MONASH University

Information Technology

FIT2002
IT Project Management

Lecture 2
Organisational structures, Project and product lifecycles

Video 1:
Learning Objectives

- Describe the systems view of project management and how it applies to information technology (IT) projects
- Understand organisations, including the four frames, organisational structures, and organisational culture

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Projects Cannot Be Run in Isolation

- Projects must operate in a broad organisational environment
- Project managers need to use **systems thinking**:
  - taking a holistic view of carrying out projects within the context of the organisation
- Senior managers must make sure projects continue to support current business needs

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A Systems View of Project Management

- A **systems approach** emerged in the 1950s to describe a more analytical approach to management and problem solving
- Three parts include:
  - **Systems philosophy**: an overall model for thinking about things as systems
  - **Systems analysis**: problem-solving approach
  - **Systems management**: address business, technological, and organisational issues before making changes to systems

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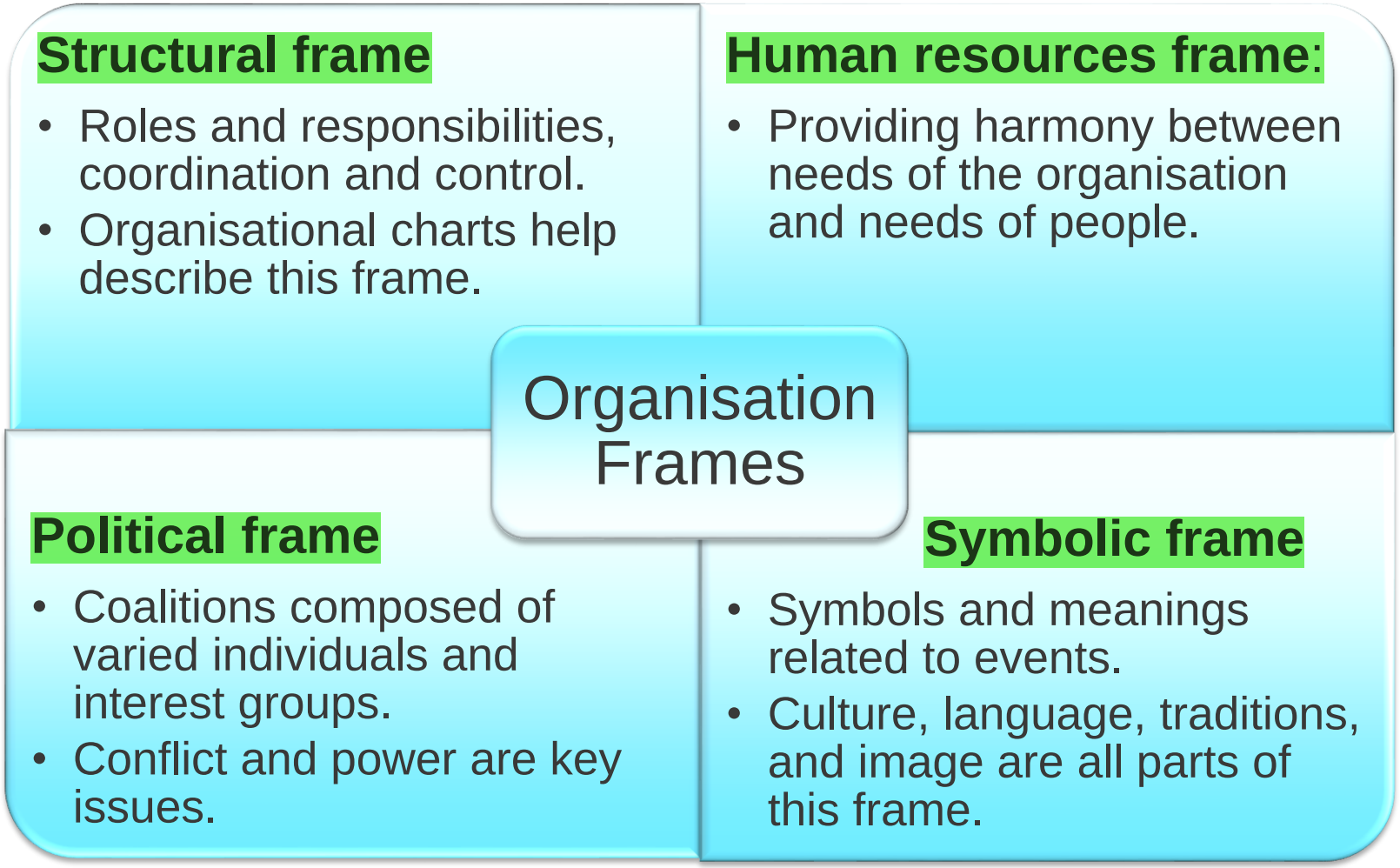
Perspectives on organisations



