MONASH University

Information Technology

FIT2002
IT Project Management

Lecture 11
Project Management Process Group: A Case Study

Part 1: A Review of Traditional PM Approach

Topics covered:

- Describe the five project management process groups, the typical level of activity for each, and the interactions among them
- Review a case study of an organisation applying the project management process groups to manage an IT project
- Describe outputs of each process group, and how effective initiating, planning, executing, monitoring and controlling, and closing contributes to project success

Video 1:
Learning Objectives

- Describe the five project management process groups, the typical level of activity for each, and the interactions among them
- Understand how the project management process groups relate to the project management knowledge areas
- Discuss how organisations develop information technology (IT) project management methodologies to meet their needs

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Project Management Process Groups

- Project management can be viewed as a number of interlinked processes
- A **process** is a series of actions directed toward a particular result
- The project management process groups include
  - initiating processes
  - planning processes
  - executing processes
  - monitoring and controlling processes
  - closing processes

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Project Management Process Group

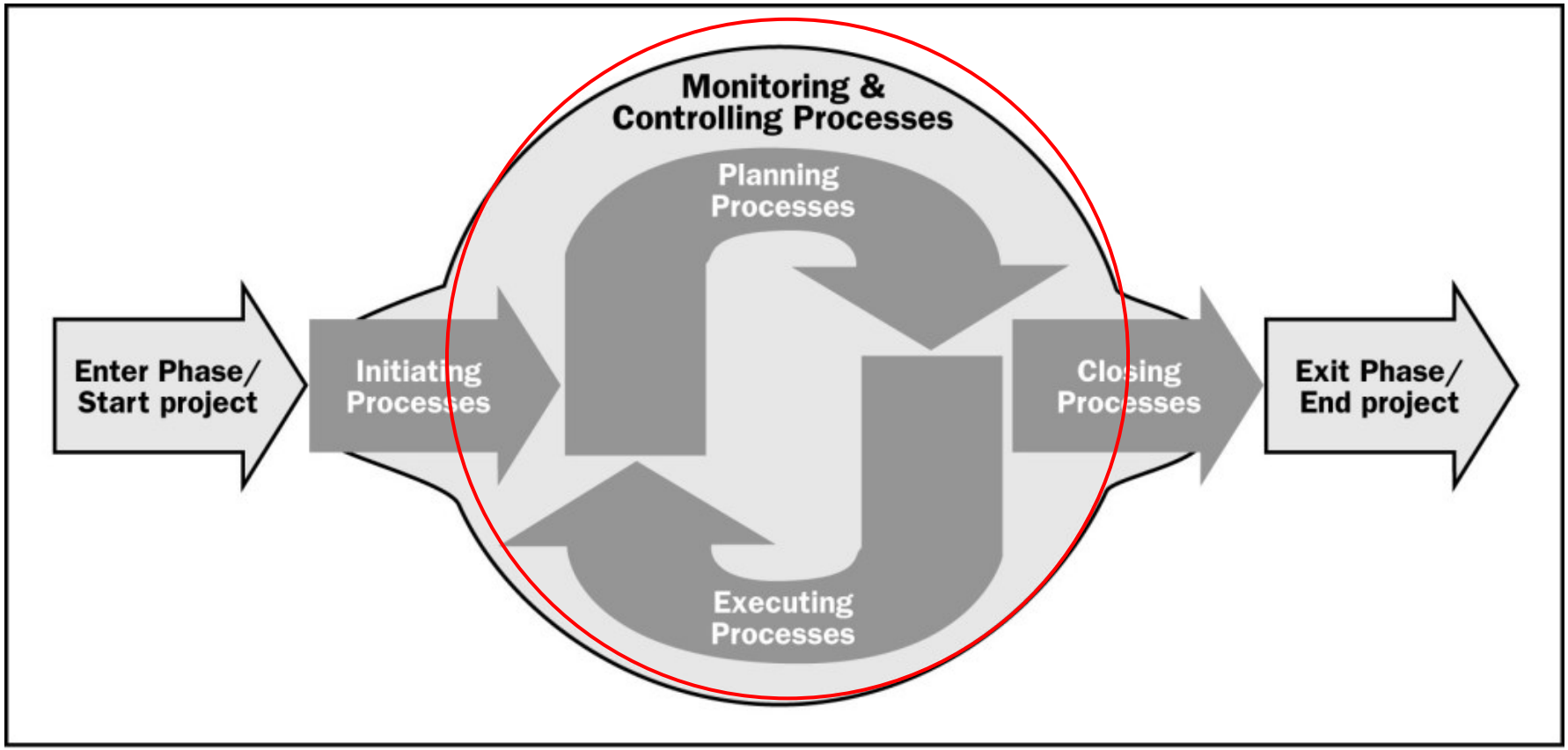


Figure 3-1. Project Management Process Groups

*Source: PMBOK® Guide, Fifth Edition, 2013.

