value that can be gained from using IT

Project Identification and Initiation

- The project sponsor believes in the system and wants to see it succeed
  - Normally this is a business person
  - Should have the authority to move it forward

Business Value

- Tangible Value
  - Can be quantified and measured easily
  - Example: 2 percent reduction in operating costs

Business Value

- Intangible Value
  - Results from an intuitive belief that the system provides important, but hard-to-measure, benefits to the organization
  - Example: improved customer service

Other Business Objective Examples

Financial	Nonfinancial
Capture a market share of X% within Y months	Achieve a customer satisfaction measure of at least X within Y months of release
Increase market share in country X by Y% in Z months	Increase transaction-processing productivity by X% and reduce data error rate to no more than Y%
Reach a sales volume of X units or revenue of $Y within Z months	Achieve a specified time to market that establishes a dominant market presense
Achieve X% profit or return on investment within Y months	Develop a robust platform for a family of related products
Save $X per year currently spent on a high-maintenance legacy system	Develop specific core technology competencies in the organization
Reduce support costs by X% within Y months	Have X positive product reviews appear in trade journals before a specified date
Receive no more than X service calls per unit and Y warranty calls per unit within Z months	Be rated as the top product for reliability in published product reviews by a specified date

From : Software Requirements, 2nd edition, Karl E. Wiegers, Microsoft Press, 2003

System Request

- Project sponsor identifies a project
- Identifies the system's business requirements and value
- Formally initiate the project using a technique called system request

System Request

- System request is a document that describes the business reasons for building a system and the value the system is expected to provide

System Request

- Completed by the project sponsor as part of a formal system project selection process within the organization

Elements of a System Request

- Project sponsor
  - Primary point of contact for the project
  - E.g. Several members of finance department, Vice President of Marketing, IT Manager, CIO, CEO, etc.

Elements of a System Request

- Business need
  - Reason prompting the project
  - E.g. Increase sales, improve market share, improve customer service, decrease product defects, streamline supply acquisition processes

Elements of a System Request

- Business requirements
  - Business capabilities the system will need to have
  - E.g. Provide online access to information, capture customer demographic information, produce management reports, include online user support

Elements of a System Request

- Business value
  - Benefits the organization can expect from the project
  - E.g. 3 percent increase in sales, 1 percent increase in market share, $200,000 cost savings from decreased supply costs, $150,000 savings from removal of existing system

Elements of a System Request

- Special issues
  - Anything else that should be considered
  - E.g. Government-mandated deadline for May 30, System needed in time for the Christmas holiday season, Top-level security clearance needed by project team to work with data

FEASIBILITY ANALYSIS

Feasibility Analysis

- Guides the organization in determining whether to proceed with a project
- Identifies the project's risks that must be addressed if the project is approved

Feasibility Analysis

- Mayor components:
  - Technical feasibility
  - Economic feasibility
  - Organizational feasibility

Technical Feasibility

- Familiarity with application
  - Less familiarity generates more risk, greater chance of misunderstanding users or missing opportunities for improvement

Technical Feasibility

- Familiarity with technology
  - Less familiarity generates more risk, need to learn technology, especially higher if technology itself is new

Technical Feasibility

- Project size
  - Large projects have more risk, more complicated to manage, greater chance important system requirements will be overlooked or misunderstood, complexity increases if to be interfaced with other systems
- Compatibility
  - Difficult integration increases the risk

Can we build it?

Economic Feasibility (also called cost-benefit analysis)

- Identify costs and benefits
- Assign values to them
- Calculate cash flow and return of investment
- The more expensive the project, the more rigorous and detailed analysis should be

Should we build it?

Economic Feasibility

1. Identify costs and benefits
   - List tangible costs and benefits, include both one-time and recurring costs
2. Assign values to costs and benefits
   - Work with business users and IT pros to create numbers for each cost and benefit, include intangibles if possible

Economic Feasibility

3. Determine cash flow
   - Project what the costs and benefits will be over a period of time, usually 3 to 5 years
4. Determine Net Present Value (NPV)
   - Calculate the value of future costs and benefits by today's standards
   - Select a rate of growth to apply the NPV formula

Economic Feasibility

5. Determine Return on Investment (ROI)
   - Calculate ROI using formula
6. Determine the Break-Even Point
   - Find the first year in which system has greater benefits than costs

Economic Feasibility

7. Graph the Break-Even Point
   - Plot yearly costs and benefits
   - The point at which lines intersect is the break-even point

Example Costs and Benefits for Economic Feasibility

- Development costs
  - Development team salaries, consultant fees, training, HW/SW
- Annual operating costs
  - HW/SW upgrades, operational team salaries, communications charges

Example Costs and Benefits for Economic Feasibility

- Annual benefits (cost savings and revenues)
  - Increased sales, reductions in staff/inventory/IT costs
- Intangible costs and benefits
  - Increased market share/brand recognition, higher quality products, improved customer service, better supplier relations

