Université
de Paris

Génie Logiciel
Elements of a software project – Part 3

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Resources: www.sylvainlobry.com/GenieLogiciel

Introduction

Before we start…

- https://www.wooclap.com/L3GL5
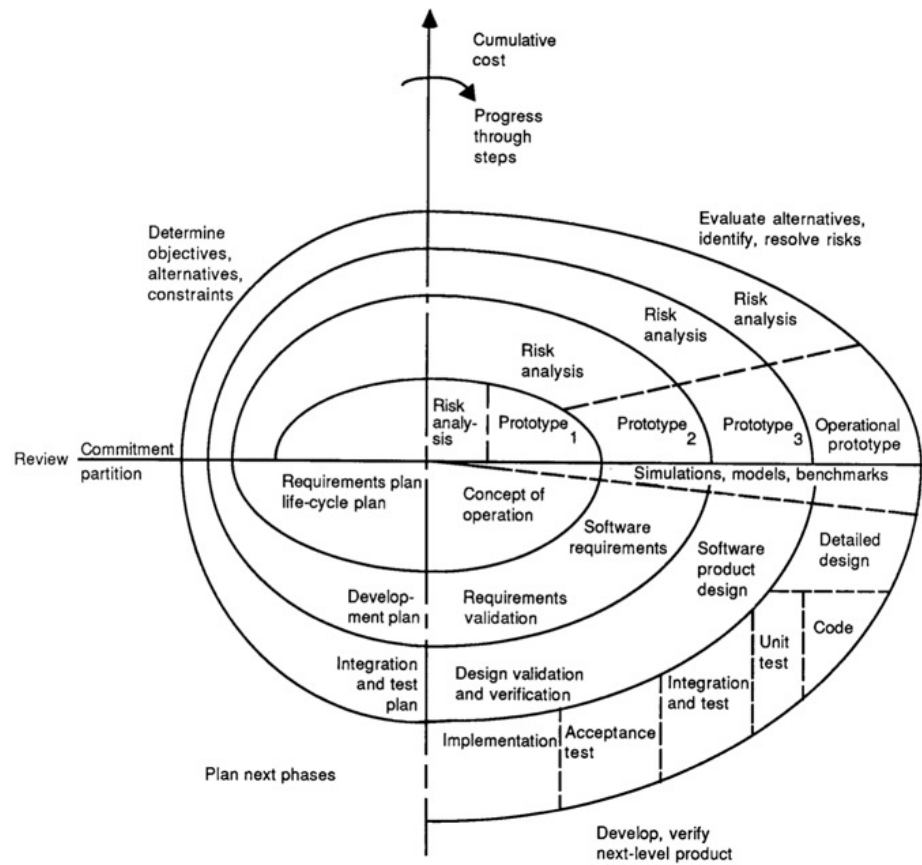
Introduction

Before we start…

- Pas d'examen de CC.

Software Development Life Cycle

Boehm, 1988

Back to the spiral model

- Based on 4 quadrants
- Can be seen as a generalization of previous models
- Risk driven model

- + Suitable for complex projects
- - Requires experience, costly

Risk management

Risk

- Needs to be taken into account in a software project
- Risk: what is the probability that a negative event will happen AND what will be the impact of this negative event on the project
- Different from uncertainty

Risk management
Types of risk

- Classification 1 : Human/Management/Technical
- Classification 2: Process/Quality/Viability
- Classification 3: Impact only a given project or all projects

Risk management
Potential causes of risk

- Human risks

- Plan or budget misestimated
- Requirements not well estimated

Management risks

- External causes
- Underwhelming performances

Technical risks

- Other risks?
- Potential solutions?

