CHAPTER 3

Project Selection and Initiation

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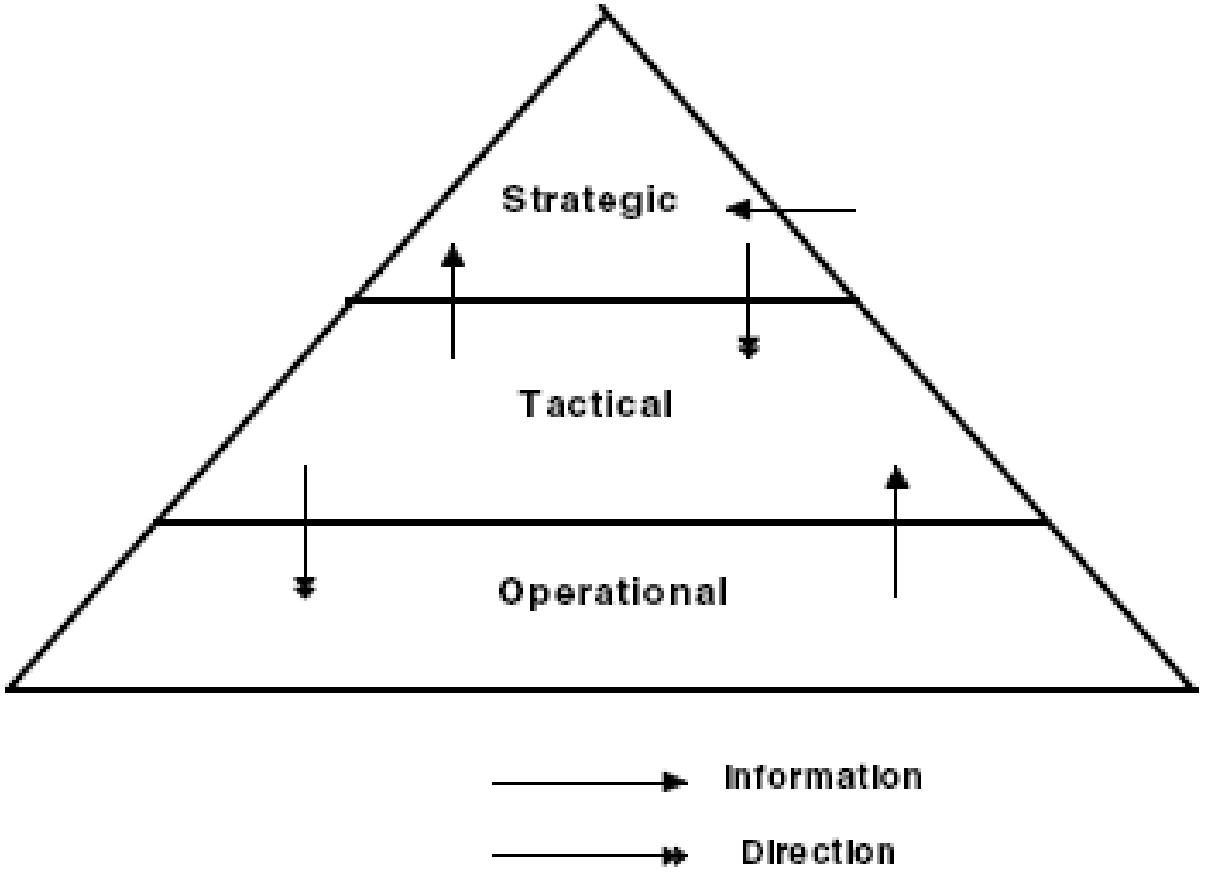
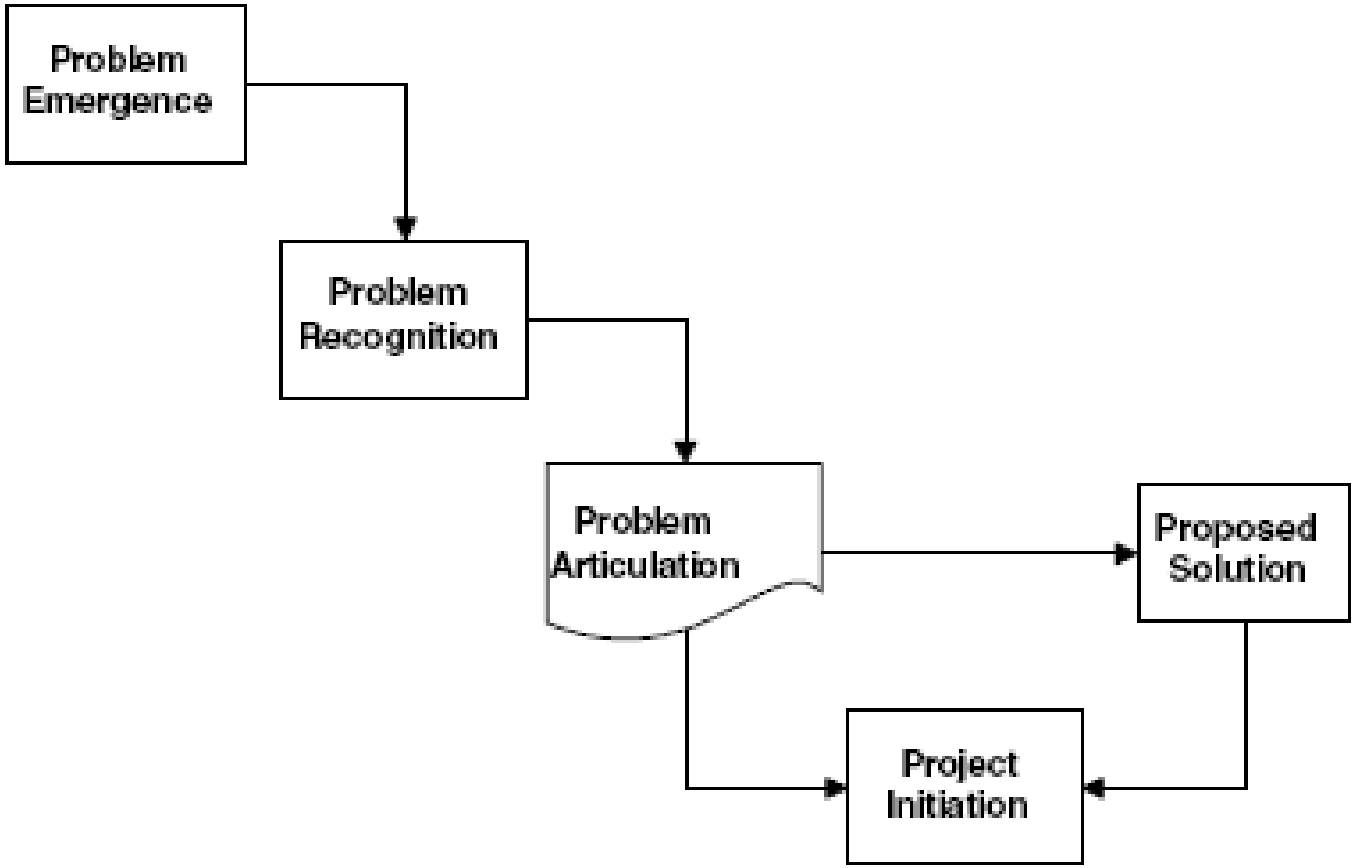
ORGANIZATIONAL MANAGEMENT LEVELS



