GSOE9820 – Engineering Project Management

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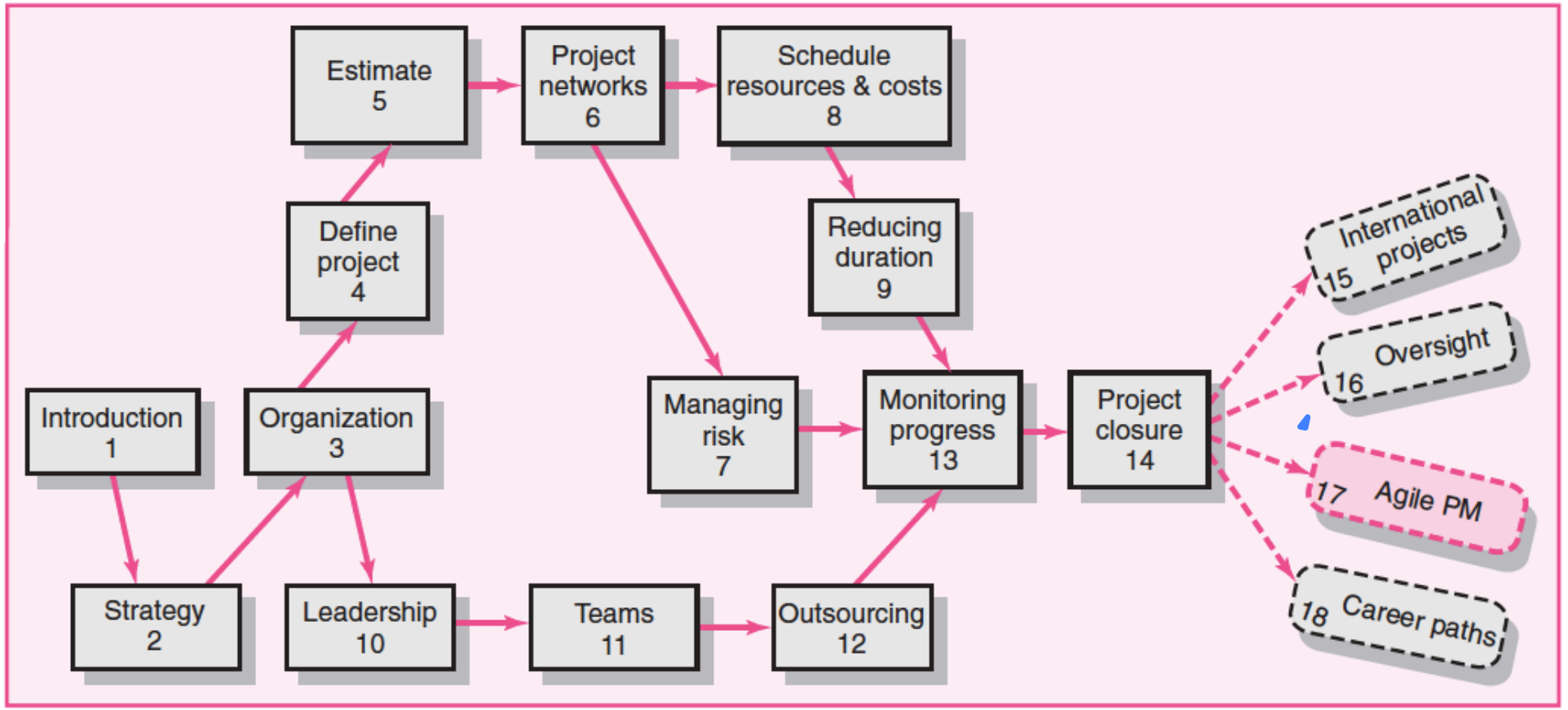
Never Stand Still | Faculty of Engineering | School of Mechanical and Manufacturing Engineering

