



Everyone's Smart
University

PMG 622

AGILE PROJECT MANAGEMENT

LECTURE 07: ANNEX A3

OVERVIEW OF AGILE AND LEAN

FRAMEWORKS [1/2]

دكتور مهندس استشاري ادارة المشروعات

Eng. Dr. Akram Mustafa Suliman Ali,

PhD. AU, BEng. & MSc. AAST, CEng CMarEng MIMarEST, PE, PMP®,

ASQ CSSBB, ISO Lead Auditor, NDT Level II,

FREE PROJECT MANAGEMENT AND RELATED RESOURCES

- Infringement of intellectual property is a violation of Project Management Code of Ethics.
- There is a free alternative to all resources requiring special license.
- Based on your specialty list the software and other resources that require a license and their free alternative.
- Could your organization recognize the free alternatives and if not what do you think are the obstacles.



Forum Topic: FREE
RESOURCES

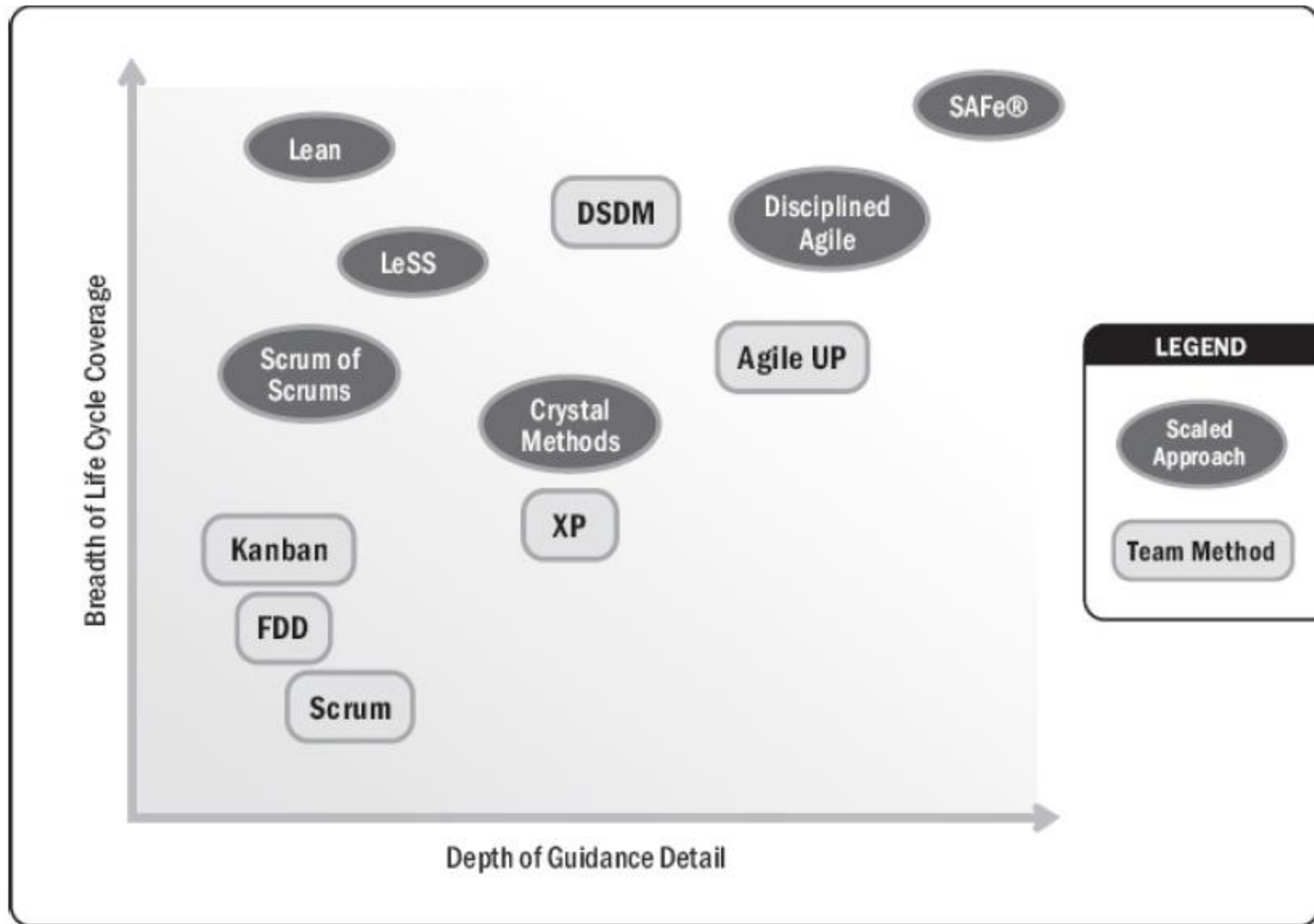
INTRODUCTION TO AGILE AND LEAN FRAMEWORKS