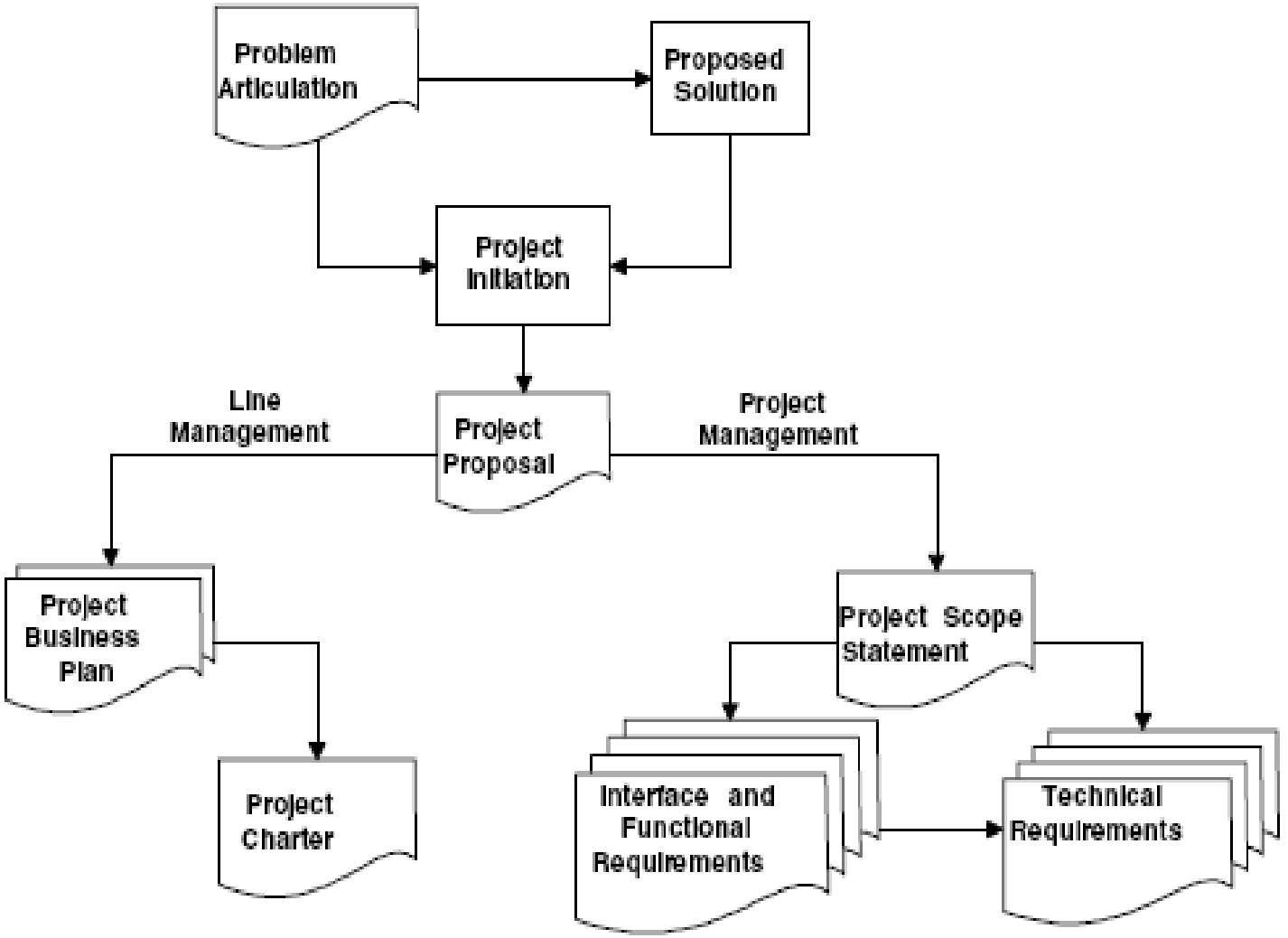
PROJECT INITIATION

- Project proposals are developed in the organization(s) in response to requests from managers (top down), from workers (bottom up), and from customers or other stakeholders (external).

PROJECT INITIATION



SCOPE AND REQUIREMENT DEVELOPMENT



REASONS FOR FUZZY PERSPECTIVE

- The entire problem is like an iceberg; only a portion of it can be seen
- Customers (end users or benefiting organizations) may be somewhat ignorant or unclear about their true needs
- The needs change in time
  - Customers usually know what they do not want or need much better than they know what they do want or need, or how to best articulate the same.
  - for large benefiting organizations, there may be multiple (and possibly conflicting) views of the problem and alternative solutions thereof.

Project Proposal

Project Name: _____ **Date:** _____
Proposing Organization: _____
Benefiting Organization: _____
Performing Organization: _____
Proposed By: _____

Project Description: _____
_____
_____

Rough Proposals: **Start Date:** _____ **End Date:** _____ **Cost:** _____

Measurable Benefits:
1. _____
2. _____
N. _____

Cost Benefit Analysis: _____
_____
_____

Major Risks: _____
_____

Organizational Impact: _____
_____

Customer Impact: _____
_____

Key Stakeholders:

	Person	Role/Responsibility	Contact Info
1.			
2.			
N.			

Notes: _____
_____

Approval for Further Evaluation

Benefiting Organization
By: _____
Date: _____

Performing Organization
By: _____
Date: _____

PROJECT BUSINESS PLAN

- IT projects would typically undergo feasibility analyses from at least three perspectives: technical feasibility, operational feasibility, and economic feasibility—in other words, Can we build it? Can we maintain it? and Can we make money on it?