Week 12
Introduction to agile project management

Course Roadmap



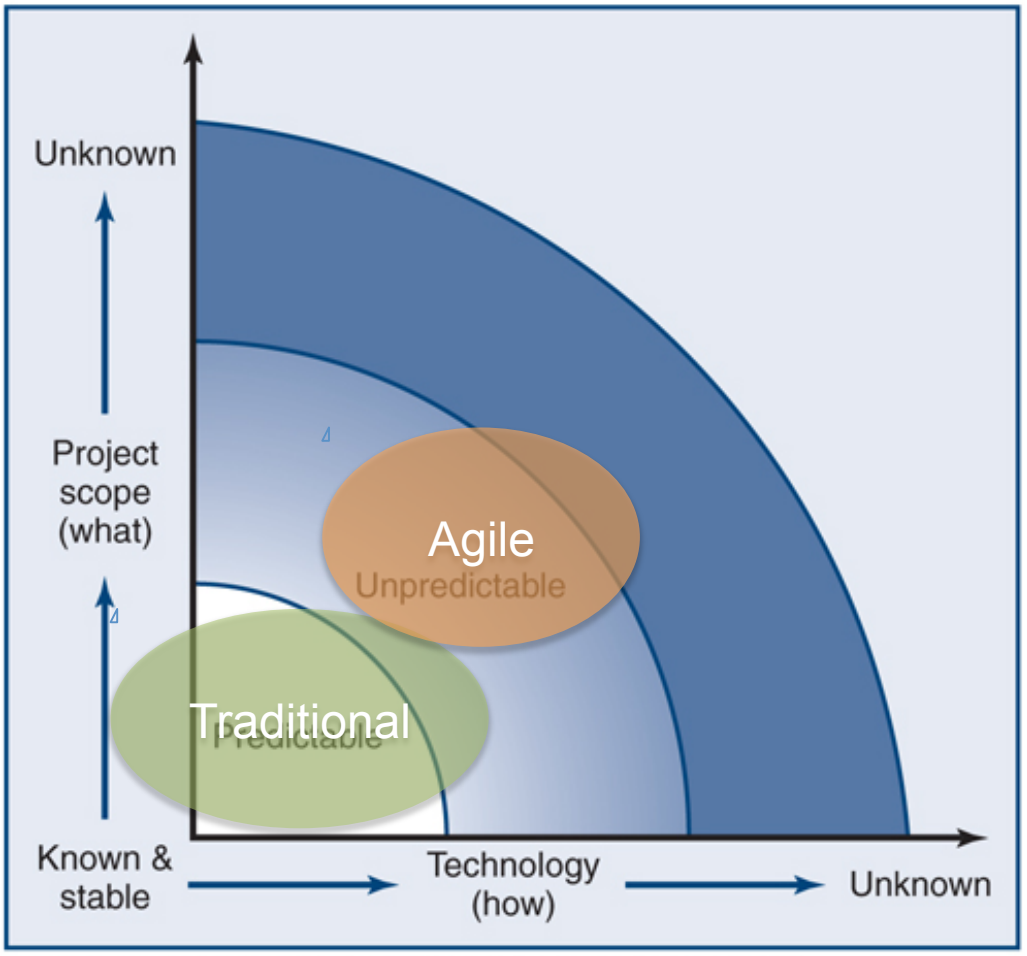
One-size does not fit all !!!

Traditional vs Agile project management

Traditional	Agile
Design up front	Continuous design
Fixed scope	Flexible
Deliverables	Features/requirements
Freeze design as early as possible	Freeze design as late as possible
Low uncertainty	High uncertainty
Avoid change	Embrace change
Low customer interaction	High customer interaction
Conventional project teams	Self-organised project teams

Project uncertainty

Figure 17.1 PROJECT UNCERTAINTY



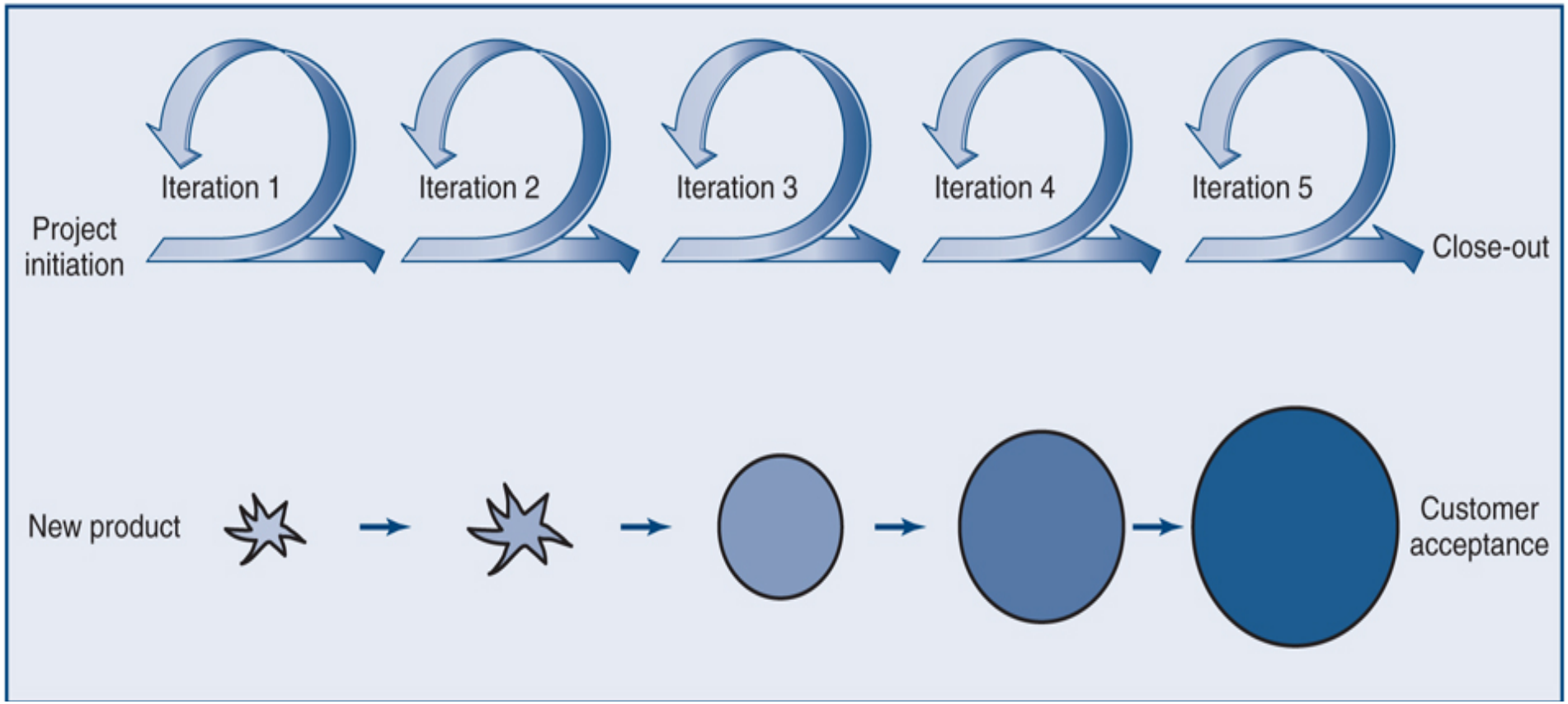
Agile project management

Related to the rolling wave planning and scheduling project methodology

- Uses iterations (short time frames/boxes) to develop a workable product that satisfies the customer and other key stakeholders
- Stakeholders and customers review progress and re-evaluate priorities to ensure alignment with customer needs and company goals
- Adjustments are made and a different iterative cycle begins that subsumes the work of the previous iterations and adds new capabilities to the evolving product

Incremental, iterative product development

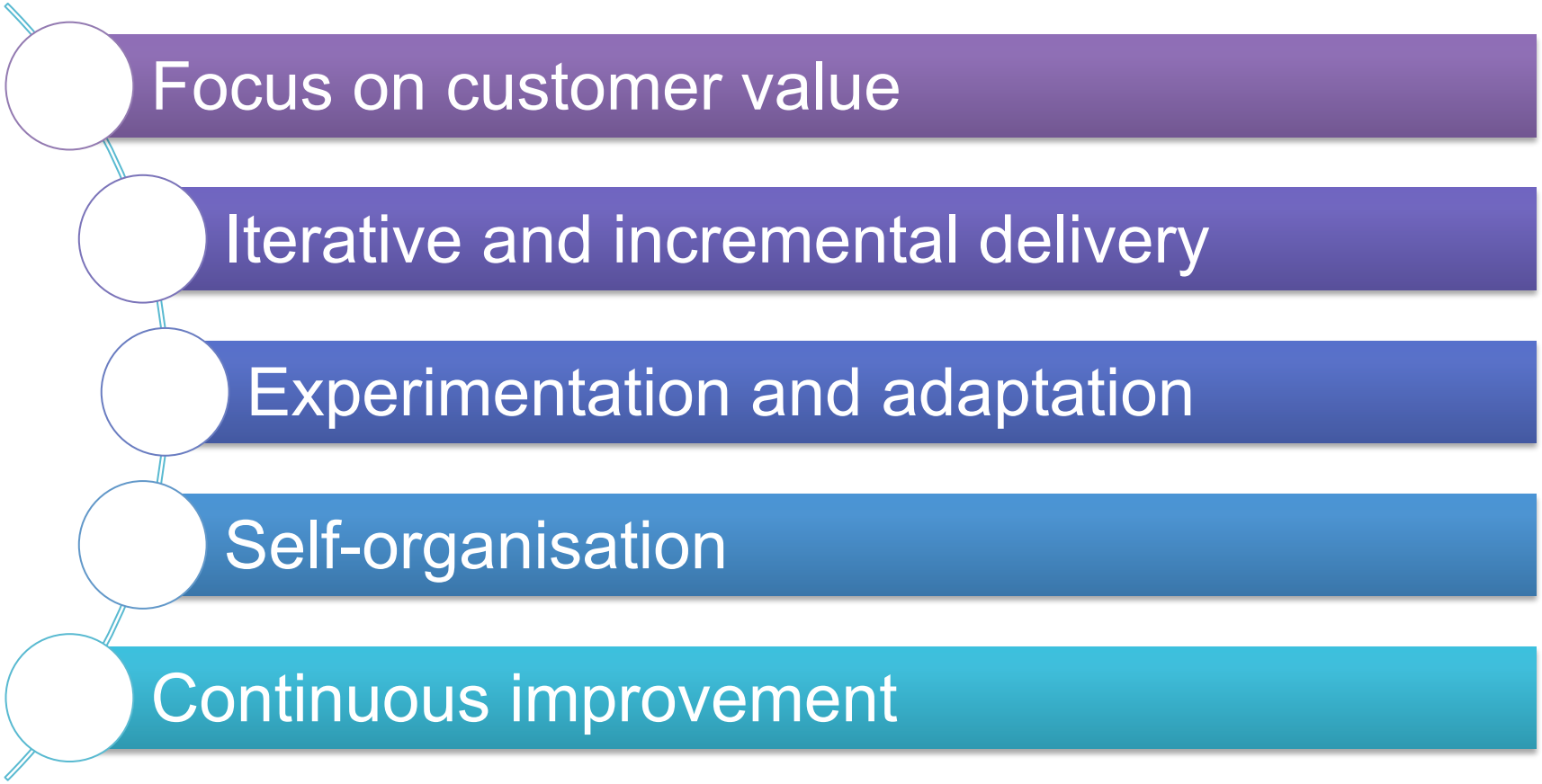
Figure 17.2 INCREMENTAL, ITERATIVE PRODUCT DEVELOPMENT



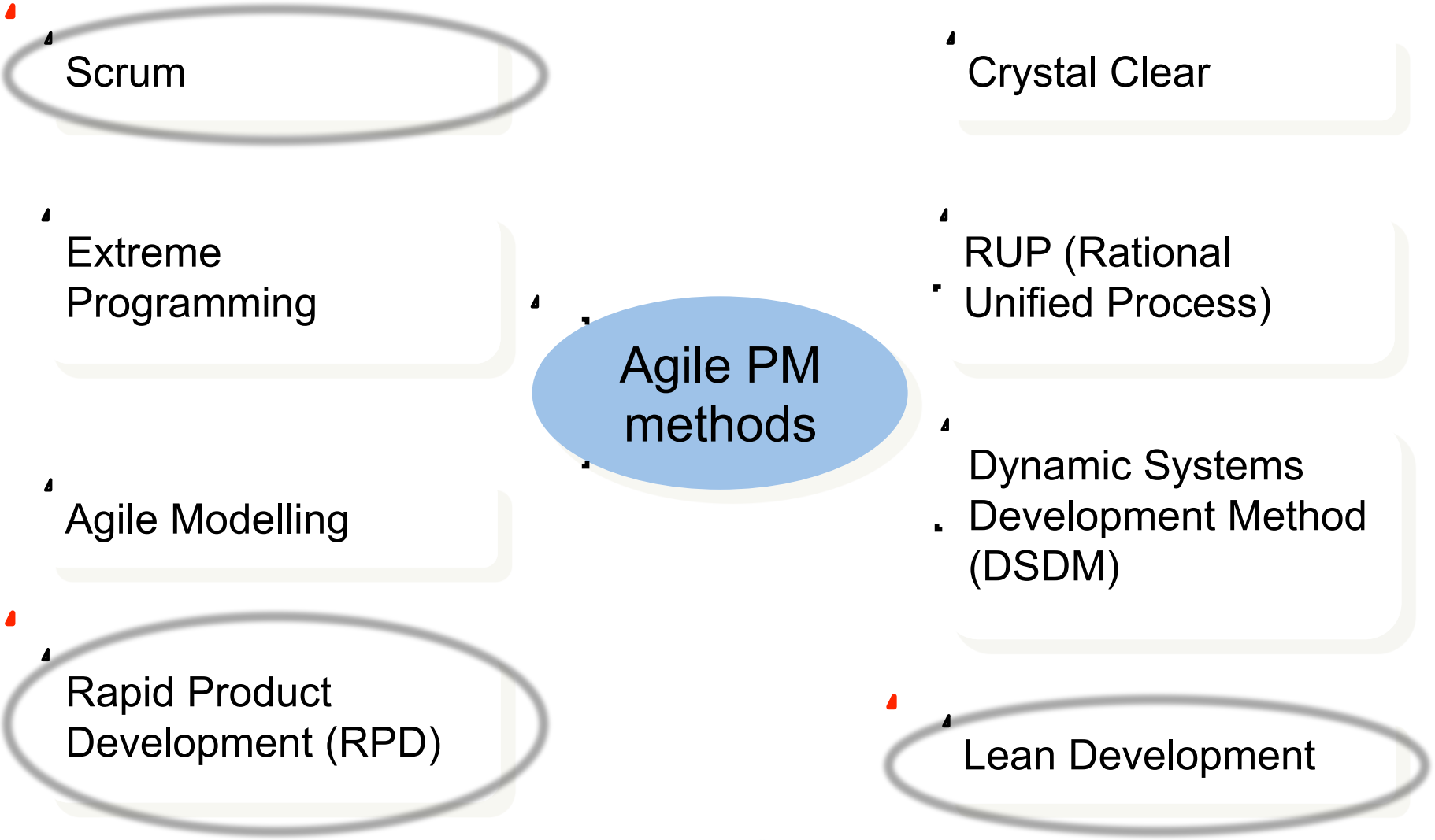
Advantages of Agile PM

- Useful in developing critical breakthrough technology or defining essential features
- Continuous integration, verification and validation of the evolving product
- Frequent demonstration of progress to increase the likelihood that the end product will satisfy customer needs
- Early detection of defects and problems

Agile PM principles



Popular Agile PM methods



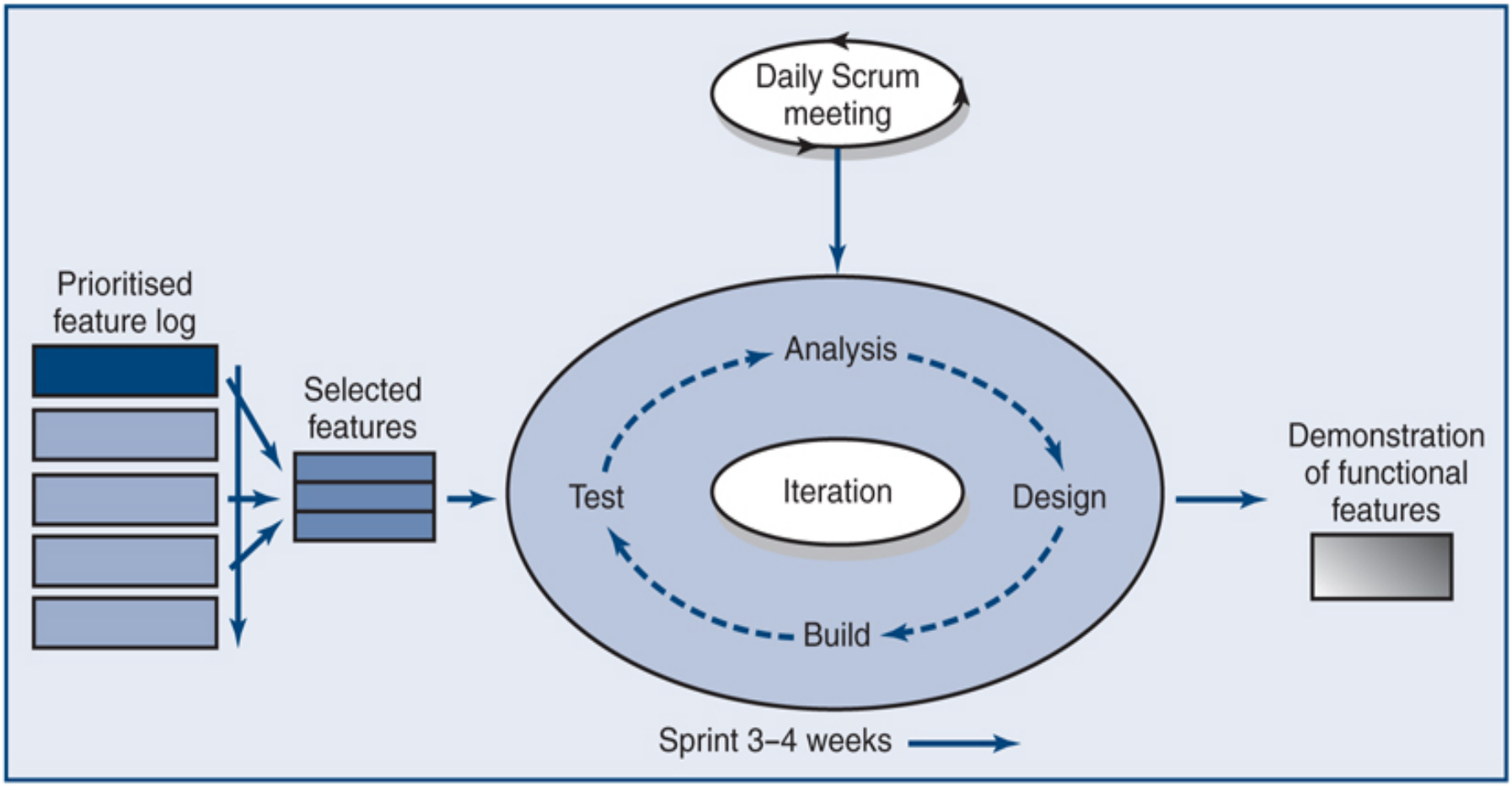
Agile PM in action: Scrum

Scrum methodology

- Is a holistic approach for use by a cross-functional team collaborating to develop a new product
- Defines product features as deliverables and prioritises them by their perceived highest value to the customer
- Re-evaluates priorities after each iteration (sprint) to produce fully functional features
- Has four phases: analysis, design, build, test
- Is usually applied to software development projects

Scrum development process

Figure 17.3 SCRUM DEVELOPMENT PROCESS



Scrum roles and responsibilities

Product owner

- acts on behalf of customers to represent their interests
- Negotiates goals with development team
- Can change features and priorities at end of each sprint (not during)

Development team

- is a team of 5 to 9 people with cross-functional skill sets who are responsible for delivering the product

Scrum master (aka project manager)

- facilitates scrum process and resolves impediments at the team and organisation level by acting as a buffer between the team and outside interference

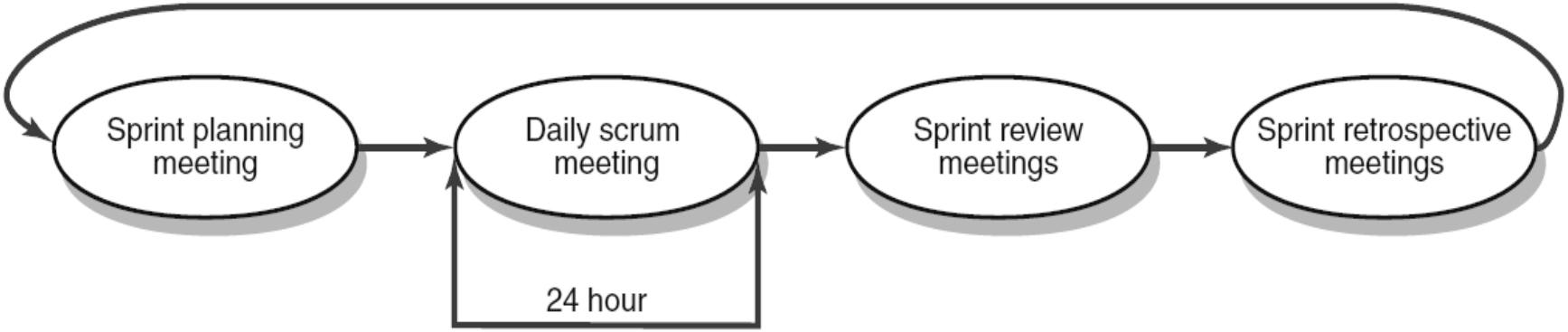
Scrum meetings

Sprint Planning

- break work down into 4 week pieces.

Daily Scrum – (15 minutes duration)

- What has been done since last scrum?
- What will you do between now and next scrum?
- What is getting in the way from performing your work as effectively as possible?



Applying Agile to large projects

Scaling

- Using several teams to work on different features of a large scale project at the same time

Staging

- Requires significant upfront planning to manage the interdependencies of different features to be developed
- Involves developing protocols and defining roles to coordinate efforts and assure compatibility and harmony

Limitations of Agile PM

- It does not satisfy top management's need for budget, scope and schedule control.
- The principles of self-organisation and close collaboration can be incompatible with corporate cultures.
- Agile methods appear to work best on small projects that require only 5 to 9 dedicated team members to complete the work.
- It requires active customer involvement and cooperation.