**SSW 555 Agile Methods for Software Development**

**Homework 10**

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**For each different color of the Crystal family of methods there are different assumptions about the project and different expectations of the project team. In general the process becomes more formal as the risks of the project increase.**

**1. Describe how project risks increase as the colors change from Clear to Red.**

* Crystal clear is used for small projects in which team size ranges from 6 to 10 people.
* Crystal Red is used for larger projects, in which team sizes are very large, that is probably 40 - 100 people.
* Thus, as the team size increases, following projects risks can be encountered:
  + Integration of all the team modules.
  + Resource management.
  + Co-ordination of resources and work.
  + Time management.
  + Cascaded delays in delivery.
  + Increased dependencies slowing delivery.
  + Inaccurate estimates.
  + communication overhead.
  + Design Feasibility issues

**2. Describe how the process becomes more formal as the colors change from Clear to Red.**

* As the team size changes from a small team of 6-10 developers to a large team of 20+ developers, some processes in the team need to be standardized for proper co-ordination and functioning of the teams.
* Let’s consider some scenarios where the processes become more formal:
* Daily stand-ups or meetings:

In small sized teams, meetings can be arranged and follow-ups can be taken from colleagues as and when needed. But in large organization, a case like this may end up taking a person’s entire time in meetings, so stand-up meetings or daily discussion sessions of specific time duration may be setup.

* Separate Teams for Design, Development, QA, Business.

In a start-up or a small team, there is no clear division of labor and each person may be responsible for doing tasks from different domains. For example, same person be responsible for developing, designing and testing an entire module in the system. But as the team size grows it is better to have separate teams to keep things organized and done by domain experts as level of risk is high.

**3. Explain why the process must become more formal as the risks increase. That is, justify each new formalism with its mitigation effect on risks.**

* As the team size increases, the number of risks also can increase such as lack of communication, co-ordination of team members, improper judgement of resources, etc.
* If the processes are accounted properly, these risks can be easily captured and steps can be taken to resolve them.
* If there is no such standardization process, all the factors can go unmeasured and the affect the project’s success.
* Thus, for evaluating and minimizing the risks, the processes must become more formal and standardization should be introduced.
* Let’s look at some of the formal methods followed and how they help mitigate the risk:
* **Kanban boards or Scrum Boards or Blitz Planning cards:**

If the tasks are allocated to members of a team, and if one of team member is not sincere in following the deadlines, there is no way to keep his track other than communicating with his manager.

With Kanban boards or Scrum boards or Blitz Planning cards, daily or weekly progress of every team member is tracked by everyone in his team. He is accountable to everyone in his team by maintaining these boards. Thus, a huge risk of lack of communication and accountability is mitigated by this approach.

* **Pair Programming or Side by side Programming:**

By introducing this simple formalization, team members can easily approach each other for impediments, learn from each other and help each other for being more productive.

Absence of this, may end up taking more time to think upon a task, reluctance to take help from team members and lack of growth.

Introducing a simple formal scheme of pair programming or side-by-side programming can prove very beneficial to organizations.

**4. Describe how agility is sacrificed as the colors change from Clear to Red.**

* As the team size changes, from 6 - 10 people to 20+ people, it becomes necessary to standardize some processes in the system so that it functions successfully.
* But due to bringing standardization the processes, they become formal and they must be carried out in a certain manner even if they seem doable in simple steps.
* For example, in a large organization, you have a certain software to be installed on your machine, you should make a request to the IT department so that they grant you the necessary permissions to install that software. In a small firm, you would rather carry out the process in few minutes on your own.
* Thus, standardization brings discipline but it reduces the flexibility in the system.