- These approaches can be used as is or combined to adapt to what works best for a given environment or situation.
- It is **NOT** necessary to use any of these; an agile approach can be developed from scratch as long as it adheres to the mindset, values, and principles of the Agile Manifesto.
- If the agile principles are followed to deliver value at a sustainable pace, and the developed approach promotes collaboration with the customer, a specific approach is not required.

SELECTION CRITERIA FOR THE *AGILE PRACTICE* *GUIDE*

- **Designed for holistic use**
 - Intended to guide a broad set of project activities
- **Formalized for common use**
 - Intended for common use in a variety of contexts
- **Popular in modern use**
 - Adopted by a significant number of industries

AGILE APPROACHES BREADTH AND DETAIL





جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

SCRUM

SCRUM

- Scrum is a single-team process framework used to manage product development.
- The framework consists of Scrum roles, events, artifacts, and rules, and uses an iterative approach to deliver working product.
- Scrum is run on timeboxes of 1 month or less with consistent durations called sprints where a potentially releasable increment of product is produced.

THE SCRUM TEAM (ROLES)

- The product owner is responsible for maximizing the value of the product.
- The development team is a cross-functional, self-organizing team consisting of team members who have everything they need within the team to deliver working product without depending on others outside of the team.
- The scrum master is responsible for ensuring the Scrum process is upheld and works to ensure the Scrum team adheres to the practices and rules as well as coaches the team on removing impediments.

SCRUM EVENTS AND ARTIFACTS

Events	Artifacts
Sprint	Product backlog
Sprint planning	Sprint backlog
Daily scrum	Increments
Sprint review	
Sprint retrospective	



جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

EXTREME PROGRAMMING

XP

- eXtreme Programming (XP) is a software development method based on **frequent cycles**.
- The name is based on the philosophy of distilling a given best practice to its **purest**, **simplest** form, and applying that practice continuously throughout the project.
- XP is most known for popularizing a holistic set of practices intended to improve the results of software projects.
- The method was first formalized as a set of **twelve primary practices**, but then gradually evolved to adopt several other corollary practices.

XP Practice Area	Primary	Secondary
Organizational	• Sit together • Whole team • Informative workspace	• Real customer involvement • Team continuity • Sustainable pace
Technical	• Pair programming • Test-first programming • Incremental design	• Shared code/collective ownership • Documentation from code and tests • Refactoring
Planning	• User stories • Weekly cycle • Quarterly cycle • Slack	• Root cause analysis • Shrinking teams • Pay per use • Negotiated scope contract • Daily standups
Integration	• 10-minute build • Continuous integration • Test-first	• Single code base • Incremental deployment • Daily deployment

