EPITA
ÉCOLE D'INGÉNIEURS EN INFORMATIQUE

Février 2019

Module 5 : Costs and Risks

Cours Pilotage Projet ING1 2019

Course Agenda

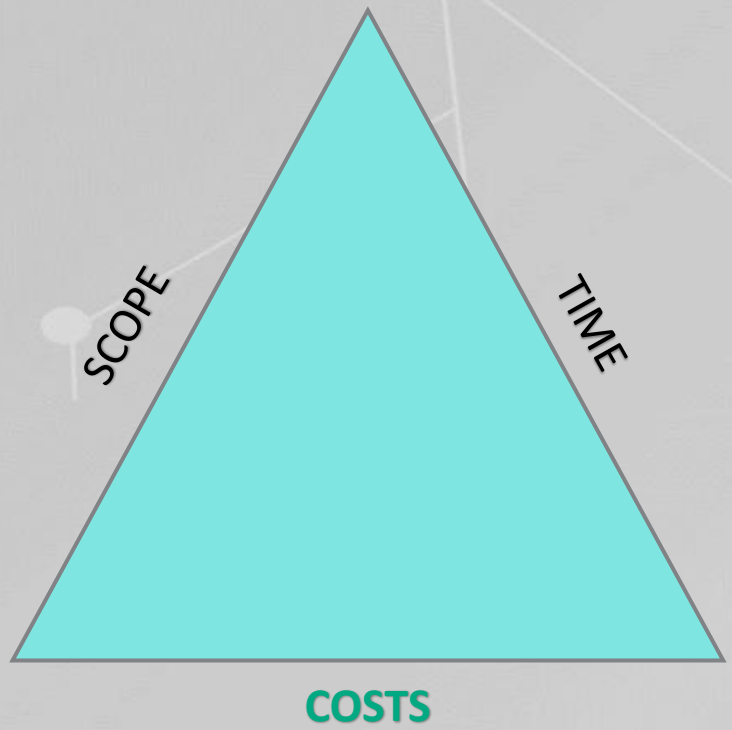
- Module 1: Introduction, definitions, concepts
- Module 2: Product Scope - Concepts
- Module 3: Project Scope: Deliverables & WBS
- Module 4: Schedule management
- **Module 5: Risk Management**
- Module 6: Resources, Costs, Change, communication
- Module 7:Organization, Program and Portfolio management → Agile Concepts
- Module 8: AGILE methodology
- Module X : Feedback on YAKA+ GO/NOGO

- **Fil Rouge**: Tender Yakasserole (YAKA*)
  - Requirements Table
  - Scope Baseline : WBS – Deliverables Matrix
  - Risk Matrix

- Evaluations:
  - QCM: Vocabulary – semaine des partiels
  - YAKA*: GO/NOGO
  - Retour sur GO/NOGO

Project Management Concepts

– IRON TRIANGLE



– SCOPE : defines WHAT? = the Product that has to be performed, what are the deliverables expected, And also HOW ? it will be performed. !! Defines what is excluded from the delivery.

– TIME : WHEN? = the time you have to execute your project, and when you must deliver what is expected (SCOPE)

– COSTS : HOW MUCH? = The budget that can be spent to achieve the work defined in the SCOPE

– Quality is often defined as the 4th constraint driving to an « Iron Square » model.

RISK Management

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Pierre Roussenq et Jean-Jacques Guélin - Reproduction interdite sur tout support
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Definition of Risk

Individual project risk is

– an **uncertain** event or condition that, if it occurs,

– has a **positive or negative** effect on one or more project objectives.

Overall project risk is the effect of uncertainty on the project as a whole,

– arising from all sources of uncertainty including individual risks,

– representing the exposure of stakeholders to the implications of variations in project outcome, both positive and negative.

