SWEN90016

Software Processes & Project Management

Risk Management

2021 – Semester 1
Tutorial 4

Today's aim

Understand Risk Management

for Language Research project

Recap: Challenges vs. Risks

Challenge:

- This characteristic is known to exist.
- The solution requires resources, (fitness).

Risk:

- This possible future event may or may not happen
- Better to put in place a strategy to control the event.

Risk Activities Flow

Risk Management Planning

(1 Decide how)

(2 Find them)

Risk Identification

Qualitative Risk Analysis

3-a: Evaluate probability, impact & priority

Quantitative Risk Analysis

3-b: Document

Risk Response Planning

4. Decide Strategy

Risk Monitoring & Control

5. Act & measure

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Risk Management example

For the Language Research Case Study

Some key characteristics are:

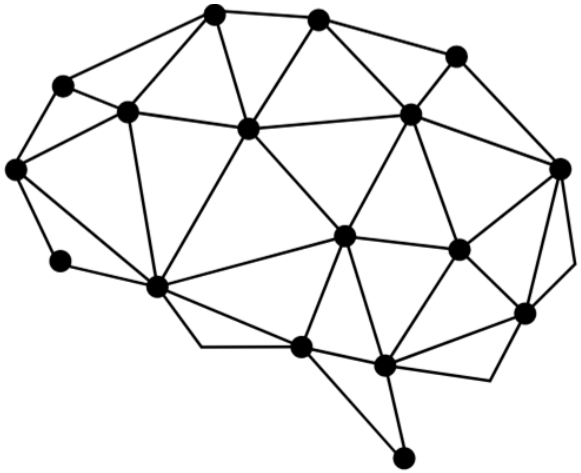
- data integration from several distributed resources in several different formats. One feature of the system is to resolve the differences between idiosyncratic data formats.

- sharing modules in a distributed environment, choose between a local installation which will generate multiple copies, or a central installation with remote access

- peer-to-peer control strategy

Analyze

Evaluate probability, impact & priority



Sift through all the risks in the project

Review and debate their importance

3. What are the top three/four risks to be controlled?

Document in a table.

Risk Register: triggers & consequences

Risk No	Risk description	Trigger event	Risk Owner	Consequence	Probability	Mitigation strategy
1	SMEs unavailable. SMEs are required to perform other duties while working on the project	Each team member has a number of hours assigned to the project each week	Ping Lu	Lack of team involvement will have an adverse affect on schedule	High (.9)	Immediate resolution: Hire temporary personnel for low skilled labour jobs while SME works on the project Monitor the mitigation strategy
2	Scope of the project is changing – scope management plan is too lenient	Middle management requiring changes to system after scope defined	Nick Lees	Will have an adverse affect on the scope of the project causing cost and time delays	High (.9)	Immediate resolution: Reevaluate the scope management plan and set guidelines in place Monitor the mitigation strategy

Risk Register: objective, owner, benchmark

Strategic Risk Register – May 2006

Ref No.	Corporate Objective	Ref. No.	Risk Description	Risk Owner	Mitigation Control	Priority	Sources of Assurance
C2	To target resources & initiatives to overcome poverty and disadvantage	R1	Failure to achieve equality targets & improve community cohesion.	Corporate Equalities Group Environmental Services Director	1. Regular monitoring of Corporate Equalities Plan 2. Level 2 fully embedded by December 2006	M	Internal & external audit review. Consultation with minority groups.
		R2	Failure to deliver improvements in the benefits service.	CMT EMT OSCs Cabinet	1. Regular monitoring by TEN system 2. Quarterly reports to OSCs & Cabinet	H	Monitoring by DWP & BFI. Internal & external audit.
		R3	Costs of new concessionary fares scheme exceeding budget.	Assistant Director-Community Finance	1. Monitoring of costs, as part of integrated performance management report. 2. Quarterly reports to OSCs & Cabinet.	M	Cabinet & OSC monitoring. Monitoring with other Warwickshire Districts.
		R4	Failure to deliver major improvements in Camp Hill – reputation risk; loss of housing.	Cabinet Chief Executive	1. Monitoring by Project Board 2. External project management.	H	Pride in Camp Hill monitoring. Liaison with AWM & GOWM.
C3	To encourage the provision of new & improved housing to meet the needs of residents	R5	Failure to deliver continued improvements in Housing Services	Corporate Services Director Assistant Director-Housing	1. Monitoring of Improvement Plan.	M	GOWM monitoring. Housing inspectorate.
		R6	Failure to achieve the 'Decent Homes' standard for private sector housing.	Corporate Services Director Housing Portfolioholder	1. Stock Condition Survey.	M	Internal & external audit review. Performance indicators.
C6	To work in	R7	Failure to deliver	Chief Executive Assistant Director	1. Monitoring by Safer Communities Group	M	Annual external audit. Safer Communities