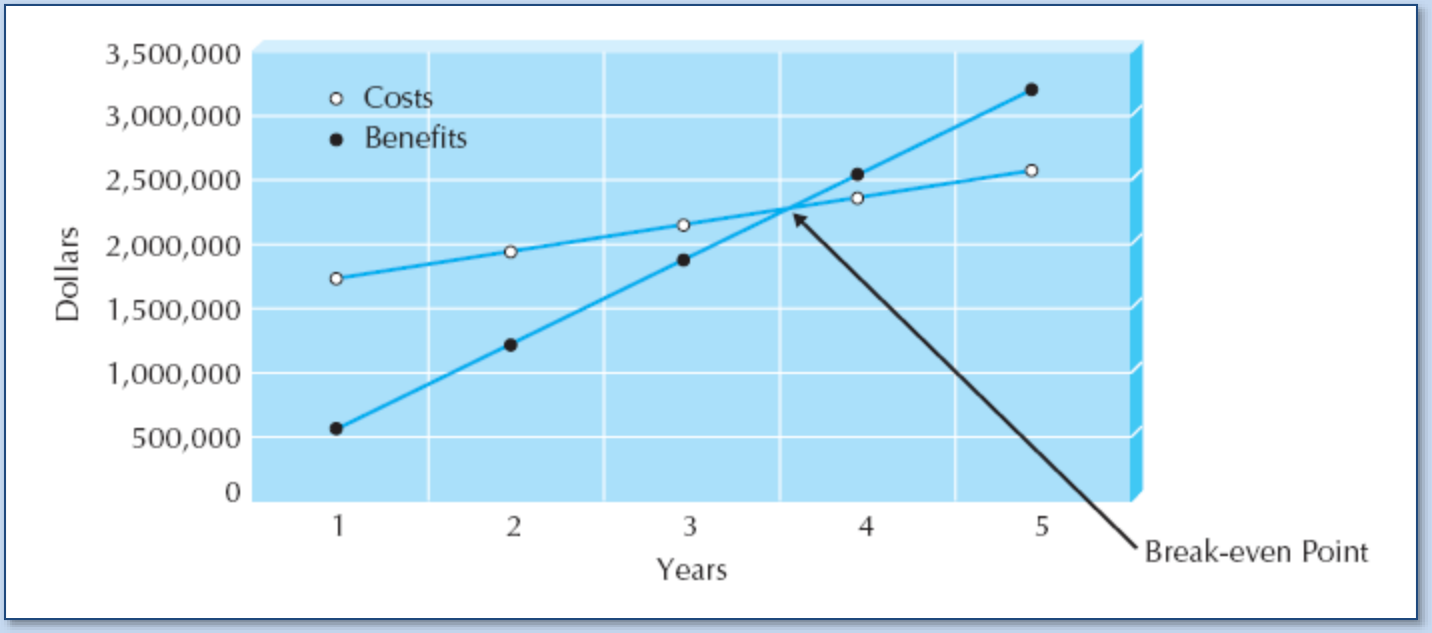
Cost-Benefit Analysis

Performance Measure	Formula
Return on Investment (ROI)	$\frac{\text{Total benefits} - \text{total costs}}{\text{Total costs}}$
Break-Even Point	$\frac{\text{Yearly Net Cash Flow} - \text{Cumulative Net Cash Flow}}{\text{Yearly Net Cash Flow}}$ Use the yearly net cash flow amount from the first year in which the project has a positive cash flow. Add the above amount to the year in which the project has a positive cash flow minus one.
Present Value (PV)	$\frac{\text{Cash flow amount}}{(1 + \text{interest rate})^n}$ n = number of years in the future
Net Present Value (NPV)	Σ PV Benefits $-$ Σ PV Costs

