Crystal Model

Crystal is a family of methodologies developed by Alister Cockburn for IBM in the early 90s and predates the Agile manifesto by nearly 10 years.

Crystal is not always defined by strict rules, but instead by loose direction and guidance, especially with smaller team sizes.

The Crystal process is widely open to interpretation but relies on the foundation of a few key principles.

Crystal is an agile framework focusing on individuals and their interactions, as opposed to processes and tools. In other words, this framework is a direct outgrowth of one of the core values articulated in the Agile Manifesto.

The Crystal agile framework is built on two core beliefs:

- Teams can find ways on their own to improve and optimize their workflows.
- Every project is unique and always changing, which is why that project's team is best suited to determine how it will tackle the work.

Properties of crystal agile framework:

1- Frequent Delivery: It allows you regularly deliver the products and test code to real users. Without this, you might build a product that nobody needs.

2- Reflective Improvement: No matter how good you have done or how bad you have done. Since there are always areas where the product can be improved, so the teams can implement to improve their future practices.

3- Osmotic Communication: Alistair stated that having the teams in the same physical phase is very much important as it allows information to flow between members of a team as in osmosis.

4- Personal Safety: There are no bad suggestions in a crystal team, team members should feel safe to discuss ideas openly without any fear.

5- Focus: Each member of the team knows exactly what to do, which enables them to focus their attention. This boosts team interaction and works towards the same goal.

6- Easy access to expert users: It enhances team communication with users and gets regular feedback from real users.

7- Technical tooling: It contains very specific technical tools to be used by the software development team during testing, management, and configuration. These tools make it enable the team to identify any error within less time.

Crystal family consists of many variants like Crystal Clear, Crystal Yellow, Crystal Red, Crystal Sapphire, Crystal Red, Crystal Orange Web, and Crystal Diamond.

- Crystal Clear: The team consists of only 1-6 members which is suitable for short-term projects where members work out in a single workspace.
- Crystal Yellow: It has a small team size of 7-20 members, where feedback is taken from Real Users. This variant involves automated testing which resolves bugs faster and reduces the use of too much documentation.

- Crystal Orange: It has a team size of 21-40 members, where the team is split according to their functional skills. Here the project generally lasts for 1-2 years and the release is required every 3 to 4 months.
- Crystal Orange Web: It has also a team size of 21-40 members where the projects have a continually evolving code base that is being used by the public. It is also similar to Crystal Orange but here they do not deal with a single project but a series of initiatives that required programming.
- Crystal Red: The software development is led by 40-80 members where the teams can be formed and divided according to requirements.
- Crystal Maroon: It involves large-sized projects where the team size is 80-200 members and where methods are different and as per the requirement of the software.
- Crystal Diamond & Sapphire: This variant is used in large projects where there is a potential risk to human life.

CLEAR	YELLOW	ORANGE	RED	MAROON	DIAMOND & SAPPHIRE
6 people	20 people	40 people	80 people	More people	Large Size

CRYSTAL TEAM SIZE

Benefits of using the Crystal Agile Framework :

- Facilitate and enhance team communication and accountability.
- The adaptive approach lets the team respond well to the demanding requirements.
- Allows the team to work with the one they see as the most effective.
- Teams talk directly with each other, which reduces management overhead.

Drawbacks of using the Crystal Agile Framework :

- A lack of pre-defined plans may lead to confusion and loss of focus.
- A lack of structure may slow down inexperienced teams.
- Not clear how a remote team can share knowledge informally.

The Crystal Method is expandable. It may be used by small teams or large teams to work on simple or complex objects. It places importance on developmental skills and interactions which in turn encourage the exchange of ideas. It is also beneficial for the clients as it delivers the most important components of the product first. But on the other hand, the Crystal Method does not plan based on the requirements of the projects.

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