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Organisational Structures

- 3 basic organisation structures
  - **Functional:** functional managers report to the CEO
  - **Project:** program managers report to the CEO
  - **Matrix:** middle ground between functional and project structures; personnel often report to two or more bosses; structure can be weak, balanced, or strong matrix

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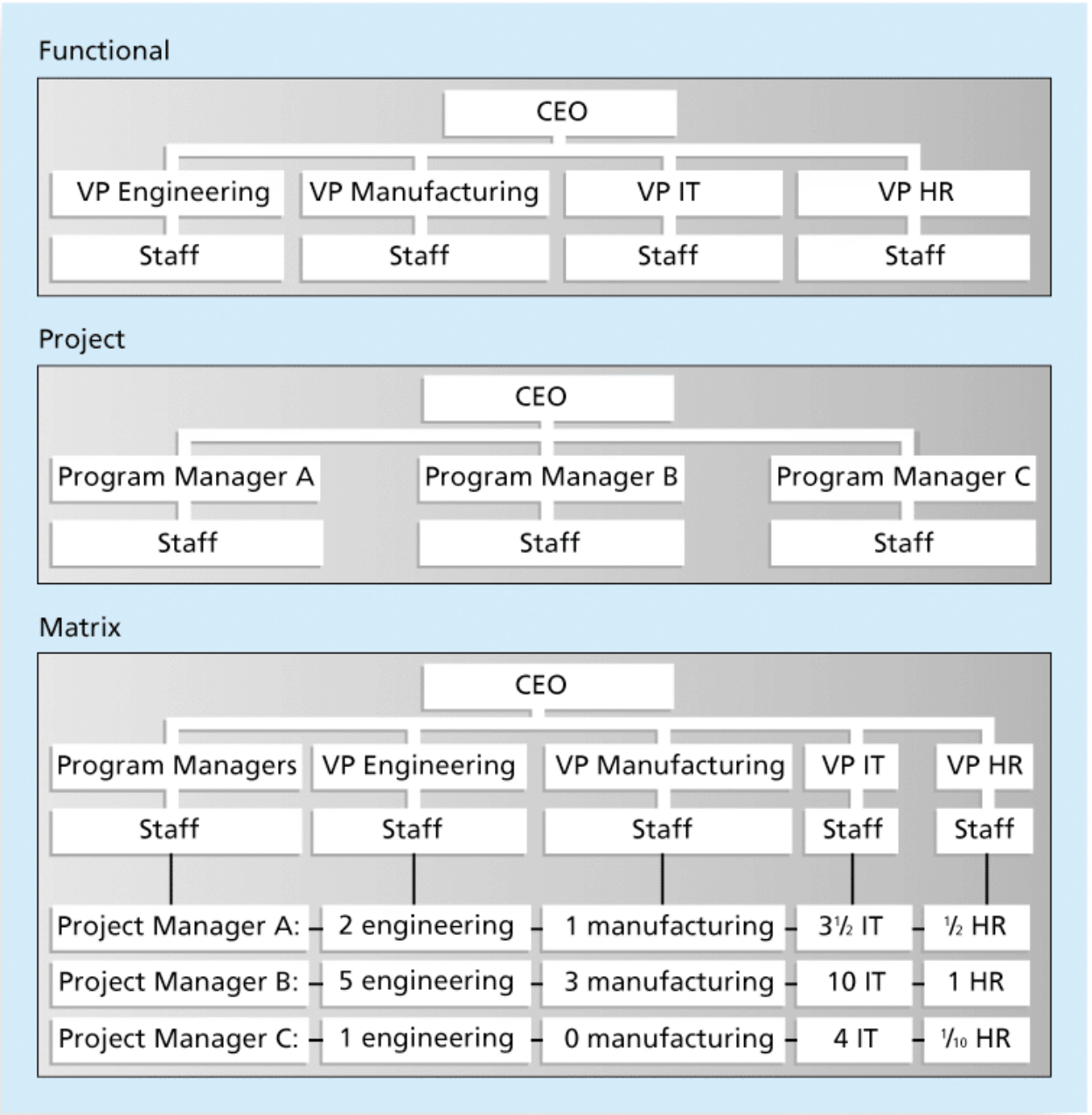
Functional, Project, and Matrix Organisational Structures



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Organisational Structure Influences on Projects

Project Characteristics	Organizational Structure Type				
	Functional	Matrix			Project
		Weak Matrix	Balanced Matrix	Strong Matrix	
Project manager's authority	Little or none	Limited	Low to moderate	Moderate to high	High to almost total
Percent of organization's personnel assigned full-time to project work	Virtually none	0–25%	15–60%	50–95%	85–100%
Who controls the project budget	Functional manager	Functional manager	Mixed	Project manager	Project manager
Project manager's role	Part-time	Part-time	Full-time	Full-time	Full-time
Common title for project manager's role	Project coordinator/ project leader	Project coordinator/ project leader	Project manager/ project officer	Project manager/ program manager	Project manager/ program manager
Project management administrative staff	Part-time	Part-time	Part-time	Full-time	Full-time

