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Course: Agile methods of Software Development.

Q1. Describe how project risks increase as the colors change from Clear to Red.

Ans The Crystal methodology is one of the most lightweight and adaptable approaches for software development. Crystal is actually comprised of a family of agile methodologies such as Crystal Clear, Crystal Yellow, Crystal Orange, Crystal Red, and others. Each agile methodology has unique characteristics measured on several factors such as team size, system criticality, and project priorities.

As the color changes from clear to red, the number of people involved in project can be seen as increasing from 1-6 to 81-200. With the increase in number of people, the communication among the team gets more complex and it gets difficult to keep track of everyone else's work. The larger the team, more difficult it is to manage it and hence it may cause the delay in the completion of the project. The larger team works on more complex product hence the product has significant impact on the users. As the product has significant impact on user, the risk factor of the product increases as well. Due to lack of communication, the exchange of ideas seems difficult and focus is also decreased. Due to such reasons, we can say that the risk gradually increases as we go from clear to red.

Q2 Describe how the process becomes more formal as the colors change from Clear to Red..

Ans. As the color changes from clear to red, the team size increases. In the smaller teams, the communication is informal and the members can walk up to anyone with their questions and issues. The daily meetings included entire team/ all members. As the team size increases, it becomes more difficult to have the same mechanism of informal communication due to the hierarchy in team in order to simplify the flow of communication. As the team is bigger, more money is being invested in the team and problems are complex, it is necessary to create documentation for the product. There is hierarchy of people with defined roles, defined flow of communication, defined guidelines for the implementation, defined infrastructure. Crystal methodology of software development is ultralight process which means according to project size and priorities, a crystal family methodology for the project will work which eventually reduce the overhead and bureaucracy.

Q3. Explain why the process must become more formal as the risks increase. That is, justify each new formalism with its mitigation effect on risks.

Ans. As the risk increases, the process need to be more defined in order to work with more people. As there are more number of people, it is necessary to have dedicated roles for some responsibilities in order to ease the communication as face-to-face communication is not possible.

Adopting formalism processes might mitigate risk factor as documentation and proper communication. Some of formalism with its mitigation effects are as follow:

- Documentation and decent paperwork for system to work as expected.
- As number of people increases in team, informal and mutual confirmation on any change and decision won't be good way.
- Close communication is highly recommended for large team because open communication might be distraction.

Risk of outside distraction can be mitigated as communication in formal made it close. . Understanding of project and all features is necessary hence proper documentation is performed. This helps in keeping track of status of features. As the risk increases the processes are formalized in order to maintain smooth flow of ideas and to maintain the comfort among the team.

Q4. Describe how agility is sacrificed as the colors change from Clear to Red.

Ans. Agile system was designed for teams with smaller number of people. As color changes from clear to red, the number of people increases from 6 to 200. Agile principles cannot be implemented for such a large team as the vital process of face-to-face and informal communication cannot occur and the frequent releases are not possible due to the complexity of the problem. Besides, more time is spent on documentation for features which was not the case in agile. Crystal Red uses blitz planning rather than simple sprint planning. In crystal family of methodologies named after color, crystal method has lower life criticality of project and small team size. While changing the color from crystal to increasingly red, team size and project criticality get increased. It might be easy to follow agile method and deliver product quickly and project is small on timely basis; but as crystal red methodology applies to large, critical projects, it might be difficult to follow agile way of completing processes and completing system in working manner.