- legal feasibility
- political feasibility

Project Business Plan

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Project Business Plan

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PAYBACK PERIOD OF IT PROJECTS IN US

- Less than 6 months—about 30% of projects
- Within 1 year—about 35% of projects
- Within 2 years—about 20% of projects
- Within 3 years—about 15% of projects

NPV

- Simple cost-benefit analysis is also problematic because it ignores the time value of money.
- The formula for NPV (or discounted cash flow) is:

$$NPV = \Sigma\ (B - C)t/(1+i)t$$

NPV

Year	Benefit	Cost	B-C	Discounted B-C
1	$0.00	$175,000.00	-$175,000.00	-$159,090.91
2	$0.00	$175,000.00	-$175,000.00	-$144,628.10
3	$50,000.00	$25,000.00	$25,000.00	$18,782.87
4	$100,000.00	$10,000.00	$90,000.00	$61,471.21
5	$100,000.00	$10,000.00	$90,000.00	$55,882.92
6	$100,000.00	$10,000.00	$90,000.00	$50,802.65
7	$100,000.00	$10,000.00	$90,000.00	$46,184.23
8	$100,000.00	$10,000.00	$90,000.00	$41,985.66
9	$100,000.00	$10,000.00	$90,000.00	$38,168.79
10	$100,000.00	$10,000.00	$90,000.00	$34,698.90
Total	$750,000.00	$445,000.00	$305,000.00	$44,258.22
		Interest = 0.1		

IRR

Year	Benefit	Cost	B-C	Discounted B-C
1	$0.00	$175,000.00	-$175,000.00	-$154,728.74
2	$0.00	$175,000.00	-$175,000.00	-$136,805.61
3	$50,000.00	$25,000.00	$25,000.00	$17,279.80
4	$100,000.00	$10,000.00	$90,000.00	$55,001.46
5	$100,000.00	$10,000.00	$90,000.00	$48,630.33
6	$100,000.00	$10,000.00	$90,000.00	$42,997.19
7	$100,000.00	$10,000.00	$90,000.00	$38,016.58
8	$100,000.00	$10,000.00	$90,000.00	$33,612.90
9	$100,000.00	$10,000.00	$90,000.00	$29,719.32
10	$100,000.00	$10,000.00	$90,000.00	$26,276.76
Total	$750,000.00	$445,000.00	$305,000.00	$0.00
		Interest =	0.131011619	