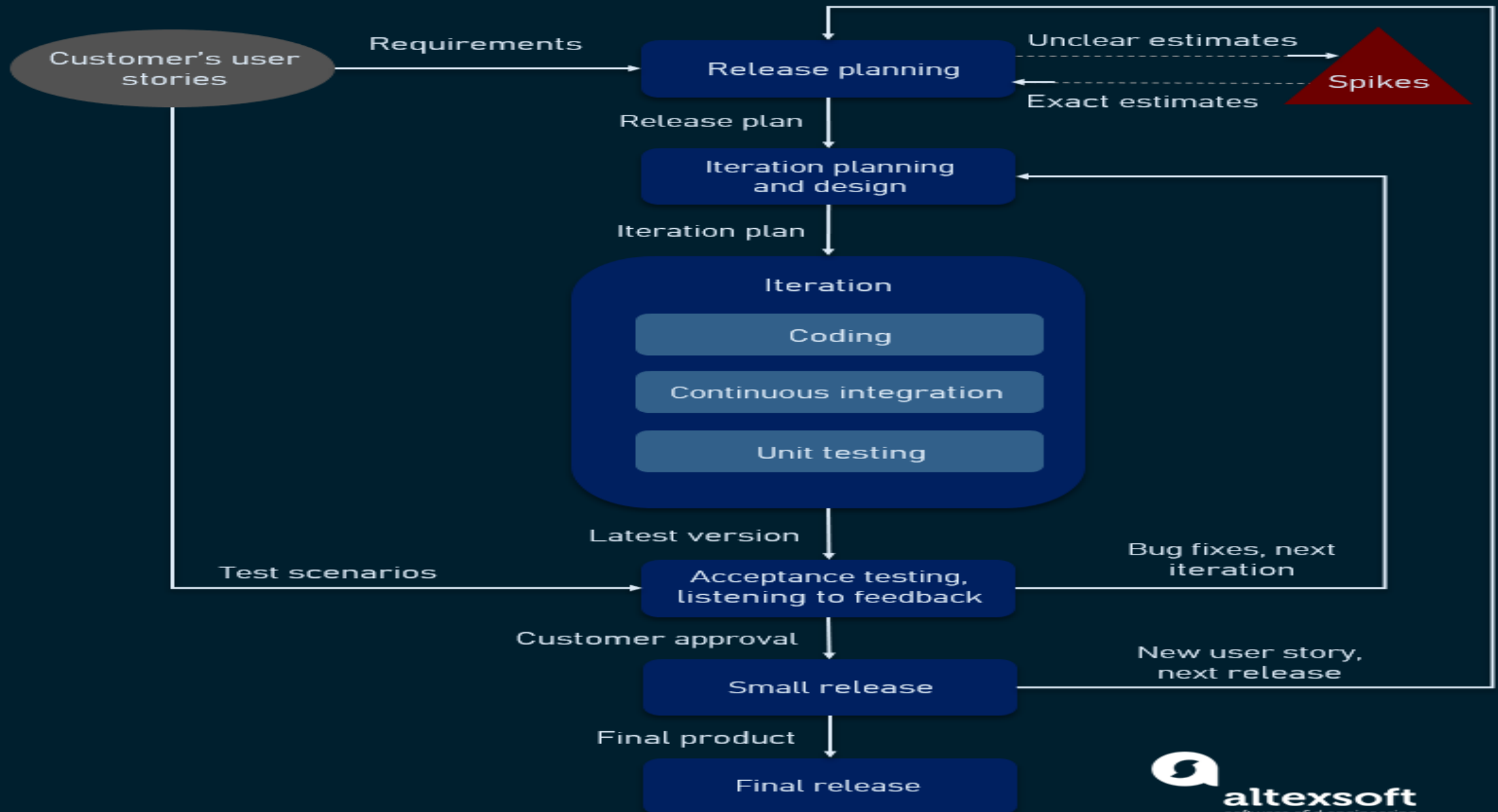
CORE VALUES

1. communication,
2. simplicity,
3. feedback,
4. courage,
5. respect

KEY PRINCIPLES

1. Humanity
2. Economics
3. mutual benefit
- 4. self-similarity**
5. Improvement
6. Diversity
- 7. Reflection**
- 8. Flow**
9. Opportunity
- 10. redundancy**
11. Failure
12. Quality
13. baby steps
14. accepted responsibility

EXTREME PROGRAMMING LIFECYCLE





جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

KANBAN METHOD

KANBAN METHOD [1/2]

- Kanban in lean manufacturing is a system for scheduling inventory control and replenishment.
- This process of “just-in-time” inventory replenishment was originally seen in grocery stores when shelves were restocked based on the gaps in the shelves and not supplier inventory.
- Inspired by these just-in-time inventory systems, Taiichi Ohno developed Kanban and it was applied at the main Toyota manufacturing facility in 1953.
- The Kanban Method is a holistic framework for incremental, evolutionary process and systems change for organizations.

KANBAN METHOD [2/2]

- The method uses a “pull system” to move the work through the process. When the team completes an item, the team can pull an item into that step.
- In the Kanban Method, it is more important to complete work than it is to start new work.
- There is no value derived from work that is not completed so the team works together to implement and adhere to the work in progress (WIP) limits and get each piece of work through the system to “done.”

KANBAN

- The word *kanban* is literally translated as “visual sign” or “card.”
- Physical kanban boards with cards enable and promote the visualization and flow of the work through the system for everyone to see.
- This information radiator (large display) is made up of columns that represent the states the work needs to flow through in order to get to done.
- The simplest of boards could have three columns (i.e., to do, doing, and done), but it is adaptable to whatever states are deemed needed by the team utilizing it.