Risk management

Cost of a risk

- Expected value = probability of a risk x cost
- Possibility to represent the risks as a decision tree
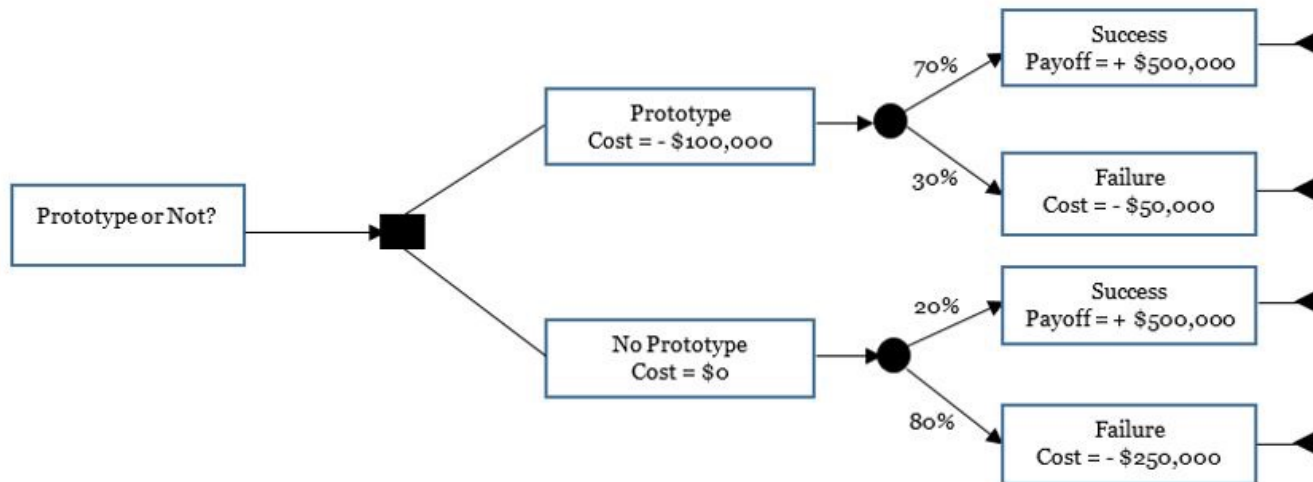- Example: should I do a prototype ?

If you do the prototype, it will cost you $100,000; and, of course, if you don't pursue it, there will be no cost. If you do the prototype, there is 30 percent chance that the prototype might fail, and for that the cost impact will be $50,000. However, if the prototype succeeds, the project will make $500,000. If you do not do any prototype, you're already taking a risk, the chance of which is 80 percent with a failure impact of $250,000. But, again, without a prototype, should you succeed, the project will make the same money as mentioned before. What should you do?
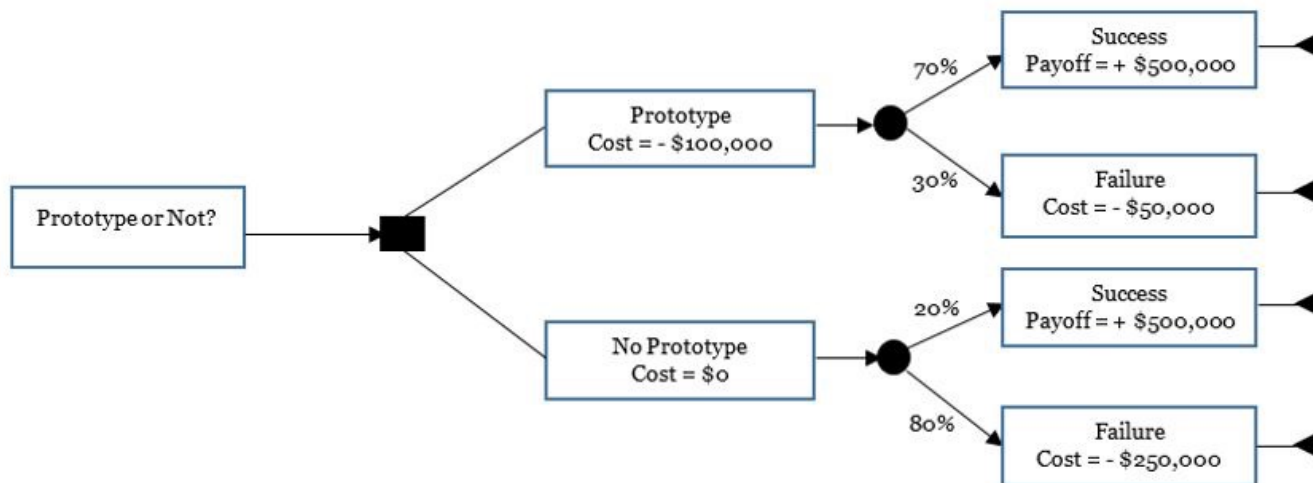
MPUG