Risk management Basic considerations

- **Risk Management is a continuous process**
  - At project planning phase, an initial risk response plan is set
  - During project execution:
    - New risks emerge
    - Risks may change: some may be closed, some may become more probable or have different impact
      …

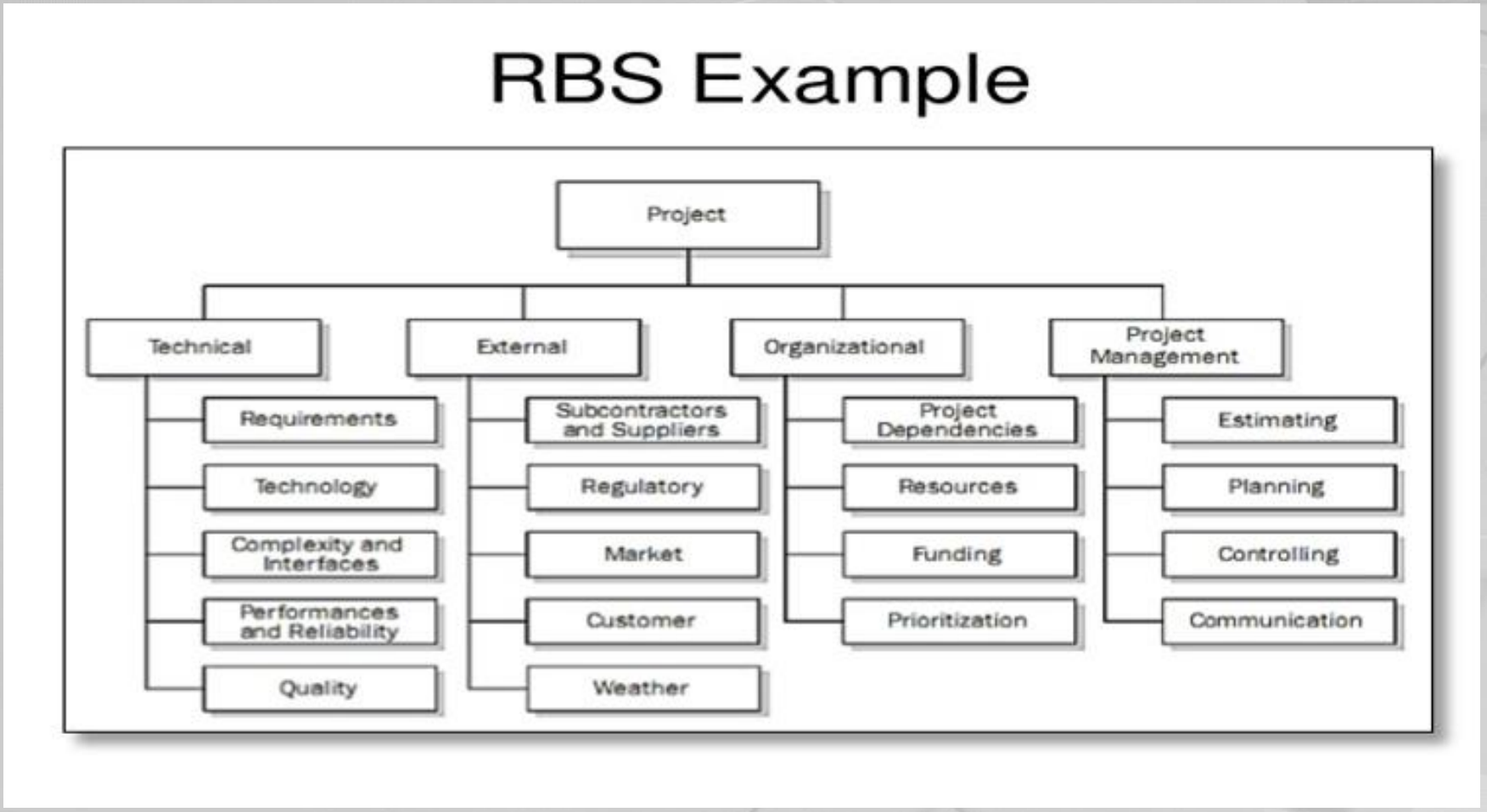
- **Risk management correctly taylored (Intense, medium, light..)**
  - Project size
  - Project complexity
  - Project importance
  - Development approach (Agile iterative or Waterfall ?)