Information Technology

Risk Register: probability & time

Risk	Probability of Risk	Size of Loss (Days)	Risk Exposure (Days)
Backup and restore may require the inclusion of additional third-party products.	20%	15	3
The lack of scientifically relevant sample data impacts Partner A's ability to validate the product.	35%	20	7
There won't be time for Partner A to provide feedback on the format of Analysis reports, which means they could find the reports unacceptable during validation.	10%	5	0.5
Partner A employees are not available to validate the new features until too late in the process, limiting our ability to make additional releases that address any issues they might uncover.	20%	5	1
There won't be time in the QA process to validate, equally, on all browsers on all operating systems.	40%	5	2
Partner A may require more end-user documentation than has been provided.	25%	20	5
Ref: https://www.mountaingoatsoftware.com/blog/managing-risk-on-agile-projects-with-the-risk-burndown-chart		Exposure:	18.5

Analyze: Risk Register

4. Create a risk register to document the controlled risks for the language research study

Id	Risk Description
Risk 1	
Risk 2`	
Risk 3	

Analyze

5. Calculate: probability impact exposure

Risk	Probability of Risk	Size of Loss (Days)	Risk Exposure (Days)
Risk 1		*the impact to the schedule if the risk did occur*	
Risk 2`			
Risk 3			

Risk probability = a measure between 0 and 1 inclusive

Risk impact = finite grade of 1-5 scale, such as:

(1) none; (2) minimal; (3) moderate; (4) severe; (5) catastrophic impact;

monetary cost or time cost?

Risk exposure = probability × impact

Analyze

5. Calculate: probability impact exposure

Risk	Probability of Risk	Size of Loss (Days) Out of 30 days total For 6 week project	Risk Exposure (Days)
Risk 1 –Flat priority causes ineffective automation	10%	5 days **Moderate - 3**	0.5 days
Risk 2` Data security	5%	15 days **Severe - 4**	0.75 days
Risk 3 – dev team delay	25%	2 days **Minimal - 2**	0.5 days

Respond, Monitor & Control

Add Response strategy for handling threats & opportunities

THREAT RESPONSE	GENERIC STRATEGY	OPPORTUNITY RESPONSE
Avoid	Eliminate uncertainty	**Exploit**
Transfer	Allocate ownership	**Share**
Mitigate	Modify exposure	**Enhance**
Accept	Include in baseline	**Ignore**

https://2020projectmanagement.com/news-and-events/risk-and-opportunity-management--a-3-dimensional-approach