Process Group Interact in a Phase

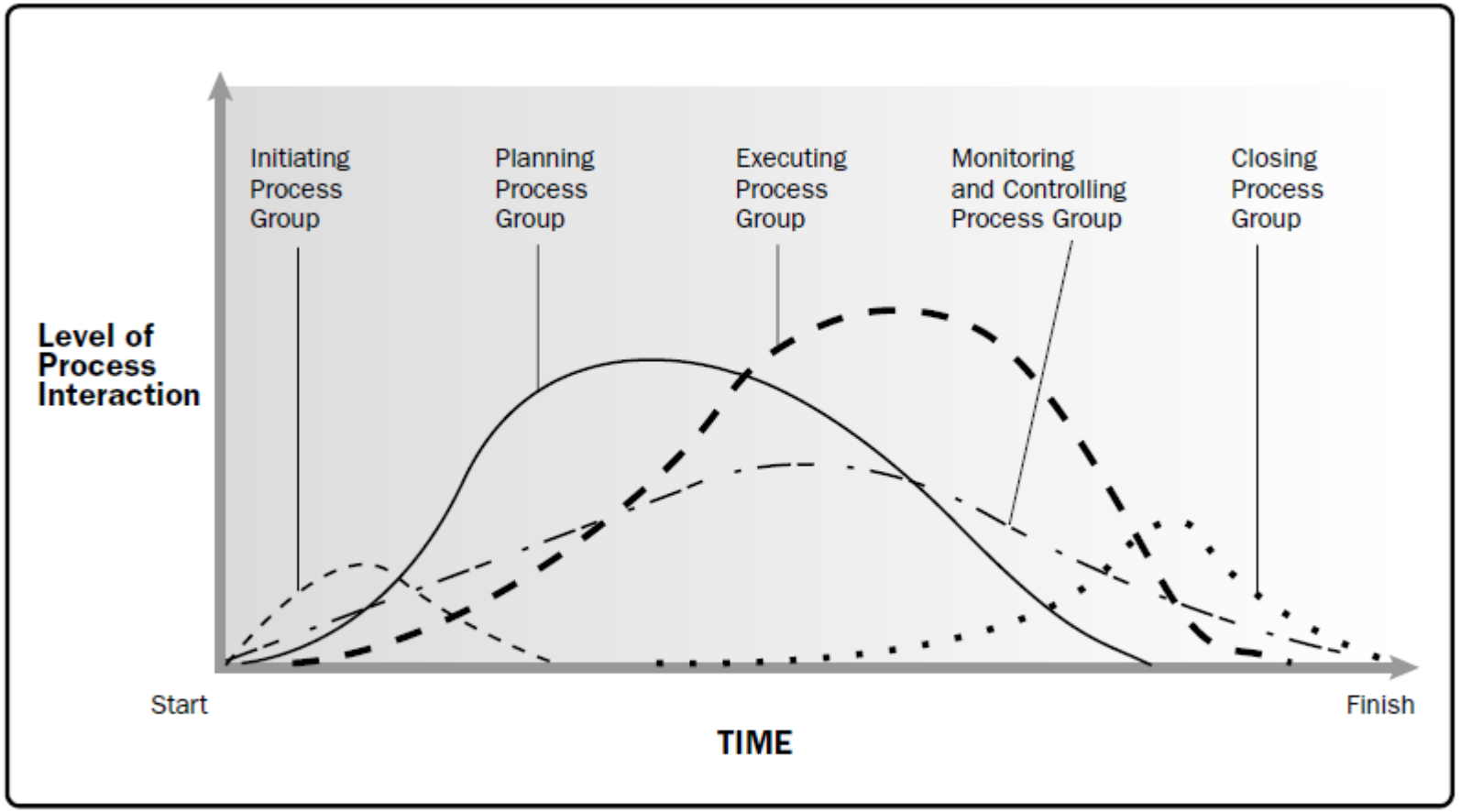
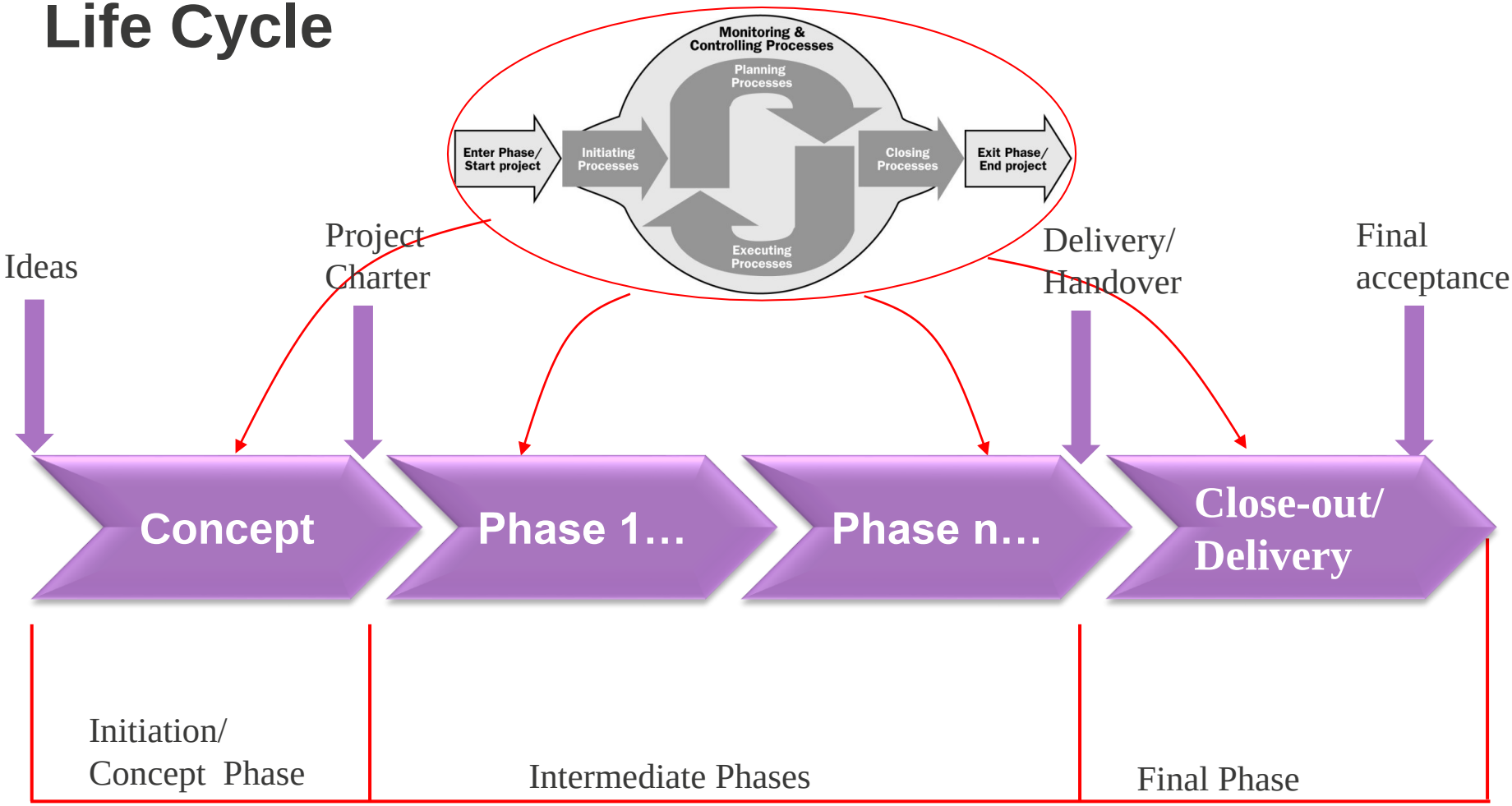


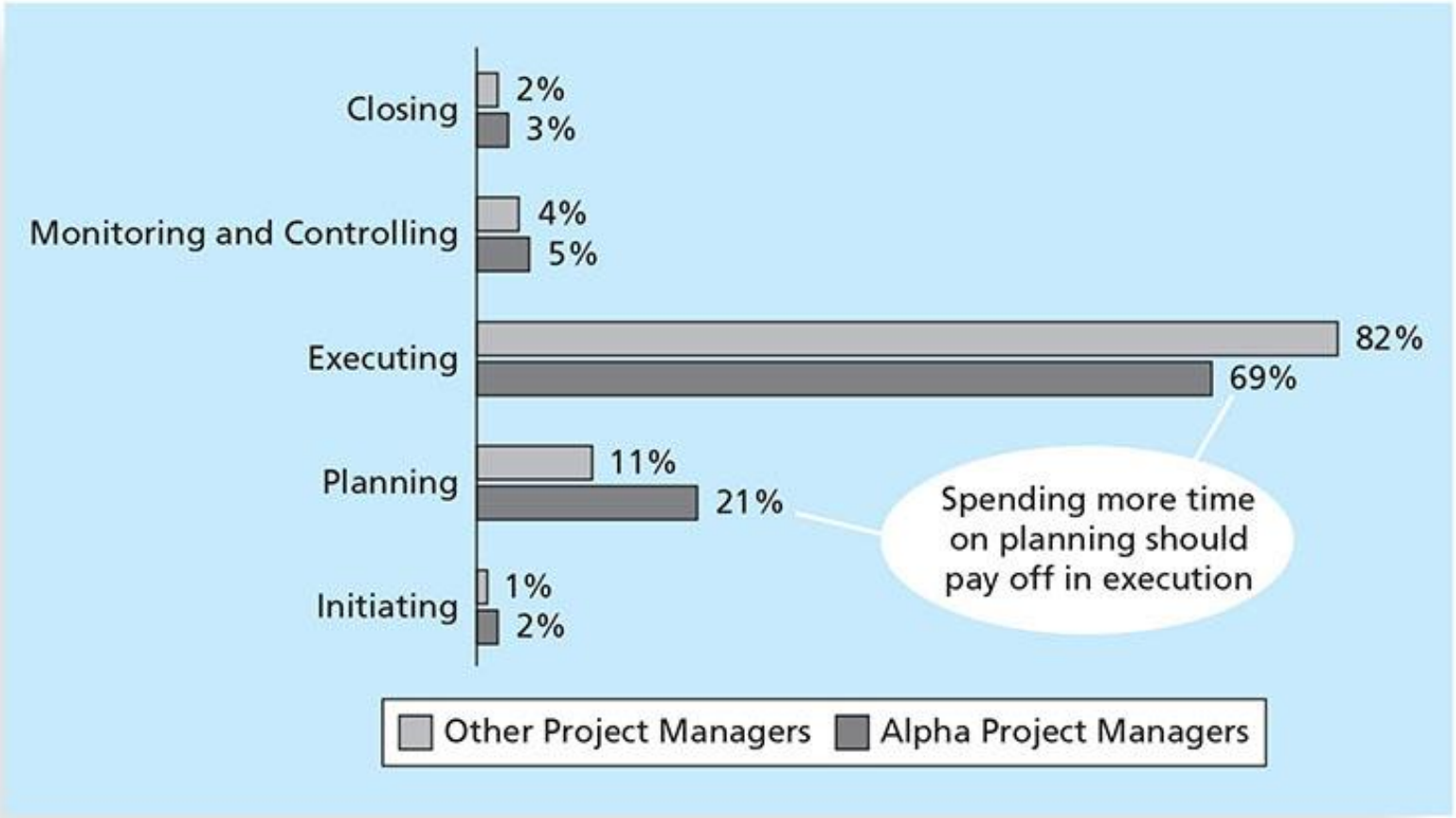
Figure 3-2. Process Groups Interact in a Phase or Project