Organisational Culture

- **Organisational culture** is a set of shared assumptions, values, and behaviours that characterize the functioning of an organisation
- Many experts believe the underlying causes of many companies' problems are not the structure or staff

… but the **culture !!**

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Ten Characteristics of Organisational Culture

Project work is most successful in an organisational culture where these items are **strong/high**

- Member identity*
- Group emphasis*
- Risk tolerance*
- Reward criteria*
- Conflict tolerance*
- Unit integration*
- Open systems focus*

Project work is most successful in an organisational culture where these items are **balanced**

- People focus
- Means-ends orientation
- Control

Video 2:
Learning Objectives

- Explain why stakeholder management and top management commitment are critical for a project's success
- Understand the concept of a project phase and the project life cycle, and distinguish between project development and product development

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Stakeholder Management

- Project managers must take time to identify, understand, and manage relationships with all project stakeholders – both the internal as well as the external stakeholders
- Using the four frames of organisations can help meet stakeholder needs and expectations
- Senior executives/top management are very important stakeholders
- Project Stakeholder Management will be covered in greater depth in Lecture 8

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The Importance of Top Management Commitment

- People in top management positions are key stakeholders in projects
- A very important factor in helping project managers successfully lead projects is the level of commitment and support they receive from top management
- Without top management commitment, many projects will fail.
- Some projects have a senior manager called a **champion** who acts as a key proponent for a project.

How Top Management Can Help Project Managers

- Providing adequate resources
- Approving unique project needs in a timely manner
- Getting cooperation from other parts of the organisation
- Mentoring and coaching on leadership issues

Importance of IT Governance

- **IT governance** addresses the authority and control for key IT activities in organisations, including IT infrastructure, IT use, and project management
- A lack of IT governance can be dangerous, as evidenced by three well-publicized IT project failures in Australia:
  - Sydney Water's Customer Relationship Management System,
  - RMIT Academic Management System, and
  - One.Tel's billing system

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Need for Organisational Commitment to Information Technology (IT)

- If the organisation has a negative attitude toward IT, it will be difficult for an IT project to succeed
- Having a Chief Information Officer (CIO) at a high level in the organisation helps IT projects
- Assigning non-IT people to IT projects and increase involvement from end users may also encourage more commitment

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Need for Organisational Standards

- Standards and guidelines help project managers be more effective
- Senior management can encourage
  - the use of standard forms and software for project management
  - the development and use of guidelines for writing project plans or providing status information
  - the creation of a project management office or center of excellence

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Video 3:
Learning Objectives

- Understand the concept of a project phase and the project life cycle, and distinguish between project development and product development

Project Phases and the Project Life Cycle

- A **project life cycle** is a collection of project phases that defines
  - what work will be performed in each phase
  - what deliverables will be produced and when
  - who is involved in each phase, and
  - how management will control and approve work produced in each phase
- A **deliverable** is a product or service produced or provided as part of a project

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More on Project Phases

- In early phases of a project life cycle
  - resource needs are usually lowest
  - the level of uncertainty (risk) is highest
  - project stakeholders have the greatest opportunity to influence the project
- In middle phases of a project life cycle
  - the certainty of completing a project improves
  - more resources are needed
- The final phase of a project life cycle focuses on
  - ensuring that project requirements were met
  - the sponsor approves completion of the project

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The Importance of Project Phases and Management Reviews

- A project should successfully pass through each of the project phases in order to continue on to the next
- Management reviews, also called **phase exits** or **kill points**, should occur after each phase to evaluate the project's progress, likely success, and continued compatibility with organisational goals