APPLICABILITY AND UTILIZATION

- The Kanban Method is utilized and applicable in many settings and allows for a continuous flow of work and value to the customer.
- The Kanban Method is less prescriptive than some agile approaches and thus less disruptive to begin implementing as it is the original “start where you are” method.
- Organizations can begin applying Kanban Methods with relative ease and progress toward fully implementing the method if that is what they deem necessary or appropriate.

EMPHASIS

- Unlike most agile approaches, the Kanban Method does not prescribe the use of timeboxed iterations.
- Iterations can be used within the Kanban Method, but the principle of pulling single items through the process continuously and limiting work in progress to optimize flow should always remain intact.

CONDITIONS FOR BEST USE [1/2]

- **Flexibility.** Teams are typically not bound by timeboxes and will work on the highest priority item in the backlog of work.
- **Focus on continuous delivery.** Teams are focused on flowing work through the system to completion and not beginning new work until work in progress is completed.
- **Increased productivity and quality.** Productivity and quality are increased by limiting work in progress.
- **Increased efficiency.** Checking each task for value adding or nonvalue-added activities and removing the non-value adding activities.

CONDITIONS FOR BEST USE [2/2]

- **Team member focus.** Limited work in progress allows the team to focus on the current work.
- **Variability in the workload.** When there is unpredictability in the way that work arrives, and it becomes impossible for teams to make predictable commitments; even for short periods of time.
- **Reduction of waste.** Transparency makes waste visible so it can be removed.

DEFINING PRINCIPLES AND PROPERTIES OF THE KANBAN METHOD

Defining Principles	Core Properties
Start with current state Agree to pursue incremental, evolutionary change Respect the current process, roles, responsibilities, and titles Encourage acts of leadership at all levels	Visualize the workflow Limit work in progress Manage flow Make process policies explicit Implement feedback loops Improve collaboratively

KANBAN BOARD

- Kanban boards are a low-tech, hightouch technology that may seem overly simplistic at first, but those using them soon realize their power.
- Utilizing policies for entry and exit to columns, as well as constraints such as limiting work in process, kanban boards provide clear insight to workflow, bottlenecks, blockers, and overall status.
- Additionally the board acts as an information radiator to anyone who sees it, providing up-to-date information on the status of the work of the team.