Risk management

Cost of a risk

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MPUG

Risk management

Cost of a risk
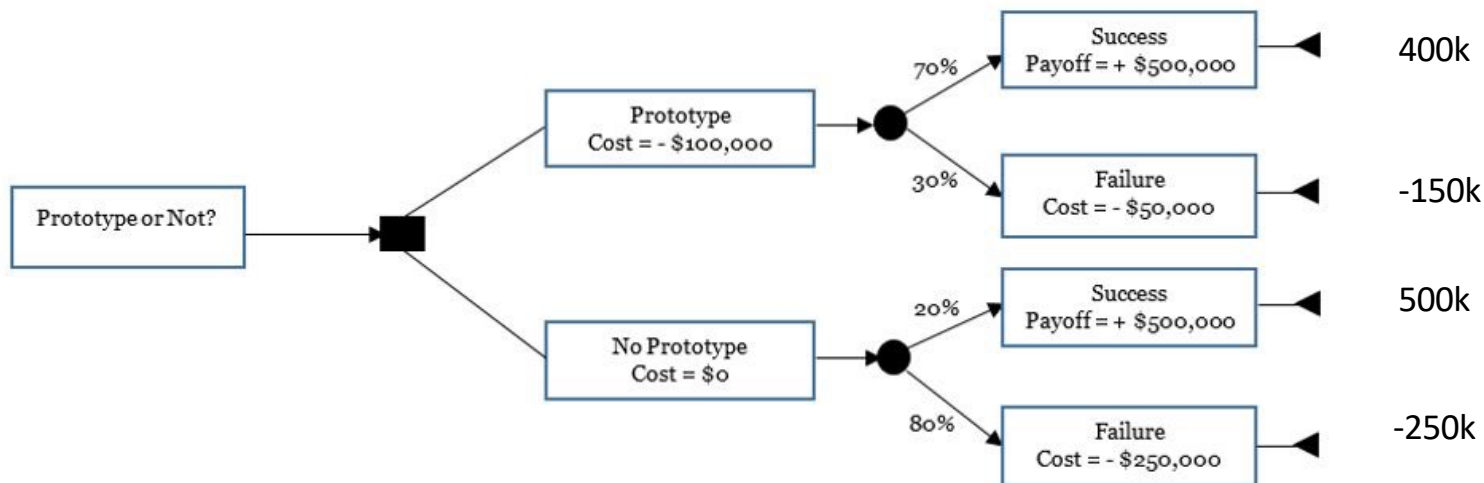
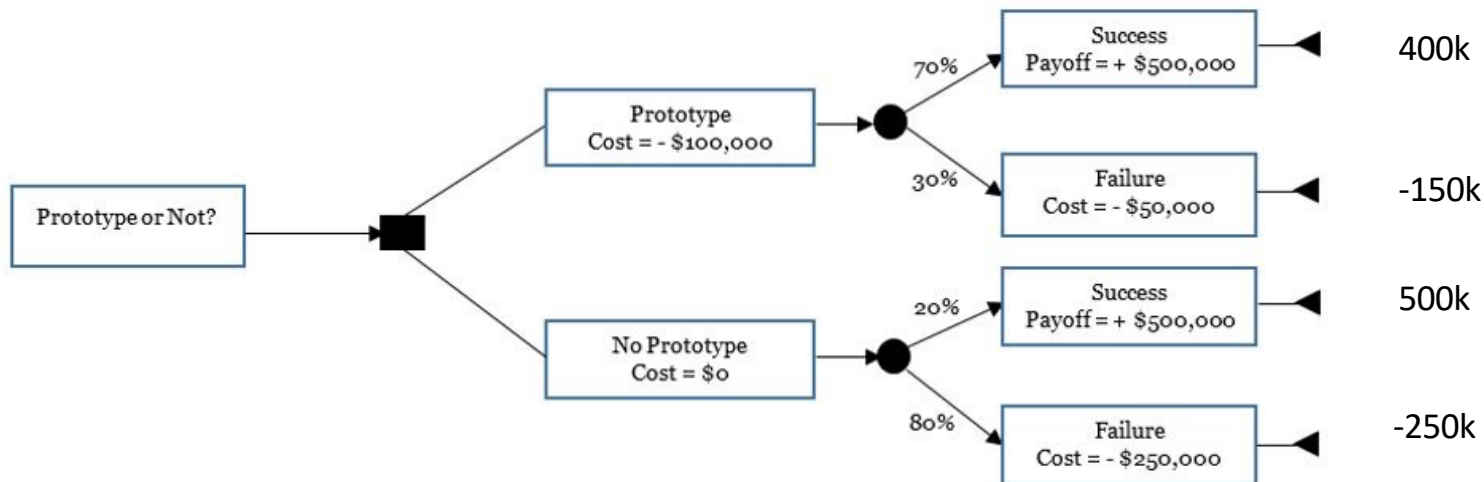1) Compute Net cost of each path

