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Software Project Management

30-11-21 Lecture 17

Assignment: What is estimation? Why do we perform estimation? What are estimation techniques in software project management?

Estimation :-

In software project management, estimation is the process of predicting the most realistic amount of effort, cost, size of software, based on incomplete, uncertain input develop in early stages of development.

Date:

Why?

Estimation is important because every organisation has some budget, time & man power constraints. So they are willing to know the costs before diving into the project.

Techniques :-

Here are the three techniques used for estimation in SPM.

1. Function Point Analysis
2. Constructive Cost Model
3. Delphi

Delphi

Delphi is an estimation technique used to predict the software sizes.

Date:

→ It is a systematic, interactive forecasting method which relies on a panel of experts. Experts respond to several rounds of questionnaires and the responses are aggregated and shared with the group after each round.

→ For implementing this method, a meeting is held by the coordinator who calls to different experts from within/outside the organisation. The experts might be project managers from other organisation who have experience in similar projects.

Delphi Steps

Here are the steps for Delphi estimation:

1. Formation of teams:

First step is to form the three teams :-

i. Coordinator :- The coordinator is responsible for conducting the meeting and setting goals for it. The coordinator is largely responsible for providing feedback to the design and administration of the Delphi process. He is also responsible for providing feedback to experts and generating final forecasts. The efficiency and effectiveness of the facilitator (coordinator) can dramatically increase the probability of a successful Delphi.

ii_ Author: The author notes down the minutes of meeting (important highlights of the meeting to be distributed into team members later). He also presents the project details.

iii_ Experts: The team of experts may include experts from within or outside the organisation. The experts are generally project managers too, having some experience in similar projects. They estimate the size based on experience only. So human factor is very important in Delphi.

2_ Project Details:

The author presents the project details to the meeting members.

The three important points here
i. What are the client needs and system requirements
ii. What are the meeting expectations from this group?
iii. What are the assumptions regarding the project and the author discusses with the whole team to finalize the assumptions. (open discussion).

3. Variance Value :-

The author and the experts will discuss and specify the criteria for accepting / rejecting the estimations, on the basis of a specified variance value.

4. Task Decomposition:

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All the members of the meeting will divide the project into different tasks. The coordinator will prepare a list of the finalized tasks and distribute it among the team members.

5. Estimation:

Experts will make estimations for each task in the given list independently and anonymously. This means the experts can not be influenced by political and social pressure in their forecasts. All experts are given an equal say. Experts submit the estimations and detailed qualitative justifications for them to the coordinator.

6. Feedback :-

The coordinator collects the responses and makes a summary for both numerical data, outlines of qualitative justifications. It may also include the graphical representations. Hence the summary with each task name, experts, their estimations is given distributed among all and members of meeting will accept or reject the tasks estimations based on the pre-determined variance value.

7. Reconsidering tasks :

After the feedback is provided all the team members will re-assess the rejected tasks. They might reject decompose a task or combine tasks together (merge). Hence a new task list is made to perform estimations.

8. Iterations:

All the steps from (5) are performed again and again until all task estimations are finalized and accepted.

Pros and Cons:

Here are some pros and cons of opting for Delphi:

Date:

Advantages:

→ Delphi method seeks to aggregate opinions from a diverse set of experts.

→ It can be done without having to bring everyone together for a physical meeting.

→ Since responses are anonymous experts don't have to worry about repurcussions for their responses.

Disadvantages :-

→ This method does not result in the same sort of interaction as a live discussion. A live

discussion can sometimes produce a better example of consensus as ideas and perceptions are introduced, broken down and reassessed.

→ Responses ~~time~~ can take a long time, which can slow down the rate of discussion.

→ It is also possible that information received back from the experts will provide no innate value.

→ If it is taking a long time in reaching a consensus, the panel may lose interest and cohesiveness.