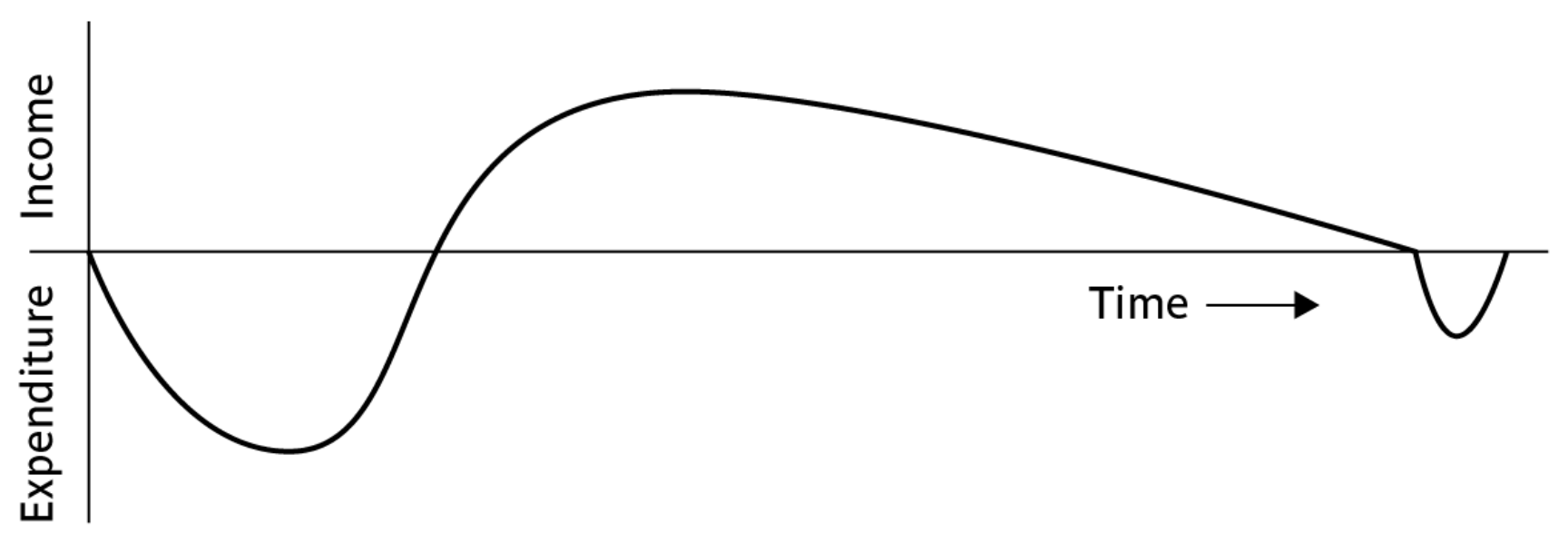
Cost-Benefit Analysis

	2008	2009	2010	2011	2012	Total
Increased sales	500,000	530,000	561,800	595,508	631,238	
Reduction in customer complaint calls	70,000	70,000	70,000	70,000	70,000	
Reduced inventory costs	68,000	68,000	68,000	68,000	68,000	
TOTAL BENEFITS:	638,000	668,000	699,800	733,508	769,238	
PV OF BENEFITS:	619,417	629,654	640,416	651,712	663,552	3,204,752
PV OF ALL BENEFITS:	619,417	1,249,072	1,889,488	2,541,200	3,204,752	
2 Servers @ $125,000	250,000	0	0	0	0	
Printer	100,000	0	0	0	0	
Software licenses	34,825	0	0	0	0	
Server software	10,945	0	0	0	0	
Development labor	1,236,525	0	0	0	0	
TOTAL DEVELOPMENT COSTS:	1,632,295	0	0	0	0	
Hardware	54,000	81,261	81,261	81,261	81,261	
Software	20,000	20,000	20,000	20,000	20,000	
Operational labor	111,788	116,260	120,910	125,746	130,776	
TOTAL OPERATIONAL COSTS:	185,788	217,521	222,171	227,007	232,037	
TOTAL COSTS:	1,818,083	217,521	222,171	227,007	232,037	
PV OF COSTS:	1,765,129	205,034	203,318	201,693	200,157	2,575,331
PV OF ALL COSTS:	1,765,129	1,970,163	2,173,481	2,375,174	2,575,331	
TOTAL PROJECT BENEFITS – COSTS:	(1,180,083)	450,479	477,629	506,501	537,201	
YEARLY NPV:	(1,145,712)	424,620	437,098	450,019	463,395	629,421
CUMULATIVE NPV:	(1,145,712)	(721,091)	(283,993)	166,026	629,421	
RETURN ON INVESTMENT:	24.44%	(629,421/2,575,331)				
BREAK-EVEN POINT:	3.63 years	[break-even occurs in year 4; (450,019 – 166,026)/450,019 = 0.63]				
INTANGIBLE BENEFITS:	This service is currently provided by competitors Improved customer satisfaction					

Break-Even Point



Product/system life cycle cash flows



From Software Project Management, Bob Hughes and Mike Cotterell, 5th ed.

Organizational Feasibility

- Stakeholders
  - Project champion(s)
  - Senior management
  - Users
  - Others
- Is the project strategically aligned with the business?

If we build it, will they come?

PROJECT SELECTION

Project Selection

- Project portfolio management
  - A process that optimizes project selection and sequencing in order to best support business goals
  - Business goals are expressed in terms of
    - Quantitative economic measures
    - Business strategy goals
    - IT strategy goals
- Once selected, projects enter the project management process

How Not to Select a Project

- First in, first out
- Political clout of project inventor
- Squeaky wheel getting the grease
- Any other method that does not involve a deliberate course of action analysis

A recent analysis found that between 2% and 15% of projects taken on by IT departments are not strategic to the business.

Review

- Project Initiation
- Feasibility Analysis
- Project Selection