Knowledge area : Risk Management Processes

Conception & Initiation	Definition & Planning	Execution	Performance & Control	Project Close
	– **Identify risks** – **Perform qualitative risk analysis** – **Perform a quantative risk analysis** – **Plan risk responses**	– **Implement risk responses**	– **Monitor risks**	

Identify Risks

– Identify risks domains possibly build a risk breakdown structure



Identify Risks tools and technics

- Brainstorming
- Checklists
- Interviews
- Root Cause Analysis
- Assumption and Constraint analysis
- SWOT analysis (Strength , Weakness, Opportunities, Threats)

-> Risk list based on:

* There is a chance that this « event» happens because of this « situation »
* Owner of Risk is « ? »
* Potential response might be (optional at this phase)

Risks identification for YAKASSEROLE

Project exposure to Risk

- Project size: Limited
- Project complexity: Simple
- Project importance: Medium
- Level of uncertainty: MEDIUM

Development approach (Agile iterative or Waterfall ?)

- Relatively week Specifications trends to avoid full Waterfall project
- Full Agile requires high customer involvement
- Phased aproach may be employed

Conclusion: Risk management may be simple and focused on limited number of risks, the most important ones ,

Overall risk (uncertainty) may be decreased by phased development with customer interaction

Risk list (Limited Exemple)

- Technical
  - Weak requirement level
  - No technology framework,
- External
  - NO explicit request for RGPD conformance
  - Customer Avaliabilty to validate project deliverables in a timely manner
  - No formal request for project deliverables (doc, trainings, testing, pilot production..) that need to be required for project completion.
- Organizational
  - Lack of competence on one of the software tool chosen
- Project Management
  - Lack of experience in estimating activity duration

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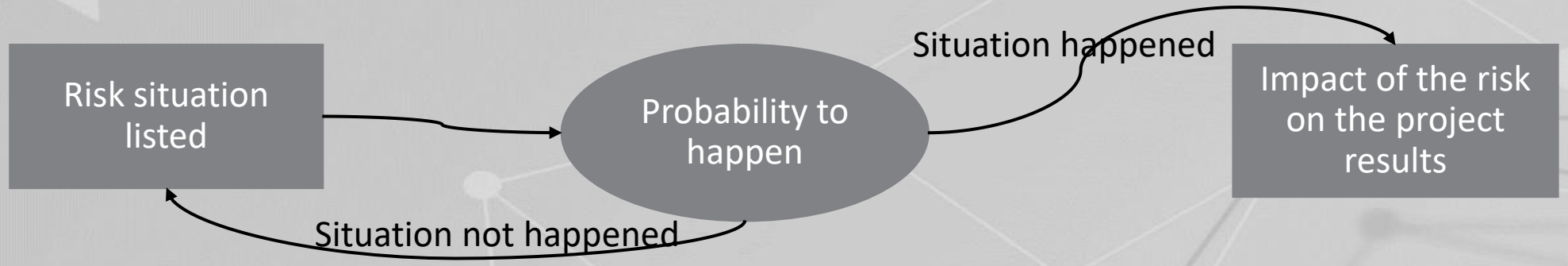
Qualitative Risks Analysis



– Estimate the Probablity that risk occurs (example)

Very High - The event is very likely to occur	85% +
High - The event will probably occur	65% - < 85%
Medium - The event could occur	35% - < 65%
Low - There is a slight chance the event may occur	10% < 35%
Very Low - The event is unlikely to occur, but may still occur	< 10%

– Define the Impact and estimate the importance (Example)

Very High - Most / critical Project Objectives will be seriously impacted/ will not be achieved (cost, schedule, quality, quality, customer satisfaction)
High - Many and/or critical Project Objectives are under threat
Medium - Some Project Objectives may be affected
Low - Easily remedied. Project Objectives will not be affected

Caracterize and Filter Risks

MANAGE THE RISKS

Risks ranked as Very High and High should receive careful analysis, planning and tracking.

KEEP TRACK

Consider managing some Medium probability risks as assumptions.

Impact	Probability				
	A: VH	B: H	C: M	D: L	F: None
1: VH	1-VH	2-H	2-H	2-H	None
2: H	2-H	2-H	3-M	3-M	None
3: M	2-H	3-M	3-M	4-L	None
4: L	4-L	4-L	4-L	4-L	None
5: None	None	None	None	None	None

IGNORE

Consider that some Low impact risks may not be worth the effort to manage.