*Source: PMBOK® Guide, Fifth Edition, 2013.

Process Groups Repeating Along the Project Life Cycle



Percentage of Time Spent on Each Process Group



Source: Andy Crowe

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Mapping the Process Groups to the Knowledge Areas

- You can map the main activities of each PM process group into the ten knowledge areas using the PMBOK® Guide, Fifth Edition, 2013
- Note that there are activities from each knowledge area under the planning process groups

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Mapping Project Management Process Groups to Knowledge Areas*

Knowledge Areas	Project Management Process Group				
	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Project Integration Management	1. Develop Project Charter	2. Develop Project Management Plan	3. Direct & manage project work 4. Manage Project Knowledge	5. Monitor & control project work	6. Close Project or Phaase
Project Scope Management		1. Plan Scope Management 2.. Collect requirements 3. Define Scope 4. Create WBS		5. Validate Scope; 6. Control Scope	
Project Schedule Management		1. Plan Schedule Management 2. Define Activities 3. Sequence Activities 4. Estimate Activity Durations 5. Develop Schedule		6. Control Schedule	
Project Cost Management		1. Plan Cost Management 2. Estimate Costs 3. Determine Budget		4. Control Costs	

Source: PMBOK® Guide, Sixth Edition, 2017.

Continued…

Knowledge Areas	Project Management Process Group				
	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Project Quality Management		1. Plan Quality Management	2. Manage Quality	3. Control Quality	
Project Resource Management		1. Plan Resource Management 2. Estimate Activity Resources	3. Acquire Resources 4. Develop Team 5. Manage Team	6. Control Resources	
Project Communication Management		1. Plan Communications Management	2. Manage Communications	3. Monitor Communications	
Project Risk Management		1. Plan Risk Management 2. Identify Risks 3. Perform Qualitative Risk Analysis 4. Perform Quantitative Risk Analysis 5. Plan Risk Responses	6. Implement Risk Responses	7. Monitor Risks	
Project Procurement Management		1. Plan Procurement Management	2. Conduct Procurements	3. Control Procurements	
Project Stakeholder Management	1. Identify Stakeholders	2. Plan Stakeholder Management	3. Manage Stakeholder Engagement	4. Monitor Stakeholder Engagement	

Source: PMBOK® Guide, Sixth Edition, 2017.

Developing an IT Project Management Methodology

- Just as projects are unique, so are approaches to project management
- Many organisations develop their own project management methodologies, especially for IT projects
- A **methodology** describes *how* things should be done; a **standard** describes *what* should be done
- PRINCE2, Agile, RUP, and Six Sigma provide different project management methodologies

Global Issues

- A 2011 study of organisations across India included the following findings:
  - Two-thirds of organisations in some stage of Agile adoption are realizing key software and business benefits in terms of faster delivery of products to the customer, an improved ability to manage changing requirements, and higher quality and productivity in IT.
  - Organisations struggle with the magnitude of the cultural shift required for Agile, opposition to change, a lack of coaching and help in the Agile adoption process, and a lack of qualified people.
  - The daily stand-up, iteration planning, and release planning are the most commonly used practices, while paired programming and open workspaces are not popular

Video 2:
Learning Objectives

- Review a case study of an organisation applying the project management process groups to manage an IT project; and
- Describe outputs of each process group, and understand the contribution that effective initiating, planning, executing, monitoring and controlling, and closing make to project success

Case Study: JWD Consulting's Project Management Intranet Site (Predictive Approach)

- This case study provides an example of what's involved in initiating, planning, executing, controlling, and closing an IT project
- This case study provides a big picture view of managing a project and understand how each knowledge area fits into the project management process group.
- Note: we will revisit some of the things we've covered in the past 10 weeks.

Project Pre-initiation

- It is good practice to lay the groundwork for a project before it officially starts
- Senior managers often perform several pre-initiation tasks, including the following:
  - Determine the scope, time, and cost constraints for the project
  - Identify the project sponsor
  - Select the project manager
  - Develop a business case for a project (see JWD business case)
  - Meet with the project manager to review the process and expectations for managing the project
  - Determine if the project should be divided into two or more smaller projects

Project Initiation

- Initiating a project includes recognizing and starting a new project or project phase
- The main goal is to formally select and start off projects
- The following table shows the project initiation knowledge areas, processes, and outputs

Knowledge Area	Initiating Process	Outputs
Project Integration Management	Develop project charter	Project charter
Project Stakeholder Management	Identify stakeholders	Stakeholder register

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Stakeholder Register

Name	Position	Internal/ External	Project Role	Contact Information
Joe Fleming	CEO	Internal	Sponsor	joe_fleming@jwdconsulting.com
Erica Bell	PMO Director	Internal	Project manager	erica_bell@jwdconsulting.com
Michael Chen	Team member	Internal	Team member	michael_chen@jwdconsulting.com
Kim Phuong	Business analyst	External	Advisor	kim_phuong@client1.com
Louise Mills	PR Director	Internal	Advisor	louise_mills@jwdconsulting.com

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Stakeholder Management Strategy

Name	Level of Interest	Level of Influence	Potential Management Strategies
Joe Fleming	High	High	Joe likes to stay on top of key projects and make money. Have a lot of short, face-to-face meetings and focus on achieving the financial benefits of the project.
Louise Mills	Low	High	Louise has a lot of things on her plate, and she does not seem excited about this project. She may be looking at other job opportunities. Show her how this project will help the company and her resume.

Contents are often sensitive, so do not publish this document.