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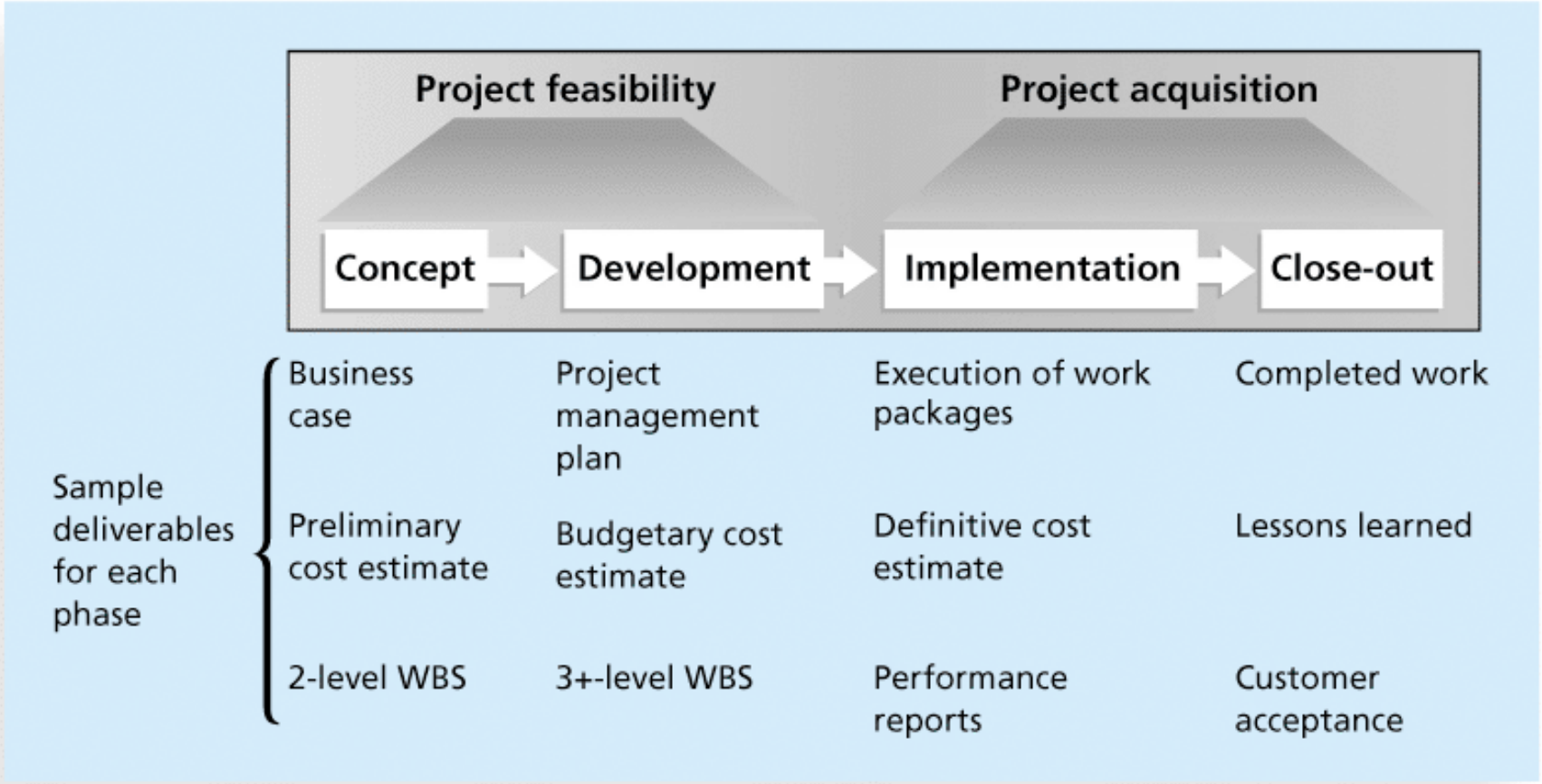
Phases of the Traditional Project Life Cycle