**6
To Do**

**4
Analysis**

**5
Development**

**3
Test**

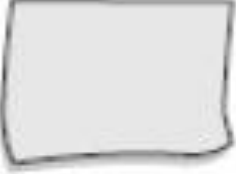
**4
Deploy**







Doing

Done




Doing



Done













جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

CRYSTAL METHODS

CRYSTAL METHODOLOGIES

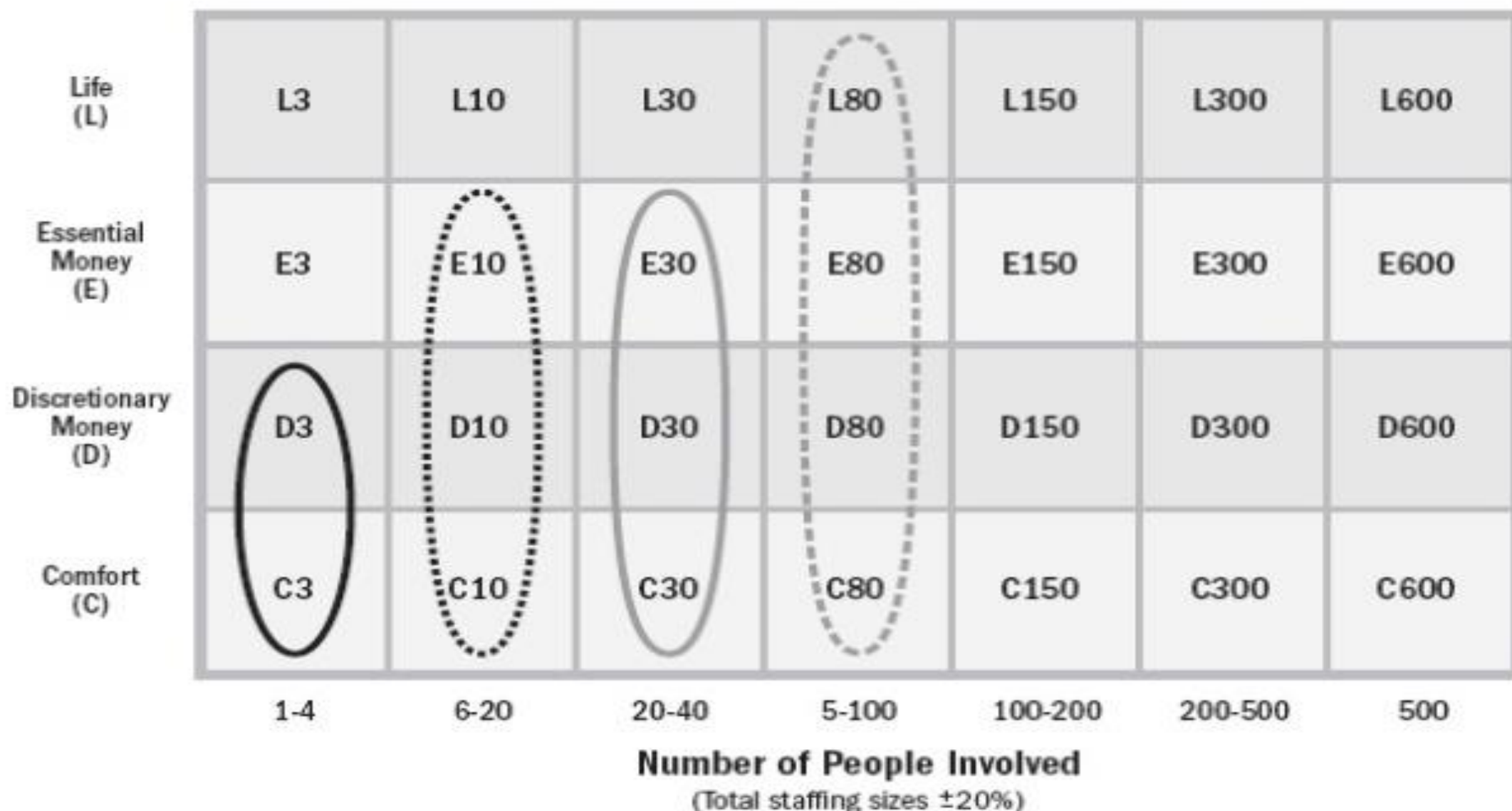
- Crystal is a family of methodologies.
- Crystal methodologies are designed to scale, and provide a selection of methodology rigor based on project size (number of people involved in the project) and the criticality of the project.
- Crystal Methodology realizes that each project may require a slightly tailored set of policies, practices, and processes in order to meet the project's unique characteristics.
- The family of methodologies use different colors based on “weight” to determine which methodology to use.
- The use of the word crystal comes from the gemstone where the various “faces” represent underlying core principles and values.

CRYSTAL FACES

Core Values	Common Properties (SUCCESS FACTORS)
People	Frequent delivery
Interaction	Reflective improvement
Community	Close or osmotic communication
Skills	Personal safety
Talents	Focus
Communications	Easy access to expert users
	Technical environment with automated tests, configuration management, and frequent integration

Criticality

(Defects cause loss of...)



LEGEND

Crystal Clear
 Crystal Yellow
 Crystal Orange
 Crystal Red



جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

SCRUMBAN

SCRUMBAN

- Scrumban is an agile approach originally designed as a way to transition from Scrum to Kanban.
- As additional agile frameworks and methodologies emerged, it became an evolving hybrid framework in and of itself where teams use **Scrum as a framework** and **Kanban for process improvement**.
- In Scrumban, the work is organized into small “sprints” and leverages the use of kanban boards to visualize and monitor the work.
- The stories are placed on the kanban board and the team manages its work by using work-in-progress limits.
- Daily meetings are held to maintain the collaboration between the team and to remove impediments.
- A planning trigger is set in place for the team to know when to plan next, typically when the work-in-progress level is lower than a predetermined limit.
- There are no predefined roles in Scrumban—the team retains their current roles.



جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

FEATURE-DRIVEN DEVELOPMENT

FDD

- Feature-Driven Development (FDD) was developed to meet the specific needs of a large software development project.
- Features relate to a small business value capability

FDD ROLES

- There are six primary roles on a Feature-Driven Development project where individuals can take on one or more of the following roles:
 1. Project manager,
 2. Chief architect,
 3. Development manager,
 4. Chief programmer,
 5. Class owner, and/or
 6. Domain expert.

FDD PROCESSES/ ACTIVITIES

- A Feature-Driven Development project is organized around five processes or activities, which are performed iteratively:
 1. Develop an overall model,
 2. Build a features list,
 3. Plan by feature,
 4. Design by feature, and
 5. Build by features.

FDD LIFE CYCLE