Quantitative risk analysis

- Only apply to Risk managed after filtering
- **Not used for all projects: for simple/light risk management can be avoided**
- This activity consists in estimating the cost or planning impact of each risk analysed:
  - Example: There is a chance that we need to change the Database middleware to Oracle during project execution, because of integration of accounting module
  - Impact: we would need to buy a new software license, and rework part of the project to integrate and test .
  - Percentage is medium 50%
  - Impact is high
  - Quantitative estimation: 70K€ for DB license , Two weeks of extra work -> 20 days of cost : 10K€ and shift of 2 weeks on planning
  - Ovrall risks exposure can be obtained by calculating Global Cost exposure $= \sum$ probability *impact costs

Yakasserole Risk Analysis

RISK	Probablity	Impact	Impact	overall	Management
–Weak requirement	Very High	High	The solution is not satisfactory then lot of rework will be required to get customer acceptance	High	yes
–No technology framework	Medium	Medium	Part of the solution may need adjustments to fit the production environment	Medium	give asumption
–NO explicit request for RGPD conformance	Very high	Very high	The solution cannot go to production because of legal risk	Very high	yes
–Customer Avaliabilty to validate project deliverables	High	High	team will need to perform without customer validation with risk of rework	High	yes
–No request for project deliverables	High	low	Some additionnal deliverable will be requested	Low	no
–Lack of competence on one of the software tool chosen	High	Medium	Time may be lost by bad utilisation of the software tool	Medium	yes
–Lack of experience in estimating activity duration	Medium	Medium	Planning may be very underestimated and project may last lot more than expected	Medium	monitor

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Response Strategy for Risks

- AVOID: Risk response is to ELIMINATE the threat by appropriate action
- TRANSFER: Risk is TRANSFERED to a third party that will accept the risk and the potential impact
- MITIGATE: Action is taken to REDUCE the probability and/or the impact of a threat
- ACCEPT: ACKNOWLEDGE the existence of a threat but no proactive action is taken

Example of Risk Response Plan

- There is a chance that we need to change the Database middleware to Oracle during project execution, because of the integration of accounting module.
- AVOID: decide to buy ORACLE license at project start and develop project on ORACLE
- TRANSFER: Submit project to a Service Expert Company that commits on project content and planning
- MITIGATE: perform a small POC with existing DB to check that features are sufficient
- ACCEPT: Start project with old BD and accept that in case of necessity the planning and the budget will be impacted .

Tableau de risques YAKASSEROLE

Risk ID #	Titre du Risque	Description du risque *(Il y a un Risque que X se produise à cause de Y)*	Impact Description	Reponse au Risque	Probab.	Impact
1	–Weak requirement	Il y a un risque de réalisation qui ne convienne pas au client a cause d'un besoin faiblement decrit	Retravail sur les livrables pour qu'ils soient acceptés par le client	MITIGATE : Travail sur les specs et la validation du client . Découpage en approche "Agile" Like sur 3 lots pour faire valider des résultats intermediaires	high	high
2	–RGPD conformance	Il y a un risque que la solution ne soit pas conforme à la reglementation RGPD a cause de l'absence de cette exigence	Impossibilité de mettre en Prod du fait du risque légal	AVOID : Il faut integrer dès le début du projet les contraintes du RGPD et concevoir le projet avec ces contraintes	very high	very high
3	–Customer Avaliabilty to validate	Il y a un risque de developper une solution qui ne convienne pas au cliena à cause de son manque d'implication au cous du projet	Retravail sur les livrables pour qu'ils soient acceptés par le client	MITIGATE : Definition d'un plan de communication avec le client avec des Rendez vous fixes	high	high
4	–Lack of competence on software tool	Il y a un risque d'une difficulté à réaliser le résultat à cause d'un manque de compétence sur un logiciel employé	Perte de temps dans la mise au point , fonctionnalité manquante à la réalisation	MITIGATE : Suivre les tutos sur le produit , mettre en place un PoC technique	high	medium

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Risque Management YAKASSEROLE

- Intégrer au Projet
  - Le plan de communication avec le client et valider que cela permet bien de valider les specs et les resultats : fin de conception, fin du lot 1 , ….
  - Intégrer les contraintes RGPD dans le projet
  - Prevoir une activité de PoC sur l'outil logiciel
- Piloter les actions décidées comme des actions projet
- Refaire à chaque revue d'avancement du projet :
  - Un état des risques identifiés et de l'efficacité des réponses apportées
  - Identifier si des risques sont clos, les retirer du suivi
  - Identifier si des risques nouveaux apparaissent