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Project Charters and Kick-off Meetings

- We've covered project charters in Lecture 3.
- Charters are normally short and include key project information and stakeholder signatures
- It's good practice to hold a **kick-off meeting** at the beginning of a project so that stakeholders can meet each other, review the goals of the project, and discuss future plans

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Kick-off Meeting Agenda

Kick-Off Meeting
[Date of Meeting]

Project Name: Project Management Intranet Site Project

Meeting Objective: Get the project off to an effective start by introducing key stakeholders, reviewing project goals, and discussing future plans

Agenda:

- Introductions of attendees
- Review of the project background
- Review of project-related documents (i.e., business case, project charter)
- Discussion of project organizational structure
- Discussion of project scope, time, and cost goals
- Discussion of other important topics
- List of action items from meeting

Action Item	Assigned To	Due Date

Date and time of next meeting:

Project Planning

- The main purpose of project planning is to *guide execution*
- Every knowledge area includes planning information (see Slide 7 and 8)
- Key outputs included in the JWD project include:
  - A team contract
  - A project scope statement
  - A work breakdown structure (WBS)
  - A project schedule, in the form of a Gantt chart with all dependencies and resources entered
  - A list of prioritized risks (part of a risk register)

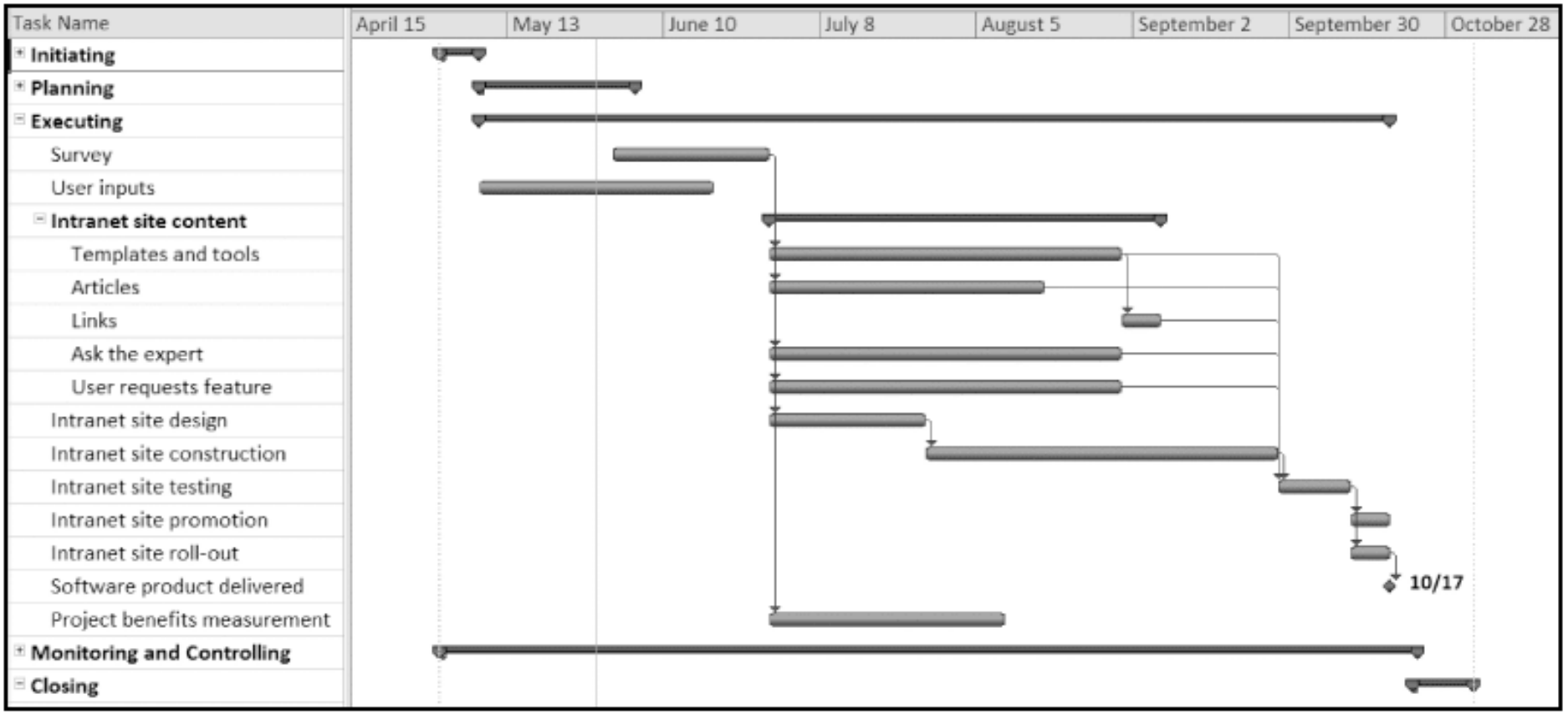
Planning processes and outputs

Knowledge Area	Planning Process	Outputs
Project Integration Management	Develop project management plan	Project management plan
Project Scope Management	Plan scope management	Scope management plan Requirements management plan
	Collect requirements	Requirements documentation Requirements traceability matrix
	Define scope	Project scope statement Project documents updates
	Create WBS	Scope baseline Project documents updates
Project Time Management	Plan schedule management	Schedule management plan
	Define activities	Activity list Activity attributes Milestone list Project management plan updates
	Sequence activities	Project schedule network diagrams Project documents updates
	Estimate activity resources	Activity resource requirements Resource breakdown structure Project documents updates
	Estimate activity durations	Activity duration estimates Project documents updates
	Develop schedule	Schedule baseline Project schedule Schedule data Project calendars Project management plan updates Project documents updates

Planning processes and outputs (cont…)

Knowledge Area	Planning Process	Outputs
Project Cost Management	Plan cost management	Cost management plan
	Estimate costs	Activity cost estimates Basis of estimates Project documents updates
	Determine budget	Cost baseline Project funding requirements Project documents updates
Project Quality Management	Plan quality management	Quality management plan Process improvement plan Quality metrics Quality checklists Project documents updates
Project Resource Management	Plan resource management	Resource management plan, Team charter
Project Communications Management	Plan communications management	Communications management plan Project documents updates
Project Risk Management	Plan risk management	Risk management plan
	Identify risks	Risk register
	Perform qualitative risk analysis	Project documents updates
	Perform quantitative risk analysis	Project documents updates
	Plan risk responses	Project management plan updates Project documents updates
Project Procurement Management	Plan procurement management	Procurement management plan Procurement statement of work Procurement documents Source selection criteria Make-or-buy decisions Change requests
Project Stakeholder Management	Plan stakeholder management	Stakeholder management plan Project documents updates

JWD Consulting Intranet Site Project Baseline Gantt Chart



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List of Prioritized Risks

Ranking	Potential Risk
1	Lack of inputs from internal consultants
2	Lack of inputs from client representatives
3	Security of new system
4	Outsourcing/purchasing for the article retrieval and "Ask the Expert" features
5	Outsourcing/purchasing for processing online payment transactions
6	Organizing the templates and examples in a useful fashion
7	Providing an efficient search feature
8	Getting good feedback from Michael Chen and other senior consultants
9	Effectively promoting the new system
10	Realizing the benefits of the new system within one year

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Project Executing

- Usually takes the most time and resources to perform project execution
- Project managers must use their leadership skills to handle the many challenges that occur during project execution
- The next slide shows a list of the executing processes and outputs. Many project sponsors and customers focus on deliverables related to providing the products, services, or results desired from the project
- A milestone report can help focus on completing major milestones

Executing processes and outputs

Knowledge Area	Executing Process	Outputs
Project Integration Management	Direct and manage project work	Deliverables Work performance data Change requests Project management plan updates Project documents updates
Project Quality Management	Perform quality assurance	Change requests Project management plan updates Project documents updates Organizational process assets updates
Project Resource Management	Acquire resources	Project staff assignments Resource calendars Project management plan updates
	Develop project team	Team performance assessments Enterprise environmental factor updates
	Manage project team	Change requests Project management plan updates Project documents updates Enterprise environmental factors updates Organizational process assets updates
Project Communications Management	Manage communications	Project communications Project documents updates Project management plan updates Organizational process assets updates
Project Procurement Management	Conduct procurements	Selected sellers Agreements Resource calendars Change requests Project management plan updates Project documents updates
Project Stakeholder Management	Manage stakeholder engagement	Issue log Change requests Project management plan updates Project documents updates Organizational process assets updates

*Source: PMBOK® Guide, Fifth Edition, 2013.