IRR VS. NPR

Case 1

Period	Benefit	Cost	B-C	Discounted B-C
1	0	70	-70	-$60.87
2	0	50	-50	-$37.81
3	20	30	-10	-$6.58
4	90	0	90	$51.46
5	120	0	120	$59.66
			NPV:	$5.87
		Interest:	0.15	
		IRR:	0.17	

Case 2

Period	Benefit	Cost	B-C	Discounted B-C
1	0	20	-20	-$17.39
2	0	40	-40	-$30.25
3	20	50	-30	-$19.73
4	90	55	35	$20.01
5	120	12.95	107.05	$53.22
			NPV:	$5.87
		Interest:	0.15	
		IRR:	0.19	

Decision Trees

- Decision trees are another project selection technique that considers the impact of uncertainty in the decision process.
- For example, there may be a severe winter. Let severe winter be event B, and the probability of B is 0.7. Let event A be the selling of over X units of product. If the winter is severe, the probability of selling mote than X units of product is 0.8. If the winter is not severe, the probability of selling more than X units of product is 0.5. What is the probability of selling more than X units, that is what is P(A).

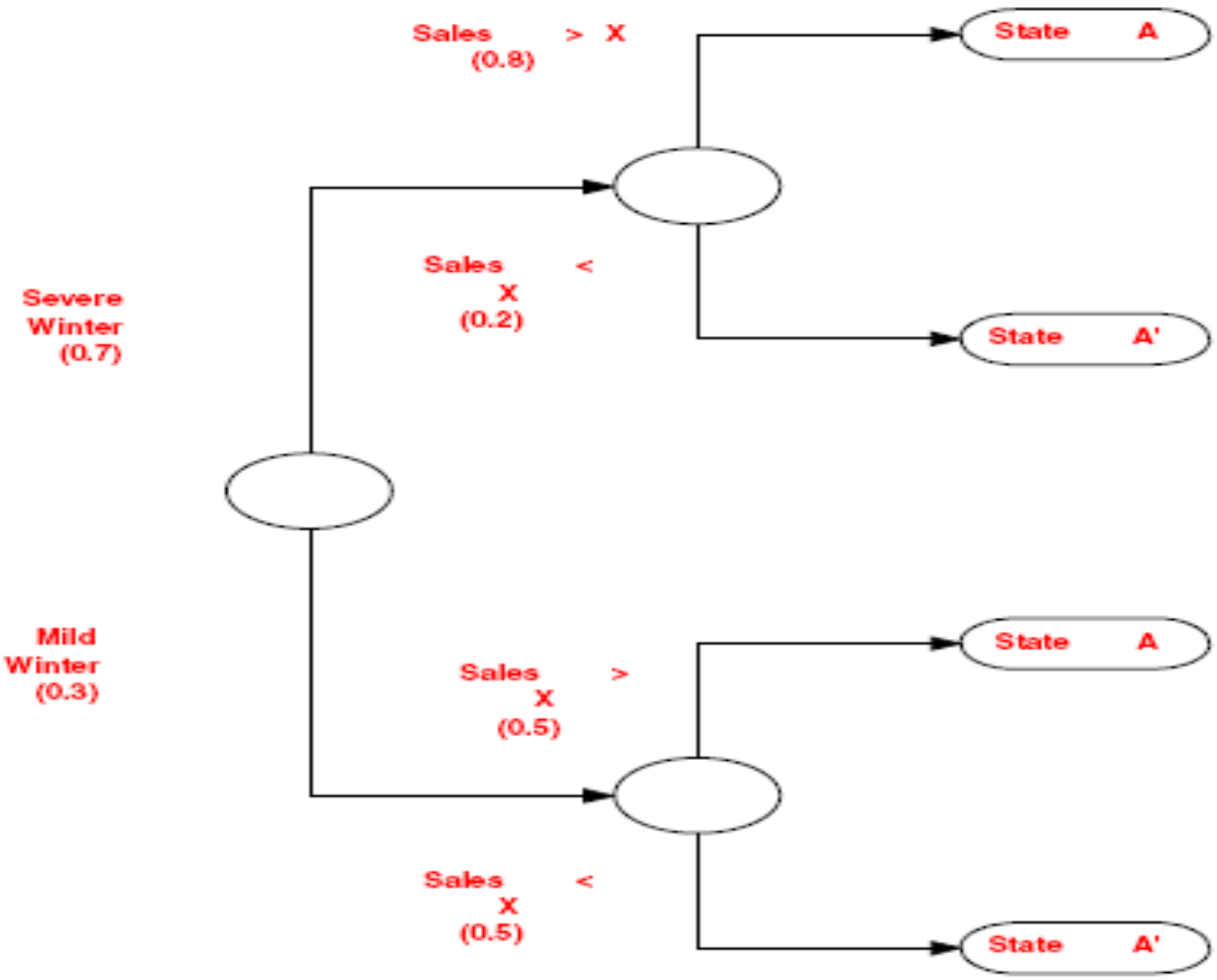
$$P(A) = P(A|B)*P(B) + P(A|B')*P(B')$$

Now $P(A|B') = 1 - P(A|B)$

And $P(B') = 1 - P(B)$

$$P(A) = (0.8 * 0.7) + (0.5 * 0.3) = 0.71$$

Graphical representation of conditional probability



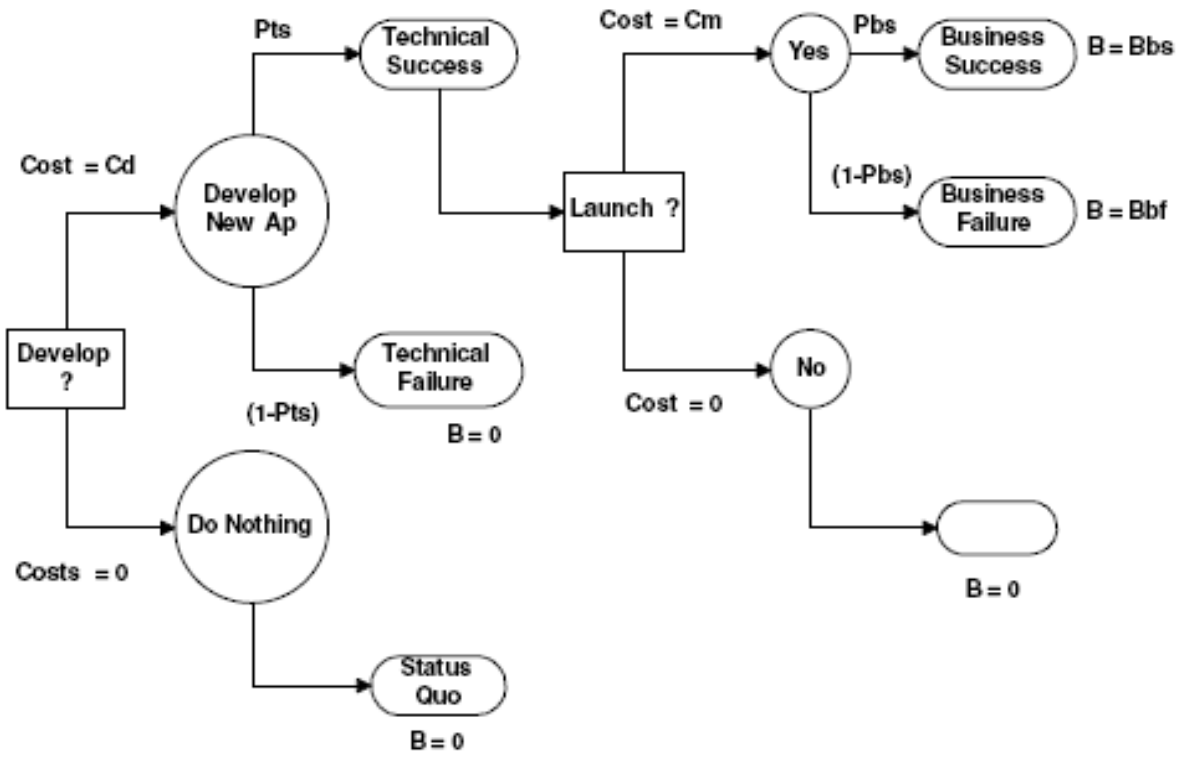
EMV (expected monetary value)

EMV = EMVb * Pts + 0 * (1–Pts) – Cd =

Pts * (Bbs * Pbs + Bbf * (1-Pbs) – Cm) – Cd.

- Cd = cost to develop
- Cm = cost to market
- Pts = probability of technical success
- Pbs = probability of market success
- Bbs = benefit of business success
- Bbf = benefit it of business failure

For example, if the probability of technical success is .80 and the probability of market success is .70, and the development cost is $300,000 and the marketing cost is $100,000, and the benefit is $1,000,000 over the life of the application for a business success and $200,000 for a business failure, then the EMV is only