Monitor Process

Audit

Review

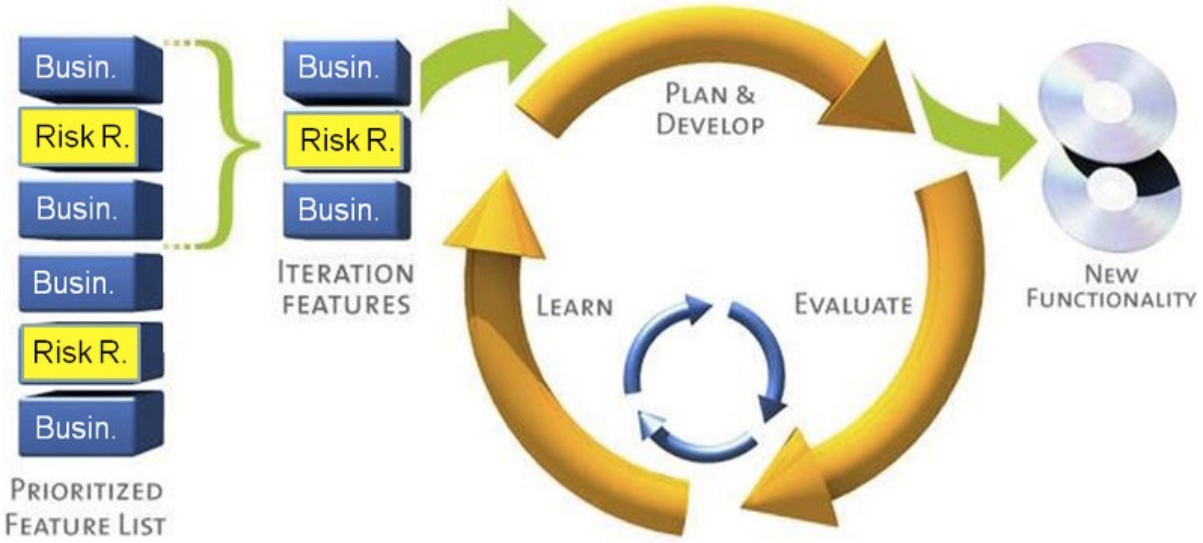
Status meetings

Agile SDLC Risk Management

Identify – capture risks in Risk Register

Analyze – Product Backlog groomed, and priority given to all User Stories, including those which capture risk

leadinganswers.typepad.com/leading_answers/2007/09/agile-risk-mana.html



Respond – mitigate Risk in Sprint

Monitor – during Sprint Review, Retrospective & Planning

Agile Risk Process

Sprint Review risk evaluation

What
Where
Who
When
Why

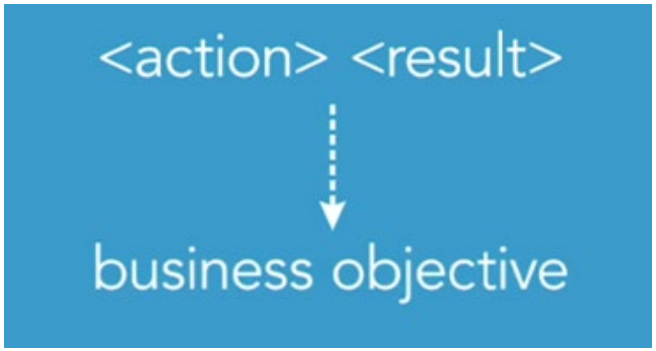
- Build small piece of working software with minimal features
- Showcase the product chunk to the stakeholders **early**
- Fail **fast** and as cheaply as possible, & get timely feedback
- Capture the ***risk item*** in the Product Backlog
- The Product Owner sets the priority of the ***risk item***

Agile Risk Process

Sprint Review risk evaluation

- The format of a ***risk item*** in the Product Backlog can vary

- Optionally use Feature-Driven Development (**FDD**) syntax,
  (when the role is not obvious)



Example.
Risk 1: include request priority, for an effective booking service

www.mountaingoatsoftware.com/blog/not-everything-needs-to-be-a-user-story-using-fdd-features

Control

6 a. What are the key differences in characteristics between the Formal-incremental and Agile-iterative SDLC?

Formal	Agile
Explicit architecture	*Productivity increase*
Explicit UX design	*Responsive to feedback*
(end user consideration)	*(client satisfaction)*
Explicit configuration	*Working software*

b. How would these characteristics influence risk management?

Plan ahead	*Plan Just-In-Time*

Risk- bad examples

- Actual Poor Examples: (all taken from page 1 of Google in Dec 2015)

- "*Scope is ill-defined*".
- "*The project may be late*".
- "*Project estimates are very optimistic*".
- "*Poor data quality*".

Risk- good examples

There is a risk that:

- *"the export licence may not be granted."*
- *"ground conditions may not be suitable for …."*
- *"key (specific) system interfaces may not be compatible."*
- *"there may not be the physical space for a required equipment."*
- *"data rates for required image quality may exceed capacity."*
- *"the regulator may introduce new requirements relating to…"*
- *"severe weather may impact progress"*
- *"(the requirement for) full spatial coverage may not be physically possible"*

Thank You!

That's interesting!

IBM (2008): 40% of IT projects meet schedule, budget, & quality goals

http://www-935.ibm.com/services/us/gbs/bus/pdf/gbe03100-usen-03-making-change-work.pdf

KPMG (2013): a third of the IT spend for an organization delivers the desired results

https://www.kpmg.com/NZ/en/IssuesAndInsights/ArticlesPublications/Documents/KPMG-Project-Management-Survey-2013.pdf

XDNET (2009): estimate that the cost of failed IT projects are as high as $6 Trillion worldwide

http://www.zdnet.com/blog/projectfailures/worldwide-cost-of-it-failure-6-2-trillion/7627