Part of Milestone Report (partial)

Milestone	Date	Status	Responsible	Issues/ Comments
Initiating Stakeholders identified	May 2	Completed	Erica and Joe	
Project charter signed	May 10	Completed	Erica	
Project kick-off meeting held	May 13	Completed	Erica	Went very well
Planning Team contract signed	May 13	Completed	Erica	
Scope statement completed	May 27	Completed	Erica	
WBS completed	May 31	Completed	Erica	
List of prioritized risks completed	June 3	Completed	Erica	Reviewed with sponsor and team
Schedule and cost baseline completed	June 13	Completed	Erica	
Executing Survey completed	June 28		Erica	Poor response so far!

Project Monitoring and Controlling

- Involves measuring progress toward project objectives, monitoring deviation from the plan, and taking correction actions
- Affects all other process groups and occurs during all phases of the project life cycle
- Outputs include performance reports, change requests, and updates to various plans
- See next slide

Monitoring & Controlling processes and outputs

Knowledge Area	Monitoring and Controlling Process	Outputs
Project Integration Management	Monitor and control project work	Change requests Work performance reports Project management plan updates Project documents updates
	Perform integrated change control	Approved change requests Change log Project management plan updates Project documents updates
Project Scope Management	Validate scope	Accepted deliverables Change requests Work performance information Project documents updates
	Control scope	Work performance information Change requests Project management plan updates Project documents updates Organizational process assets updates
Project Time Management	Control schedule	Work performance information Schedule forecasts Change requests Project management plan updates Project documents updates Organizational process assets updates
Project Cost Management	Control cost	Work performance information Cost forecasts Change requests Project management plan updates Project documents updates Organizational process assets updates

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Monitoring & Controlling processes and outputs (cont…)

Knowledge Area	Monitoring and Controlling Process	Outputs
Project Quality Management	Control quality	Quality control measurements Validated changes Validated deliverables Work performance information Change requests Project management plan updates Project documents updates Organizational process assets updates
Project Communications Management	Control communications	Work performance information Change requests Project documents updates Organizational process assets updates
Project Risk Management	Control risks	Work performance information Change requests Project management plan updates Project documents updates Organizational process assets updates
Project Procurement Management	Control procurements	Work performance information Change requests Project management plan updates Project documents updates Organizational process assets updates
Project Stakeholder Management	Control stakeholder engagement	Work performance information Change requests Project documents updates Organizational process assets updates

Project Closing

- Involves gaining stakeholder and customer acceptance of the final products and services
- Most projects also include a final report and presentation to the sponsor/senior management
- Even if projects are not completed, they should be closed out to learn from the past
- Outputs include project files and lessons-learned reports, updates to organisational process assets

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Part 2: Predictive vs Agile Approach

Topics covered:

- Discuss the different project lifecycle and identify which approach to use
- Discuss the Agile Methodology in managing projects
- Review the same case study (from Part 1) of a project managed with an agile focus to illustrate the key differences in approaches

Video 3:
Learning Objectives

- Discuss the different project lifecycle and identify which approach to use
- Discuss the Agile Methodology in managing projects

Types of Life cycle

- **Predictive life cycle**: A more traditional approach, with the bulk of planning occurring upfront, then executing in a single pass; a sequential process
- **Iterative life cycle**: An approach that allows feedback for unfinished work to improve and modify that work.
- **Incremental life cycle**: An approach that provides finished deliverables that the customer may be able to use immediately
- **Agile life cycle**: An approach that is both iterative and incremental to refine work items and deliver frequently.

Life Cycles Characteristics

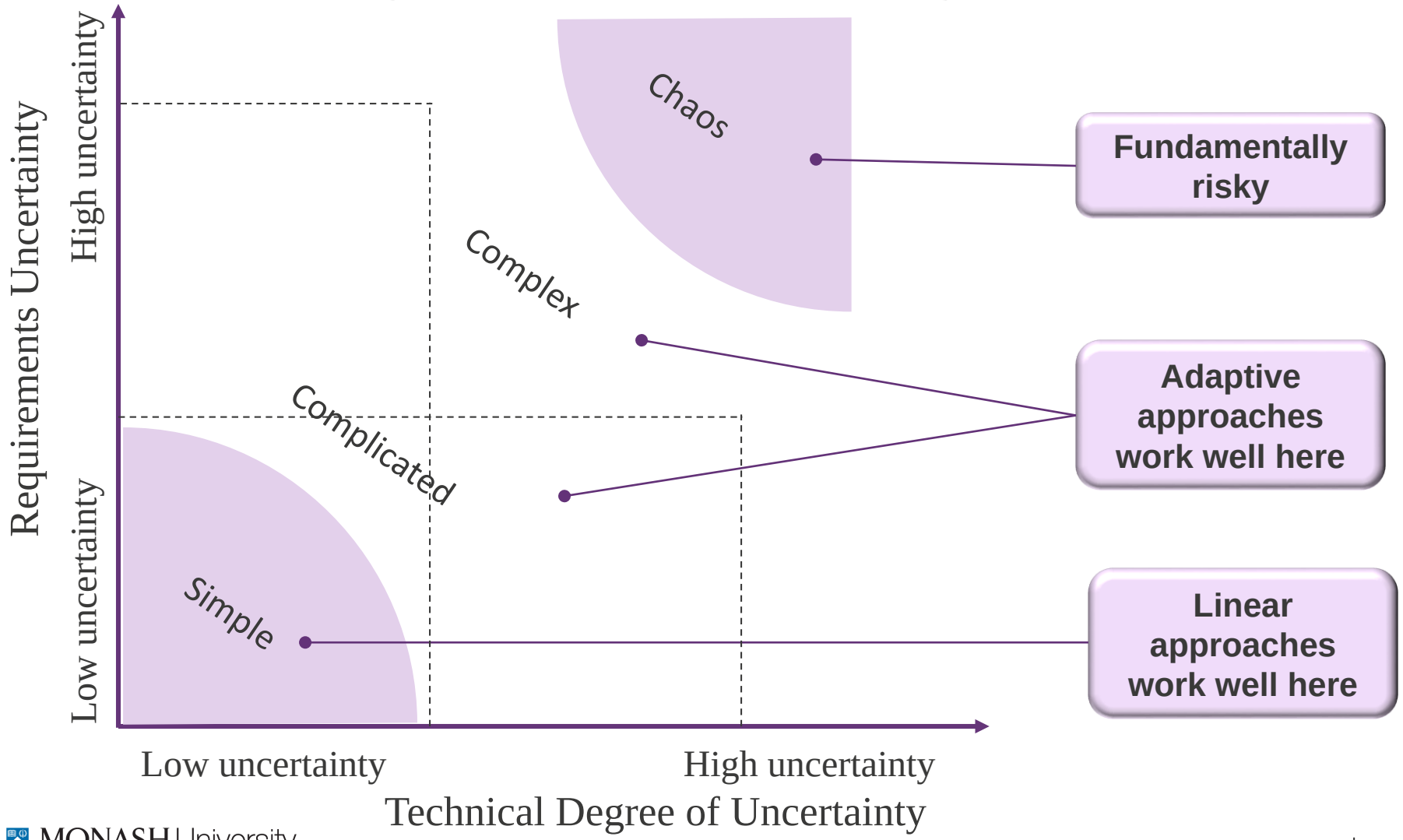
Table 3-1. Characteristics of Four Categories of Life Cycles