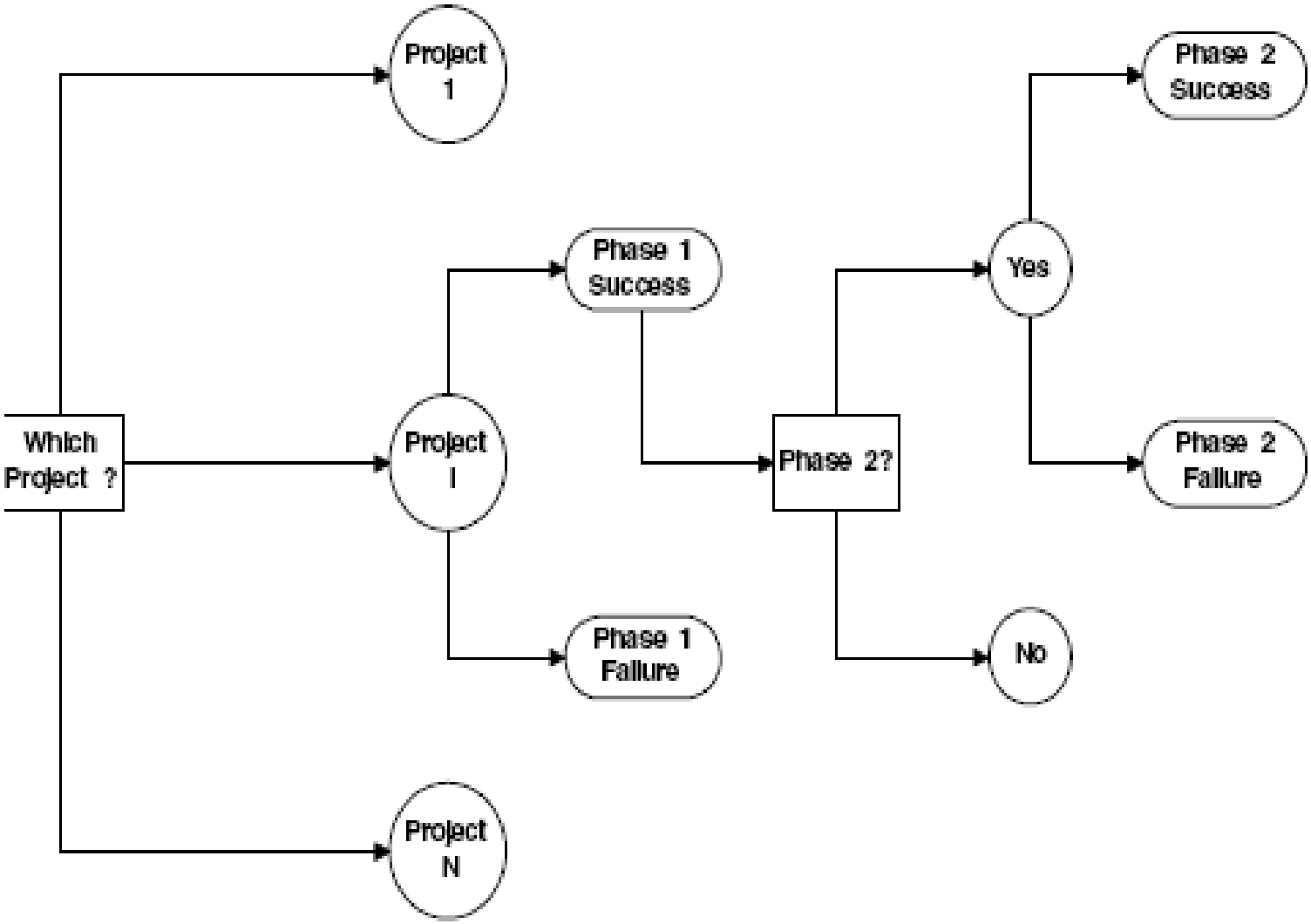
$$EMV = .8 * ((1000000 * .7 + 200000 * .3) - 100000) - 3000000 = \$228{,}000$$

as compared to a simple benefit minus cost of $600,000.

EMV calculation

		Benefit		Cost			
Year	Phase	Business Success	Business Failure	Develop Cost	Market Cost	EMV	Discounted EMV
1	Develop	0	0	150000	0	-150000	-$136,363.64
2	Develop	0	0	150000	0	-150000	-$123,966.94
3	Market	100000	20000	0	50000	20800	$15,627.35
4	Market	100000	20000	0	10000	52800	$36,063.11
5	Market	100000	20000	0	5000	56800	$35,268.33
6	Market	100000	20000	0	5000	56800	$32,062.12
7	Market	100000	20000	0	5000	56800	$29,147.38
8	Market	100000	20000	0	5000	56800	$26,497.62
9	Market	100000	20000	0	5000	56800	$24,088.74
10	Market	100000	20000	0	5000	56800	$21,898.86
11	Market	100000	20000	0	5000	56800	$19,908.05
12	Market	100000	20000	0	5000	56800	$18,098.23
	Totals:	1000000	200000	300000	100000	228000	-$1,670.78
					Probability of Technical Success:	0.8	
					Probability of Business Success:	0.7	
					Interest:	0.1	