Risk management
Cost of a risk

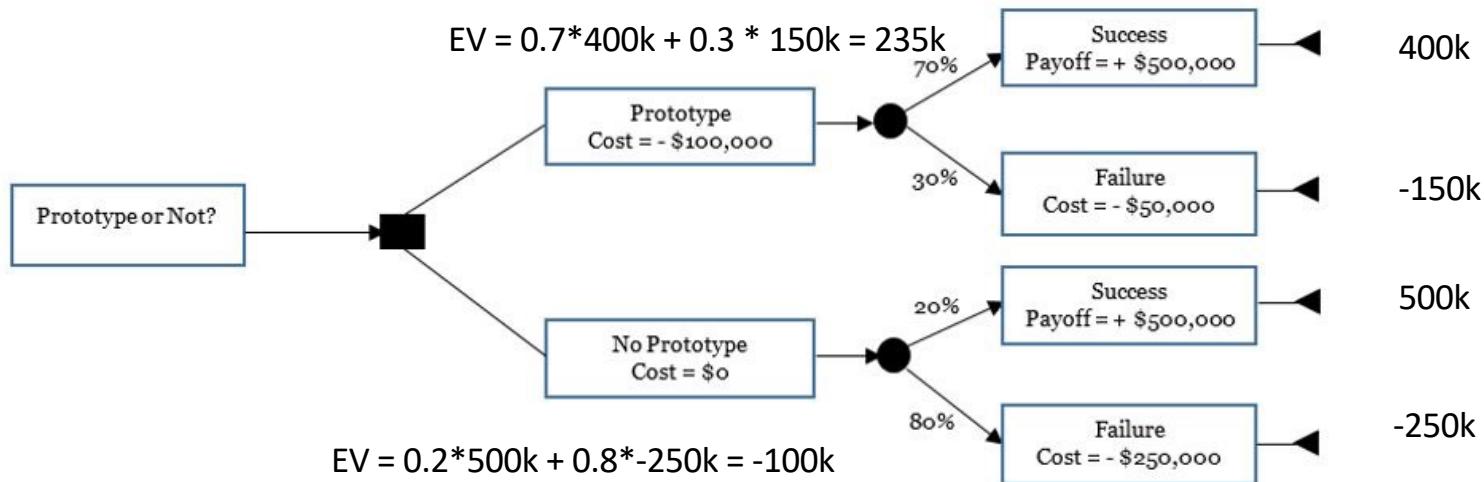1) Compute Net cost of each path

Risk management

Cost of a risk

1) Compute Net cost of each path
2) Compute expected value for each path

Risk management

Cost of a risk

1) Compute Net cost of each path
2) Compute expected value for each path

EV = 0.7*400k + 0.3 * 150k = 235k

	Success Payoff = + $500,000	400k
	70%	
Prototype Cost = - $100,000		
	30%	
	Failure Cost = - $50,000	-150k

Prototype or Not?

	Success Payoff = + $500,000	500k
	20%	
No Prototype Cost = $0		
	80%	
	Failure Cost = - $250,000	-250k

EV = 0.2*500k + 0.8*-250k = -100k

Elements of a software project

Elements of a software project

- Numerous activities for a software project
  - Objectives definition
  - Requirement analysis
  - Feasibility analysis
  - Requirements specifications
  - Design
  - Implementation
  - Unit testing
  - Integration
  - Validation
  - Deployment
  - Maintenance

Implementation is a small part!

Elements of a software project

Elements of a software project

- Planning should be the first things to do
- Should correspond to the scope of the project