Risk Management — 4TH

Intro:

Risk is defined as the probability of an event and its consequences.

Risk mgt. focuses on identifying what could go wrong, evaluating risks should be dealt with and implementing strategies to deal with those risks.

It is an important part of project planning activities that involves identifying and estimating the probability of risks with their order of impact on the project.

There are 3 main classifications of risks that can affect s/w project:

(A) Project Risk:

It concerns topics like budget, schedule, personnel, resource and customer related problems. Since the project is intangible, it is very tough to monitor and control it.

(B) Technical Risk:

It concerns potential method, implementation, testing and maintainance issues as well as technical uncertainity and technical obsolescence. This risk occurs due to insufficient knowledge about technology and project.

(C) Business Risk:

It contains risks of building an excellent product that no one need, losing budgetary, or communication etc.

(1) # Identification of Risks:

Identifying risk is one of the most important or essential and initial step in risk management process. By chance, if failure occurs in identifying any particular risks, then all other steps that are involved in risk mgt. will not be implemented for that particular task.

To manage risk, project team or org. are needed to know about what risks it faces, and then evaluate it.

Methods for Identifying Risks:

(1) Checklist Analysis

A technique used generally for identy identifying and managing risks. The checklist is developed by listing items, steps, tasks and is then further analysed against provided criteria of risks.

(2) Brainstorming:

Provides and gives free and open approach that usually encourage each and everyone on project team to participate. Used to determine best possible soln to problems as well as issues that arises and emerge.

(3) Casual Mapping:

on reflection
A method that builds, and review

failure factors in cause and effect of the diagrams. A best key tool for risk assessment.

(4) **SWOT Analysis** (Strengths-Weakness-Opportunities-Threat): is
SWOT is very helpful technique for identifying risks within greater org. context. Basically used for formulation of strategies for project. It seriously helps to find out weaknesses and threats.

(5) **Flowchart Method**
This method allows for dynamic process to be diagramatically represented on paper. Generally used to represent activities of process graphically and sequentially to simply find the risk.

(2)
Risk Analysis: (and Prioritization)
Risk analysis in project mgt is a sequence of processes to identify the factors that may affect a project's success. This process includes risk identification (already discussed), analysis of risks and management of risks.
Risk analysis helps to control possible future events that may harm overall project. It is a pro-active process.

During risk analysis, we do:

1 * Identifying the problems causing risk in project
2 *   "   "   probability of occurence of problem
3 *   "   "   impact of problem
4 * Assign value to step 2 and 3 in range of 1-100 as (0-10) very low, (10-25) low, (25-50) moderate, (50-75) high and (75-100) very high.

5 * Calculate risk exposure factor as:
$$(RE) = (\text{potential damage}) * (\text{probability of occurence})$$
   i.e.   (step 3)   *   (step 2)

   (a) potential damage : a money value.
      Eg : earthquake in 2015 caused $10 millions of damage.

   (b) probability : Ranges from 0.00 to 1.00
      Eg : 0.1 (ten time in hundred chances)

   ∴ $RE = (10,000,000) * (0.1) = \$10,00000$

6 *. Prepare table consisting of all of these values and order risk on the basis of risk exposure factor.

Eg:	Risk No	Problem	Prob. of occurence	Impact of problem	Risk Exposure	Priority
	R1	Issue of Incorrect Password	2	2	4	10
	R2	Design is Not Robust	2	7	14	5

(3) Risk Avoidance and Mitigating(tion) :-

The purpose of this technique is to altogether eliminate the occurence of risks. So the method, to avoid risks is to reduce the scope of projects by removing and none essential requirements.

(4) Risk Monitoring

Here, the risk is monitored continuously by re-evaluating the risk, the impact of risk and the probability of risk (occurence) and ensures that:

⊛ Risk has been reduced.

⊛ New risks are discovered.

⊛ Impact and magnitude of risks are measured.

Evaluation of Risks Using Z-values:

Expected time and standard deviations:

$$S = \frac{b-a}{6}$$

Ex

| Activity | Duration (kleeks) | | | | |
	optimistic (a)	most likely (m)	pessimistic (p)	Expected (te)	SD (s)
A	5	6	8	6.17	0.50
B	3	4	5	4.00	0.33
C	2	3	3	2.83	0.17
D	3.5	4	5	4.08	0.25
E	1.	3	4	2.83	0.50
F	8	10	15	10.50	1.17
G	2	3	4	3.00	0.33
H	2	2	2.5	2.08	0.08

Q. SD for event 3 depends solely on activity B. The SD for event therefore is 0.33.

for event 5, there are two possible paths, B+E or F. So,

The total SD for path B+E is $\sqrt{(0.33)^2 + (0.50)^2} = 0.6$ and for F is 1.17. Therefore, SD for event 5 is greatest among two paths ie. 1.17 (1.17 > 0.6)

Now,

Verify SD for each of other events of projects?

Event 4: path A+C has SD. of $\sqrt{0.50^2 + 0.17^2} = 0.53$

path B+D has SD of $\sqrt{0.33^2 + 0.25^2} = 0.41$

∴ Node 4 has SD of 0.53

Event 6: path ~~A+H~~ A+H has SD $\sqrt{0.53^2 + 0.08^2} = 0.54$

path 5+G has SD $\sqrt{1.17^2 + 0.33^2} = 1.22$

∴ Node 6 has SD of ~~0~~ 1.22

Now, Calculating z-values:
$$z = \frac{T - te}{s}$$

(Q) Z-value of ~~~~ even 4 is $(10 - 9.00)/0.56 = 1.8864$
find others?

∴ z value of event 5 is $\frac{10 - 10.5}{1.17} = -0.43$

z " " even 6 is $\frac{15 - 13.5}{1.22} = 1.23$

Now,
Converting z-value to probability:

Event 4:

The z value is 1.89 which is equal to a probability of approx. 3%. Therefore, only 3% chance is there, that we will not achieve this event by target date of end of week 10.

Event 5 z-value is 0.48 which equals to probability of 67%. Therefore, there is 67% chance that we will not achieve this event by the target date by end week 100.

To calculate the probability of completing the project by week 14, we need to calculate a new z-value for event 6 using target date of 14. New, z-value is:

$$z = \frac{14 - 13.5}{1.22} = 0.41$$

This equates to prob. of approx 35%, which is the prob. of not meeting the target date.

The prob. of meeting target date is therefore 65% i.e. (100 - 35)%.

E·N·D·

If you find these notes Helpful!

You can help me get Tea/Coffee
(If you Will)

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Love From