. *Multiphase project decision tree*



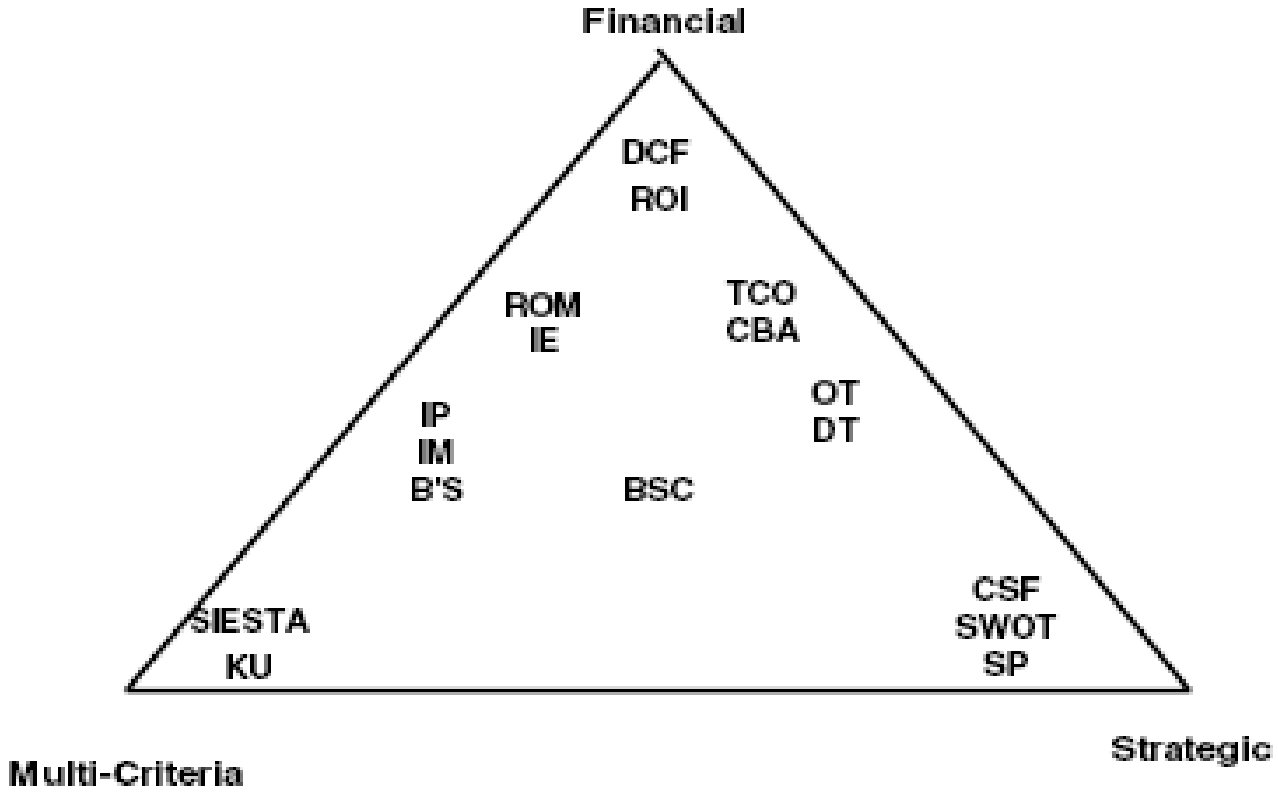
Maximax and minimax calculation

Alternatives	Best Case NPV	Worst Case NPV	Maximax	Maximin	Equally Likely
Project 1	1000000	600000	1000000	600000	200000
Project 2	800000	-100000	800000	-100000	250000
Project 3	500000	50000	500000	50000	225000
Project 4	700000	300000	500000	300000	200000
		Choice:	Project 1	Project 3	Project 2

Project Scoring Methods

- B's—Bedell's Method
- BSC—Balanced Scorecard
- CBA—Cost Benefit Analysis
- CSF—Critical Success Factors
- DCF—Discounted Cash Flow
- DT—Decision Trees
- IE—Information Economics
- IM—Investment Mapping
- IP—Investment Portfolio
- KU—Kobler Unit Framework
- OT—Option Theory
- ROI—Return on Investment
- ROM—Return on Margin
- SIESTA—"Siesta" Method
- SP—Scenario Planning
- SWOT—Strengths/Weaknesses
- TCO—Total Cost of Ownership

Project scoring methods



Project influencing factors

- Consistency with Organizational Mission and Goals (1 = *low, 10 = high)*
- Technical Feasibility (1 = *low, 10 = high)*
- Operational Feasibility (1 = *low, 10 = high)*
- Economic Feasibility (1 = *low, 10 = high)*
- External Risk (1 = *high, 10 = negligible)*
- Internal Risk (1 = *high, 10 = negligible)*
- Risk of Not Doing this Project (1 = *high, 10 = low)*
- Internal Rate of Return (1 = *low, 10 = high)*
- Capital Investment (1 = *very significant, 10 = little)*
- Payback Period (1 = *long, 10 = short)*
- Degree of Contracting/Outsourcing (1 = *much, 10 = little)*
- Development Time (1 = *long, 10 = short)*
- Geographical Dispersion of Team (1 = *much, 10 = little)*
- Impact on Customer Base (1 = *little, 10 = much)*
- Impact on Organization (1 = *little, 10 = much)*
- Sociopolitical Impact (1 = *little, 10 = much)*
- Environmental & Safety Considerations (1 = *very significant, 10 = little)*
- Increase in Organizational Knowledge (1 = *little, 10 = much)*
- Increase in Organizational Competitiveness (1 = *little, 10 = much)*