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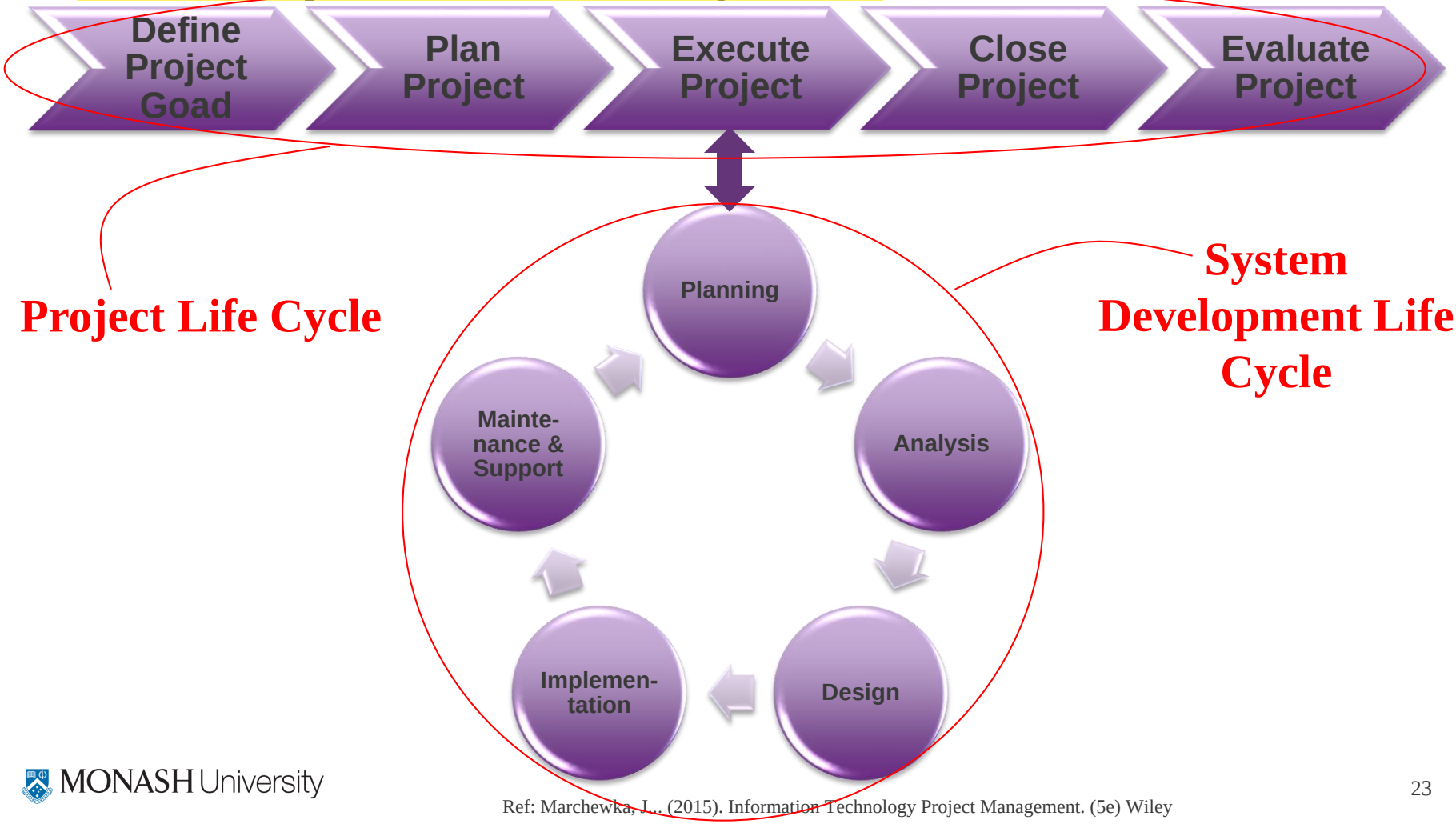
Project Life Cycle (PLC) and Systems Development Life Cycles



Ref: Marchewka, J.., (2015). Information Technology Project Management. (5e) Wiley

Product Life Cycles

- Products also have life cycles
- The **Systems Development Life Cycle (SDLC)** is a framework for describing the phases involved in developing and maintaining information systems
- Systems development projects can follow
  - **Predictive life cycle**: the scope of the project can be clearly articulated and the schedule and cost can be predicted
  - **Adaptive Software Development (ASD) life cycle**: requirements cannot be clearly expressed, projects are mission driven and component based, using time-based cycles to meet target dates

Predictive Life Cycle Models

- **Waterfall model**: has well-defined, linear stages of systems development and support
- **Spiral model**: shows that software is developed using an iterative or spiral approach rather than a linear approach
- **Incremental build model**: provides for progressive development of operational software
- **Prototyping model**: used for developing prototypes to clarify user requirements
- **Rapid Application Development (RAD) model**: used to produce systems quickly without sacrificing quality

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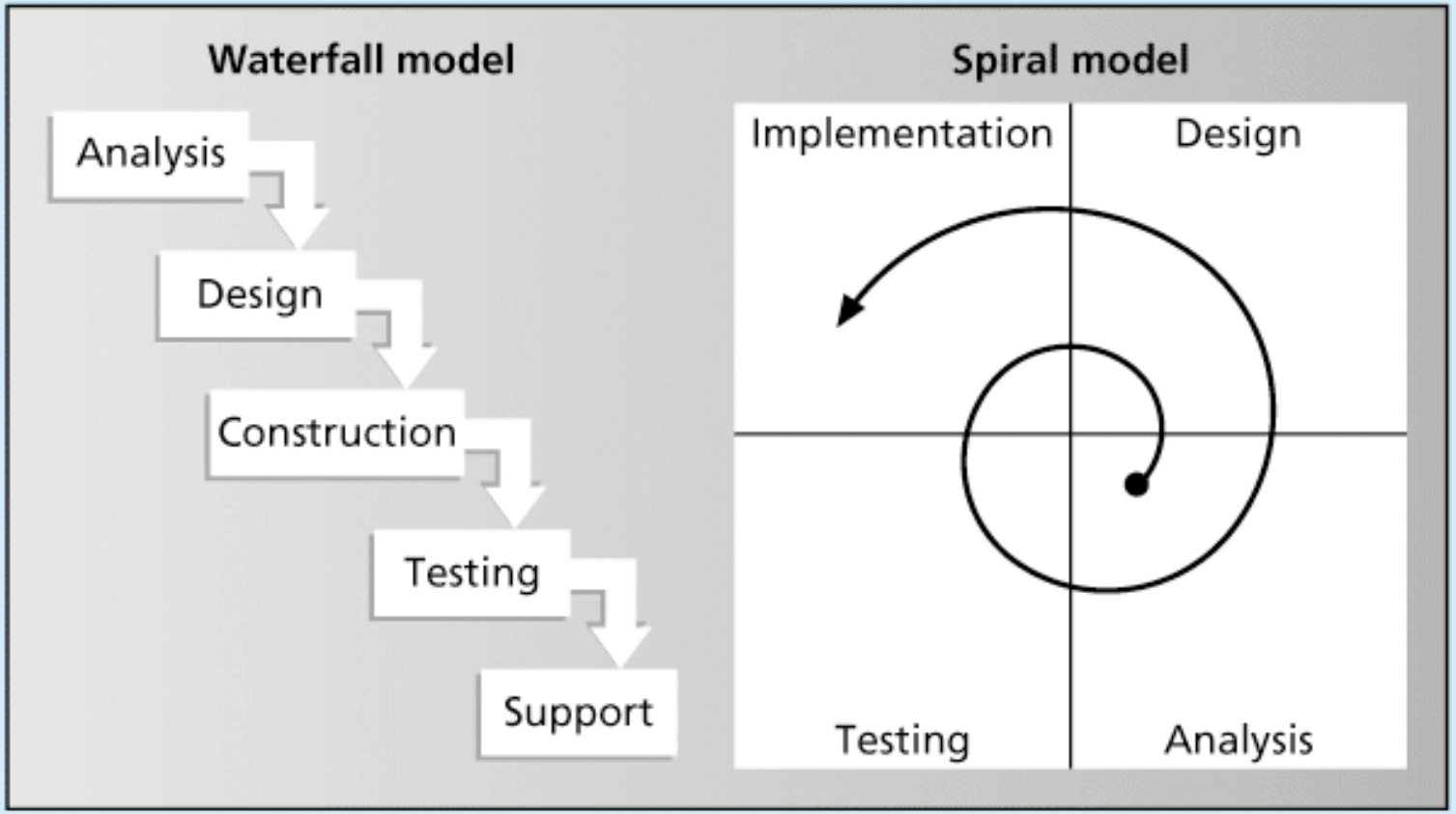
Waterfall and Spiral Life Cycle Models



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Agile Software Development

- Examples of ASD:
  - extreme programming, feature driven development, dynamic systems development model, scrum, etc
- Agile software development has become popular to describe new approaches that focus on close collaboration between programming teams and business experts
- We will talk a bit more on agile methodology in the next video and also in Lecture 11.

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Video 4:
Learning Objectives

- Discuss the unique attributes and diverse nature of IT projects
- Describe recent trends affecting IT project management, including globalization, outsourcing, virtual teams, and agile project management

The Context of IT Projects

- IT projects can be very diverse in terms of size, complexity, products produced, application area, and resource requirements
- IT project team members often have diverse backgrounds and skill sets
- IT projects use diverse technologies that change rapidly. Even within one technology area, people must be highly specialized

Recent Trends Affecting IT Project Management

- Globalization
- Outsourcing:
  - **Outsourcing** is when an organisation acquires goods and/or sources from an outside source.
  - **Offshoring** is sometimes used to describe outsourcing from another country
- Virtual teams: A **virtual te**am is a group of individuals who work across time and space using communication technologies
- Agile project management

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Important Issues and Suggestions Related to Globalization

- Issues
  - Communications
  - Trust
  - Common work practices
  - Tools
- Suggestions
  - Employ greater project discipline
  - Think global but act local
  - Consider collaboration over standardisation
  - Keep project momentum going
  - Use newer tools and technology

Outsourcing

- Organisations remain competitive by using outsourcing to their advantage, such as finding ways to reduce costs
- Their next challenge is to make strategic IT investments with outsourcing by improving their enterprise architecture to ensure that IT infrastructure and business processes are integrated and standardised
- Project managers should become more familiar with negotiating contracts and other outsourcing issues

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Virtual Teams Advantages

- Increasing competiveness and responsiveness by having a team of workers available 24/7
- Lowering costs because many virtual workers do not require office space or support beyond their home offices.
- Providing more expertise and flexibility by having team members from across the globe working any time of day or night
- Increasing the work/life balance for team members by eliminating fixed office hours and the need to travel to work.

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Virtual Team Disadvantages

- Isolating team members
- Increasing the potential for communications problems
- Reducing the ability for team members to network and transfer information informally
- Increasing the dependence on technology to accomplish work
- Some of the factors that help virtual teams succeed:
  - team processes,
  - trust/relationships,
  - leadership style, and
  - team member selection

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Agile Project Management

- Agile means being able to move quickly but does project management allow for that?
- Early software development projects often used a waterfall approach. However, this is becoming a challenge.
- Agile uses a method based on iterative and incremental development, in which requirements and solutions evolve through collaboration.
- But, what about the triple constraint?
- See the Resources tab from www.pmtexts.com for more info

Agile Makes Sense for Some Projects…, But Not All

- Many seasoned experts in project management warn people not to fall for the hype associated with Agile.
- For example, J. Leroy Ward, Executive Vice President at ESI International, said that

> "Agile will be seen for what it is … and isn't….Project management organisations embracing Agile software and product development approaches will continue to grow while being faced with the challenge of demonstrating ROI through Agile adoption."*

*J. Leroy Ward, "The Top Ten Project Management Trends for 2011," projecttimes.com (January 24, 2011).

Video 5:
Learning Objectives

- Discuss what is the manifesto for Agile Software Development
- Understanding Agile project management

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Manifesto for Agile Software Development

- In February 2001, a group of 17 people that called itself the Agile Alliance developed and agreed on the Manifesto for Agile Software Development, as follows:
- “We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:
  - Individuals and interactions over processes and tools
  - Working software over comprehensive documentation
  - Customer collaboration over contract negotiation
  - Responding to change over following a plan”*

*Agile Manifesto, www.agilemanifesto.org.

Agile Project Management

- What exactly is Agile Project Management?
- Process by which projects can be managed and implemented in **small deliverables**.
- Deliver value to the business in frequent small deliveries of product called **features**
- Recommended when business **needs are frequently changing** or when the business wants to receive **product benefits earlier**
- Items are created in small logical chunks of work called **iterations** or **sprints**.

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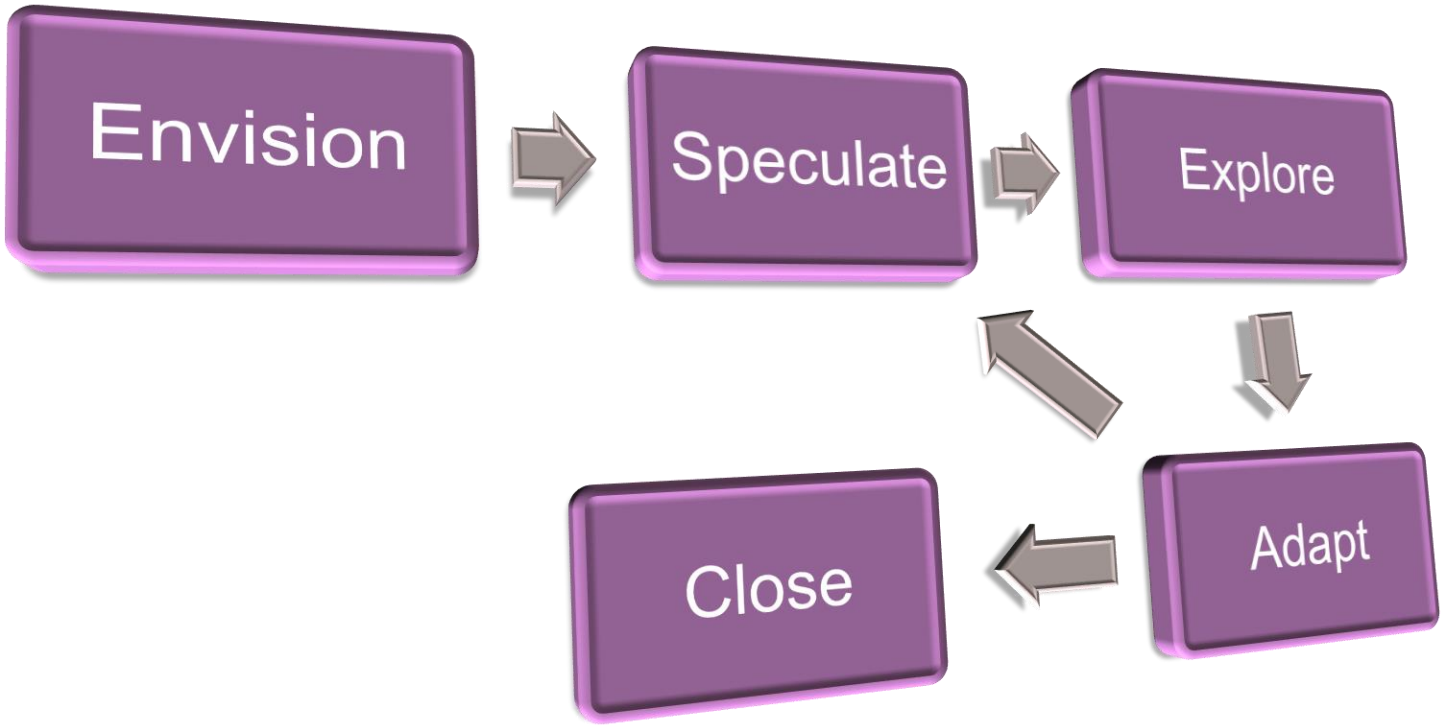
Characteristics of Agile Projects

- Sprints are normally 4 – 12 weeks long
- Communication is critical – Face-to-face is encouraged
- Teams should be co-located (or at least virtually)
- 100% Sponsor commitment
- Changes to requirements are anticipated and accommodated
- As with traditional approach:
  - Having a vision for the end goal
  - Clear understanding of the requirements
  - Follow a universally accepted project lifecycle
  - A dedicated team…and communication..communication..

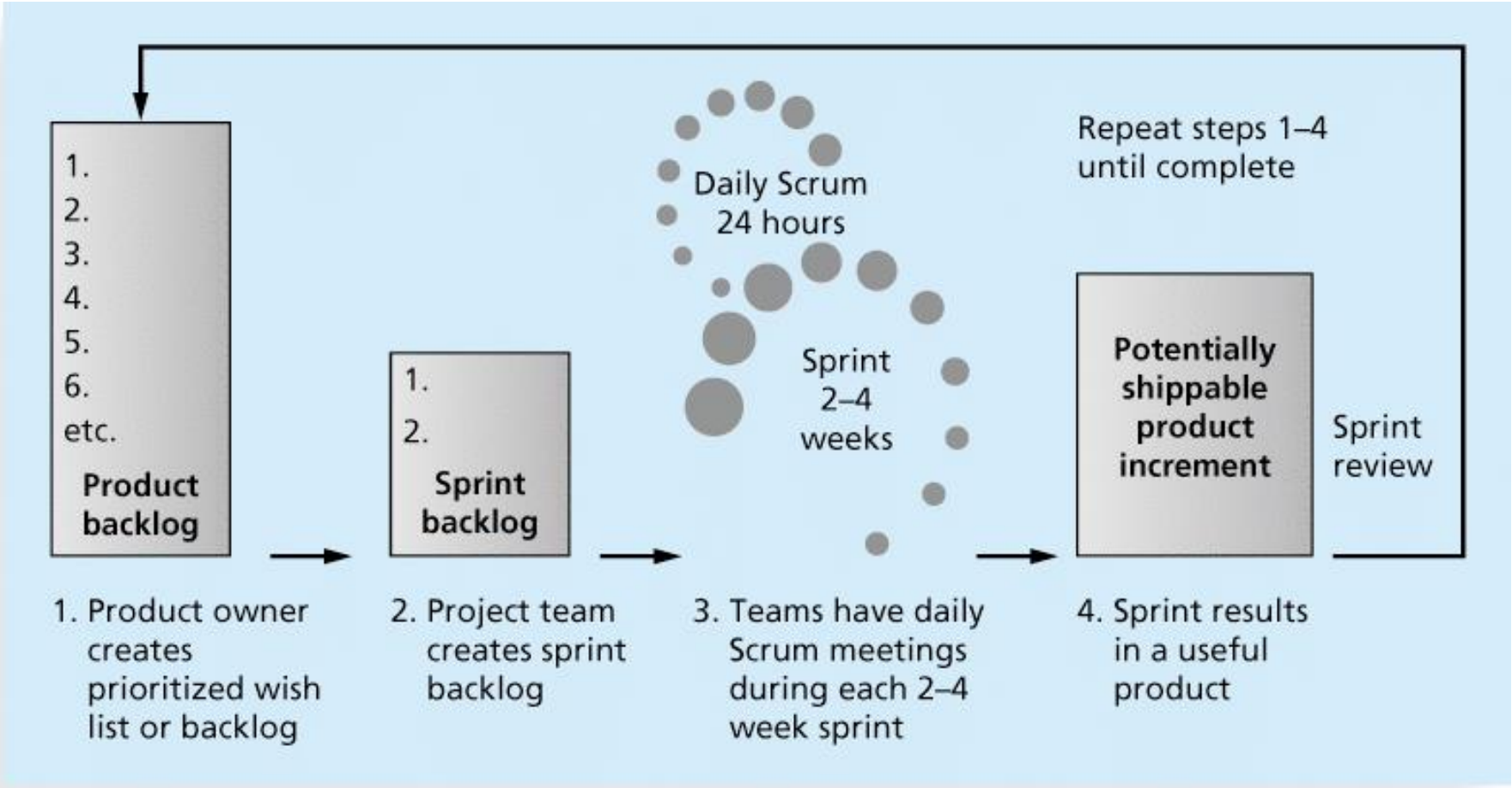
The Agile Lifecycle



Scrum

- What is Scrum?
- The leading agile development method for completing projects with a complex, innovative scope of work.
- The term was coined in 1986 in a Harvard Business Review study
- Scrum was initially applied to software development projects, but today other types of projects use this technique
- Watch the Axosoft video “Scrum in 10 Minutes,” by Hamid Shojaee, an experienced software developer

Scrum Framework



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Kanban

- Technique that can be used in conjunction with scrum
- Developed in Japan by Toyota Motor Corporation
- Uses visual cues to guide workflow
- Kanban cards show new work, work in progress, and work completed

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