Characteristics				
Approach	**Requirements**	**Activities**	**Delivery**	**Goal**
Predictive	Fixed	Performed once for the entire project	Single delivery	Manage cost
Iterative	Dynamic	Repeated until correct	Single delivery	Correctness of solution
Incremental	Dynamic	Performed once for a given increment	Frequent smaller deliveries	Speed
Agile	Dynamic	Repeated until correct	Frequent small deliveries	Customer value via frequent deliveries and feedback

Definable Work vs High Uncertainty Work

- Definable work projects:
  - characterised by clear procedures that have been proven successful on similar projects in the past
  - Low levels of execution uncertainty and risk
- High uncertainty projects:
  - New design, problem solving and not-done-before work is exploratory
  - High rates of change, complexity and risk
  - May pose a problem for traditional predictive approaches

Uncertainty, Risk and Life Cycle Selection



PMBOK Guide/Agile Practice Guide (2017), Project Management Institute Inc.

The Agile Manifesto

- Thought leaders in the software industry formalised the agile movement in 2001 with the publication of the Manifesto for Agile Software Development:

The 4 values of the Agile Manifesto

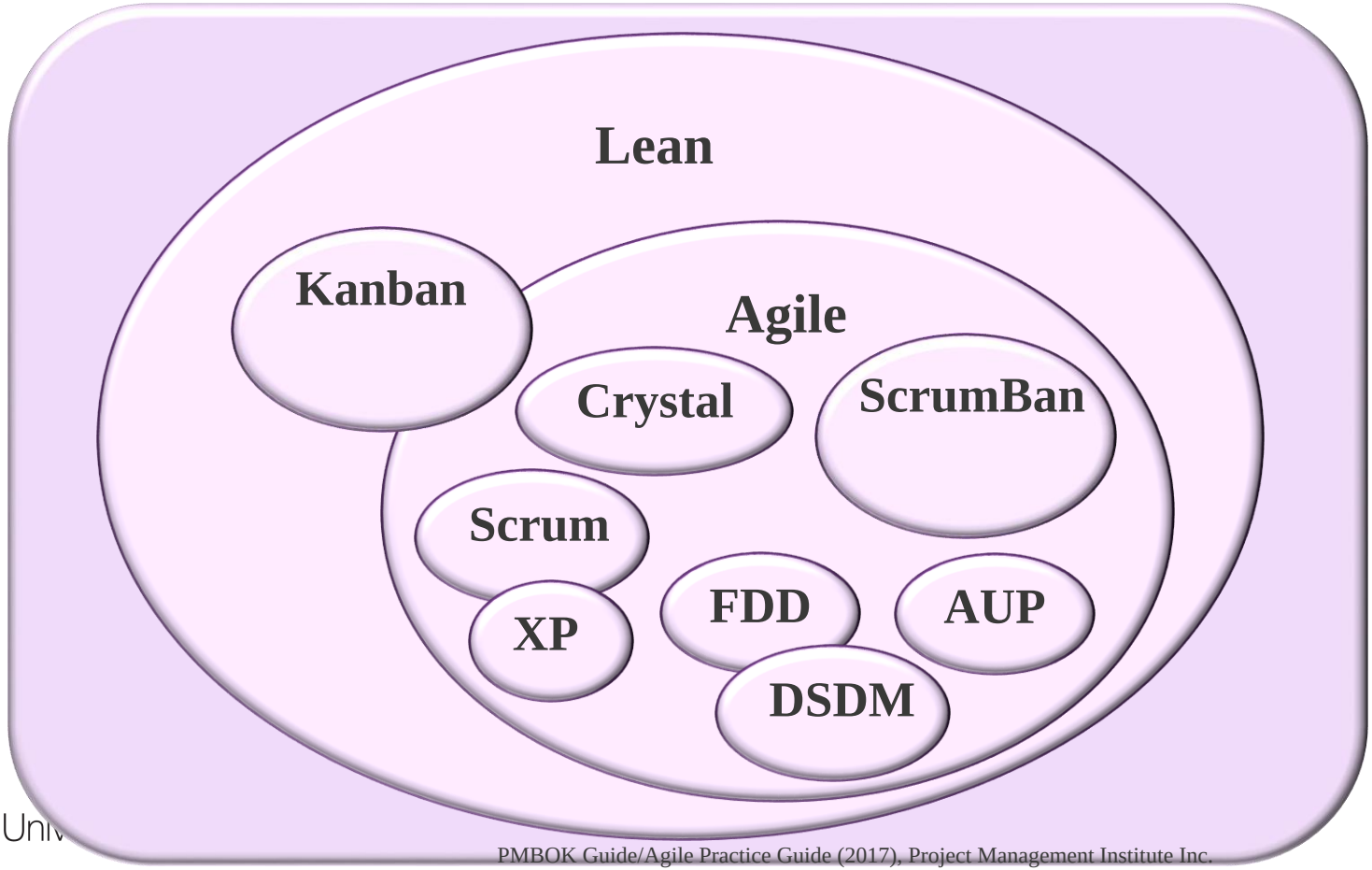
We are covering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

1. **Individuals and interactions** over processes and tools
2. **Working software** over comprehensive documentation
3. **Customer collaboration** over contract negotiation
4. **Responding to change** over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Agile is a Blanket Term for Many Approaches

- Agile approaches and agile methods are umbrella terms that cover a variety of frameworks and methods



PMBOK Guide/Agile Practice Guide (2017), Project Management Institute Inc.

An Informed Decision

- It is not a snap decision whether to use an agile approach or not, just like flying or driving somewhere on a trip
- Projects with heavy constraints, inexperienced and dispersed teams, large risks, generally clear up-front requirements, and a fairly rigid completion date are best done using a predictive approach.
- Projects with less rigid constraints, experienced and preferably co-located teams, smaller risks, unclear requirements, and more flexible scheduling would be more compatible with an agile approach
- The following example uses Scrum roles, artefacts, and ceremonies

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Video 4:
Learning Objectives

- Review the same case study (from video 2) of a project managed with an agile focus to illustrate the key differences in approaches

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Case Study 2: JWD Consulting's Project Management Intranet Site (Agile Approach)

- This section demonstrates a more agile approach to managing the same project
- Differences in using an agile approach are highlighted
- An agile project team typically uses several iterations or deliveries of software instead of waiting until the end of the project to provide one product.

Scrum Roles

- **Product owner**: The person responsible for the business value of the project and for deciding what work to do and in what order, as documented in the product backlog.
- **ScrumMaste**r: The person who ensures that the team is productive, facilitates the daily Scrum, enables close cooperation across all roles and functions, and removes barriers that prevent the team from being effective.
- **Scrum team or development team**: A cross-functional team of five to nine people who organize themselves and the work to produce the desired results for each **sprint**, which normally lasts 2-4 weeks.

Scrum artefacts

- An artefact is a useful object created by people
- Scrum artefacts include:
  - **Product backlog**: A list of features prioritized by business value
  - **Sprint backlog**: The highest-priority items from the product backlog to be completed within a sprint
  - **Burndown chart**: Shows the cumulative work remaining in a sprint on a day-by-day basis

Scrum Ceremonies

- **Sprint planning session**: A meeting with the team to select a set of work from the product backlog to deliver during a sprint.
- **Daily Scrum**: A short meeting for the development team to share progress and challenges and plan work for the day.
- **Sprint reviews**: A meeting in which the team demonstrates to the product owner what it has completed during the sprint.
- **Sprint retrospectives**: A meeting in which the team looks for ways to improve the product and the process based on a review of the actual performance of the development team.

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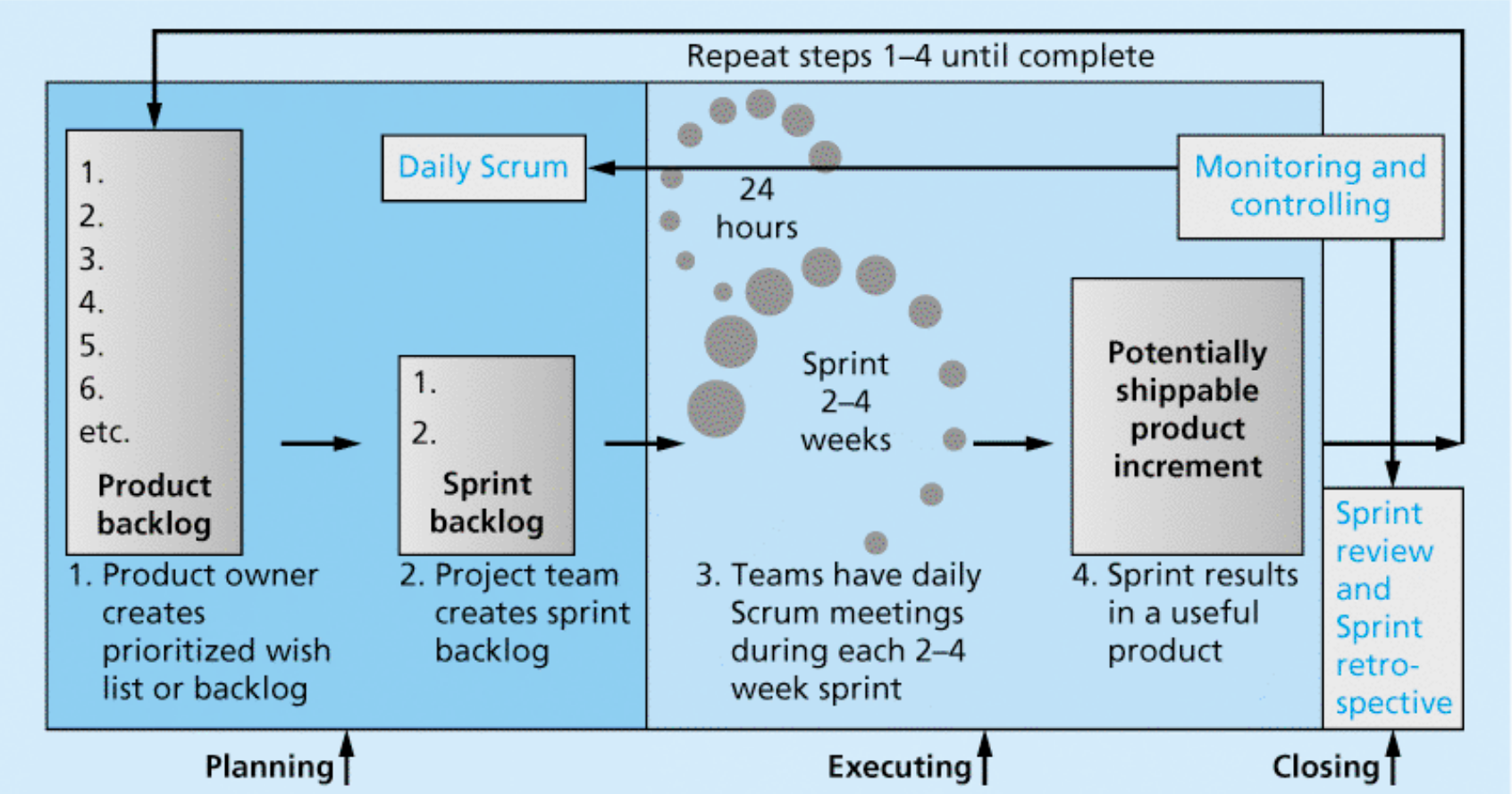
Scrum Framework and the Process Groups



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Unique Scrum Activities by Process Group

Initiating:

- Determine roles
- Decide how many sprints will compose each release and the scope of software to deliver

Planning:

- Create product backlog
- Create sprint backlog
- Create release backlog
- Plan work each day in the daily Scrum
- Document stumbling blocks in a list

Executing:

- Complete tasks each day during sprints
- Produce a shippable product at the end of each sprint

Monitoring and Controlling:

- Resolve issues and blockers
- Create and update burndown chart
- Demonstrate the completed product during the sprint review meeting

Closing:

- Reflect on how to improve the product and process during the sprint reflection meeting

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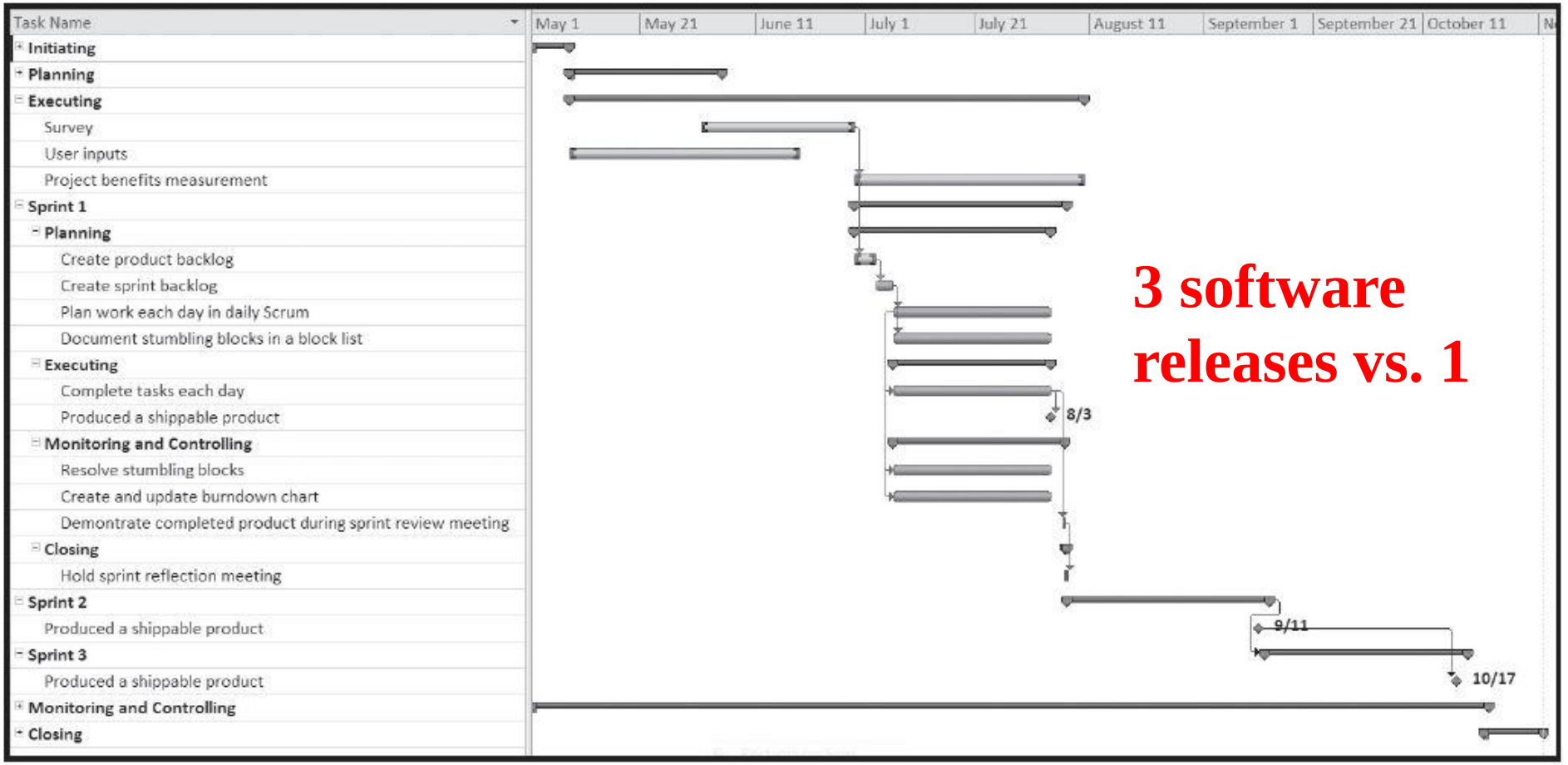
Planning

- Not different from PMBOK® Guide
  - Still create a scope statement and can use a Gantt chart for the entire project schedule; other planning similar (risk, etc.)
- Different:
  - Descriptions of work are identified in the product and sprint backlogs, more detailed work documented in technical stories, estimate a velocity or capacity for each sprint; release roadmap often used for schedule

Intranet Site Project Baseline Gantt Chart Using Scrum Approach



Product and Sprint Backlogs

Product Backlog

1. User story templates, samples, and point person
2. WBS templates, samples, and point person
3. Project schedule templates, samples, and point person
4. Ability to charge customers for some intranet products and services
5. Ability to collect user suggestions
6. Business case templates, samples, and point person
7. Ask the Expert feature
8. Stakeholder management strategy templates, samples, and point person
9. Risk register templates, samples, and point person
10. Etc.

Sprint Backlog

1. User story templates, samples, and point person
2. WBS templates, samples, and point person
3. Project schedule templates, samples, and point person
4. Ability to charge customers for some intranet products and services
5. Ability to collect user suggestions

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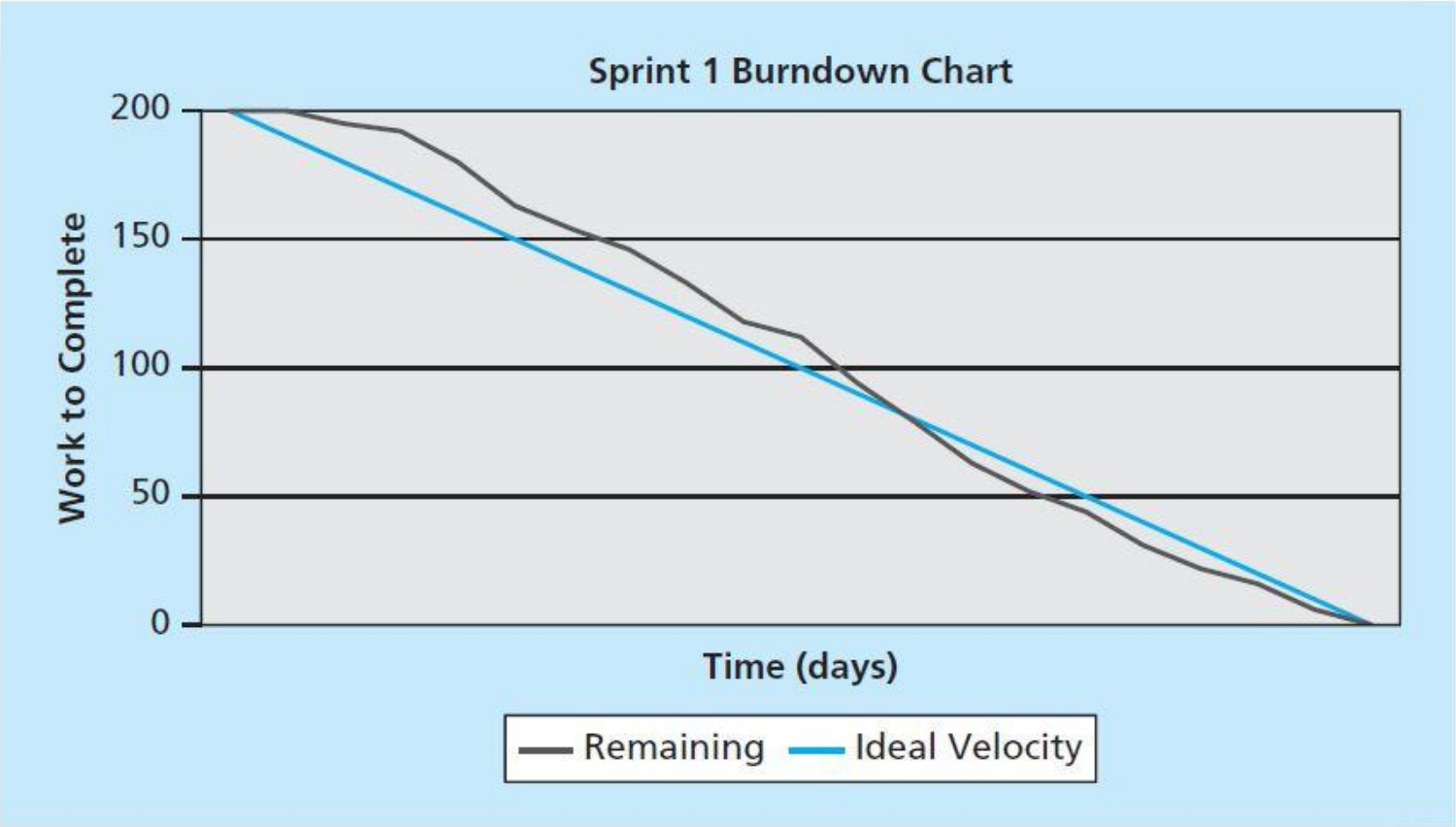
Executing

- Not different from PMBOK® Guide
  - Still produce products, lead people, etc.
- Different:
  - Produce several releases of software - users of the new software might be confused by getting several iterations of the product instead of just one
  - Communications different because the project team meets every morning, physically or virtually

Monitoring and Controlling

- Not different from PMBOK® Guide
  - Still check actual work vs. planned work
- Different
  - Names of key reviews are the daily Scrum and the sprint review
  - A sprint board is used instead of a tracking Gantt chart or other tools
  - Use a burndown chart vs. earned value chart

Figure 3-7. Burndown Chart



Closing

- Not different from PMBOK® Guide
  - Focus is still on acceptance of deliverables and reflection
- Different:
  - The retrospective is similar to a lessons-learned report, but it focuses on a shorter period of time. It is intended to answer two fundamental questions:
    - What went well during the last sprint that we should continue doing?
    - What could we do differently to improve the product or process?