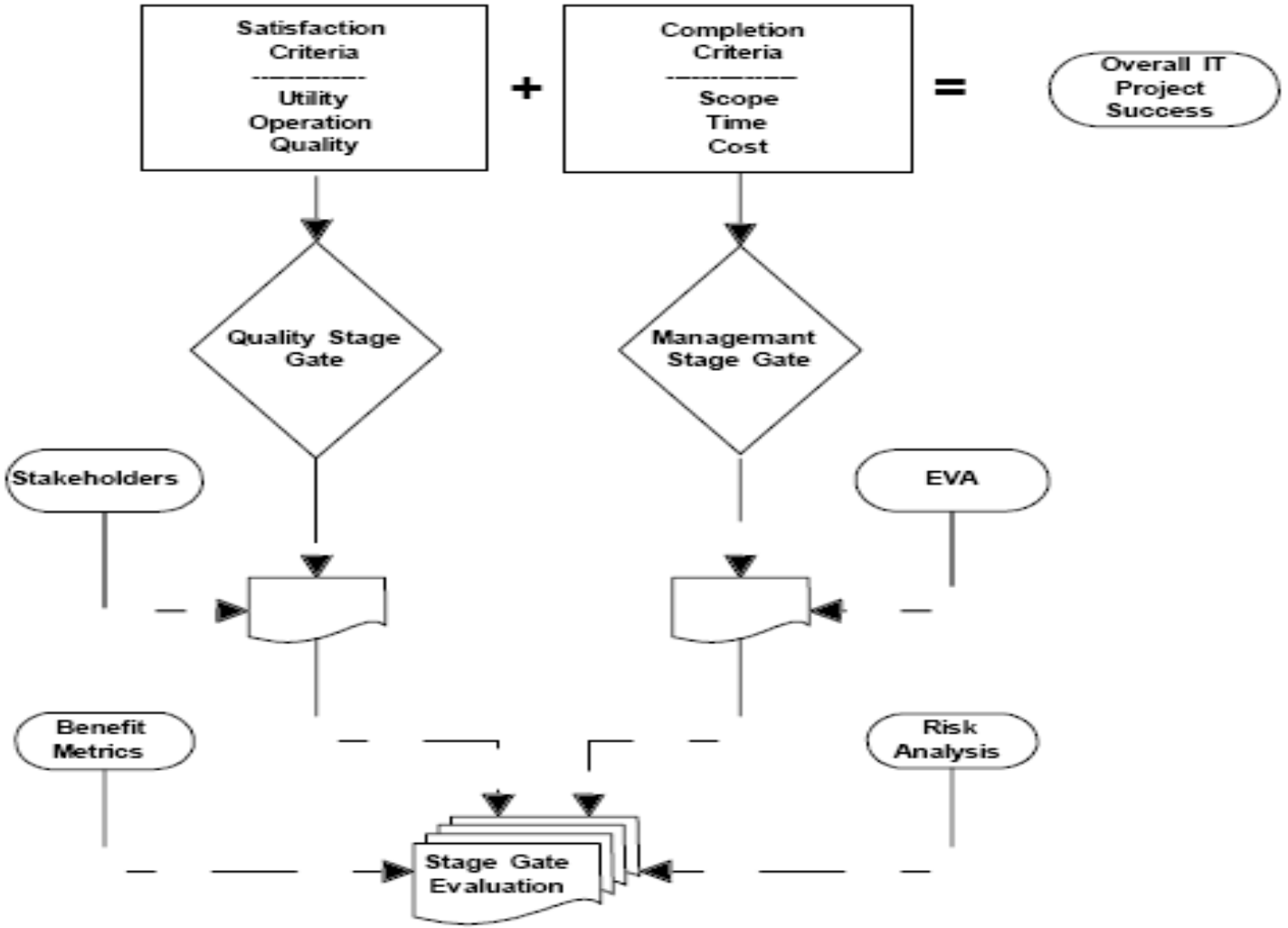
Internal and external risks

external risks involve factors outside of the performing organization such as market factors, regulatory factors, and the risk of working with a particular customer or benefiting organization (including the risks that the project is inappropriate for the customer's desired business objective). Internal risks involve the project team, the chosen technology, and other factors inside of the performing organization.

Project Stage Gates

It is important that management reviews do not use sunk cost (how much has already been invested/ spent) in determining whether a project should proceed or not; the only cost consideration should be the estimated cost at completion versus the benefit. Keeping a badly performing project alive by consideration of sunk cost is a trap into which many organizations have fallen.

Stage gate evaluation



Stage Gate Review

Project: _____ Period: _____

Completion Factors (EVA):
- Estimated Time to Complete:
- Estimated Cost To Complete:
- Percent Complete:
- Critical Ratio:

Satisfaction Factors: Evaluated By (1=low, 10=high):

Basis: _____	Benefitting Org.	Performing Org.
Business Justification		
Validation		
Workflow & Content		
Standards		
Maintain & Support		
Adaptability		
Trust/Security		

Financial Metrics (recalculated)
- Benefit/Cost Ratio:
- Payback Period:
- Internal Rate of Return:

Risk Status: Changes (1=down, 5=same, 10=up)

	Probability	Impact
Risk 1		
Risk 2		
...		
Risk N		

Issues/Comments: