

Process Groups

Yong ZHANG
September, 2020





Contents

- Project Management Process Groups
- Map the Process Groups to the Knowledge Areas
- Develop an IT Project Management Methodology
- Case Study 1: Predictive Approach
- Case Study 2: Agile Approach
- Templates by Process Group

Project Management, Activity and Process

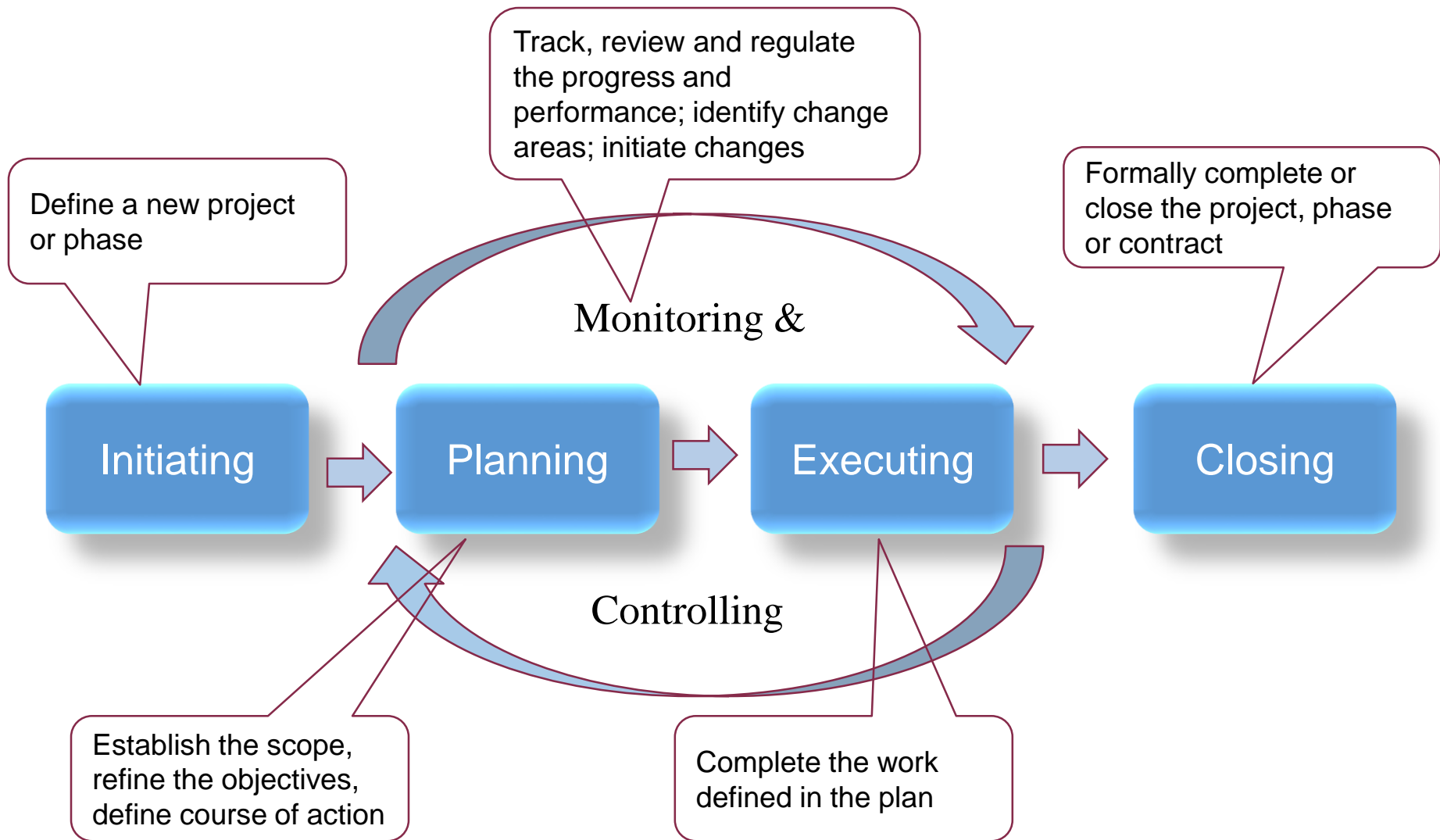


Process Definition

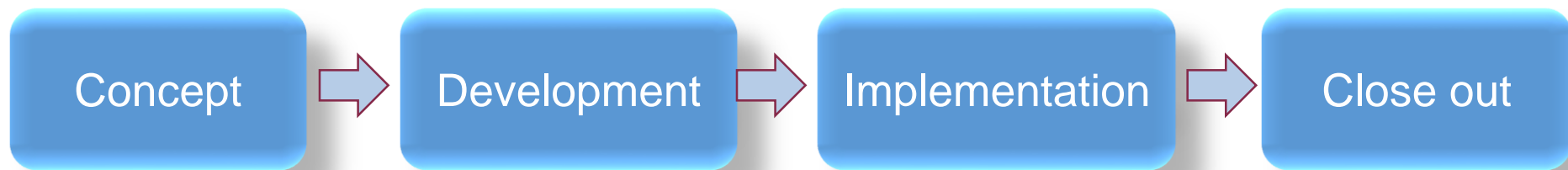
A process is a series of activities directed toward a particular result.

1. Initiating process
2. Planning process
3. Executing process
4. Monitoring and controlling processes
5. Closing processes

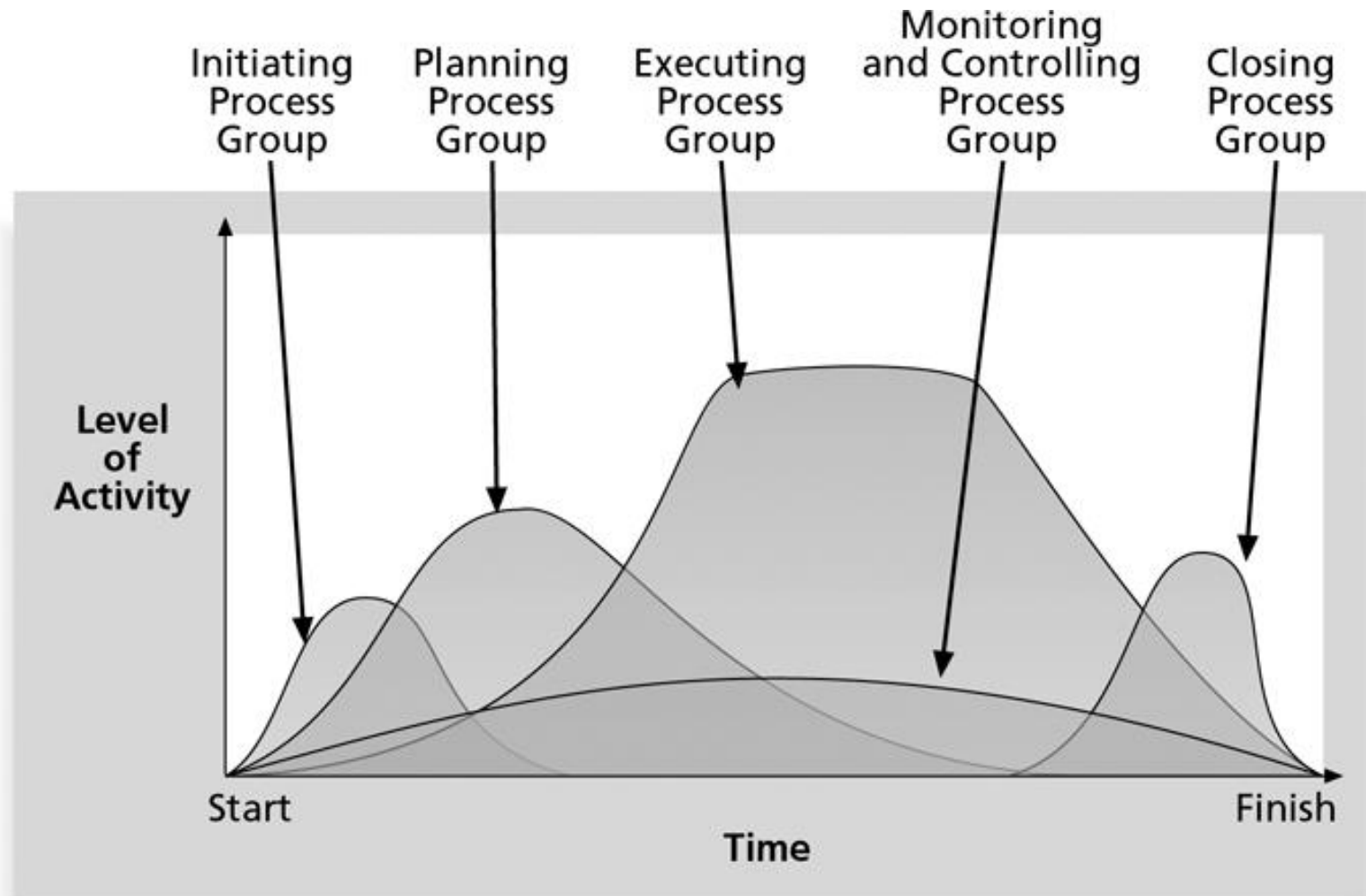




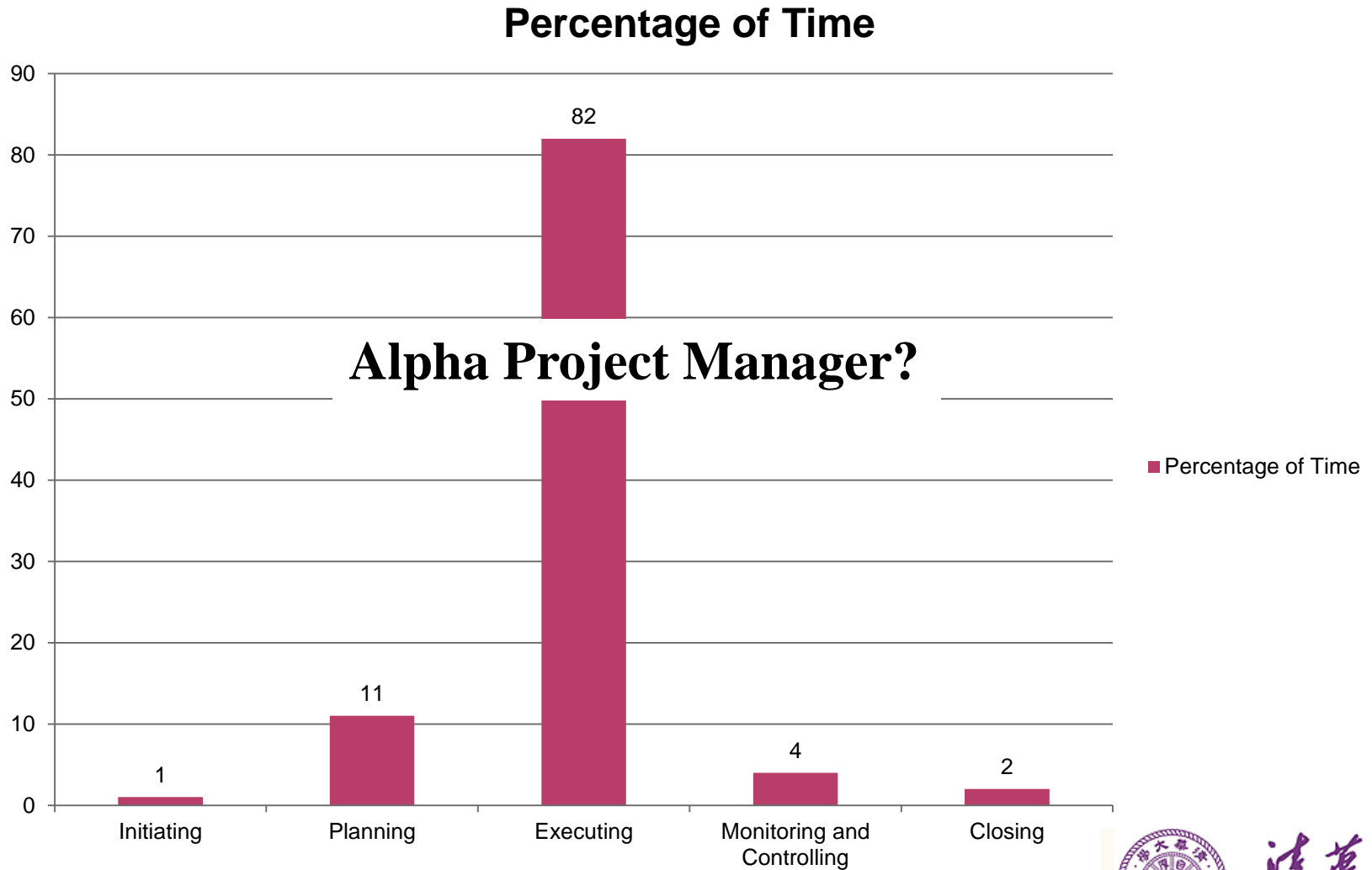
Different from Project Phases?



Level of Activity and Overlap of Process Groups Over Time



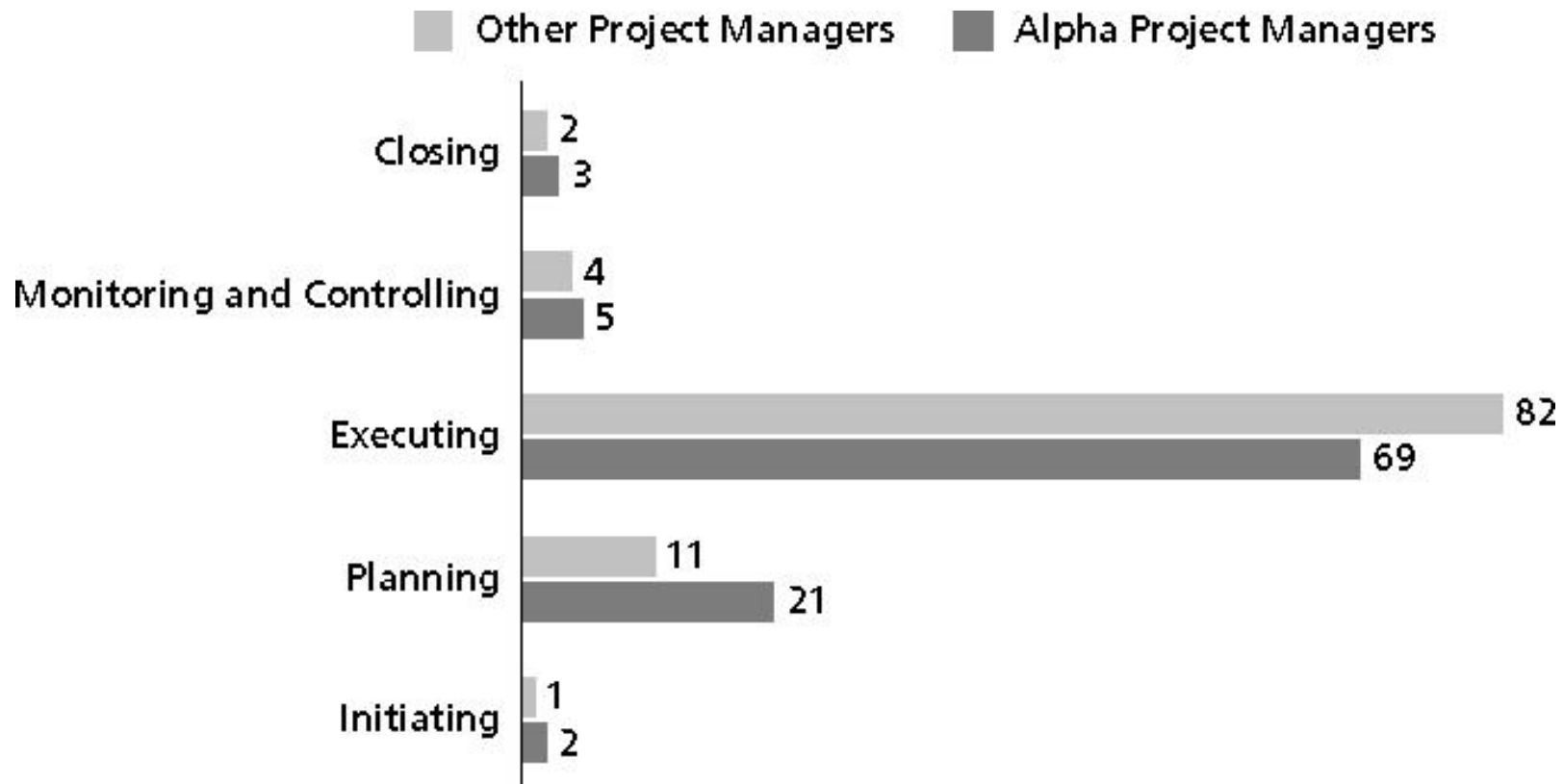
Percentage of Time Spent on Each Process Group



《Alpha Project Managers: What the Top 2% Know That Everyone Else Does Not》



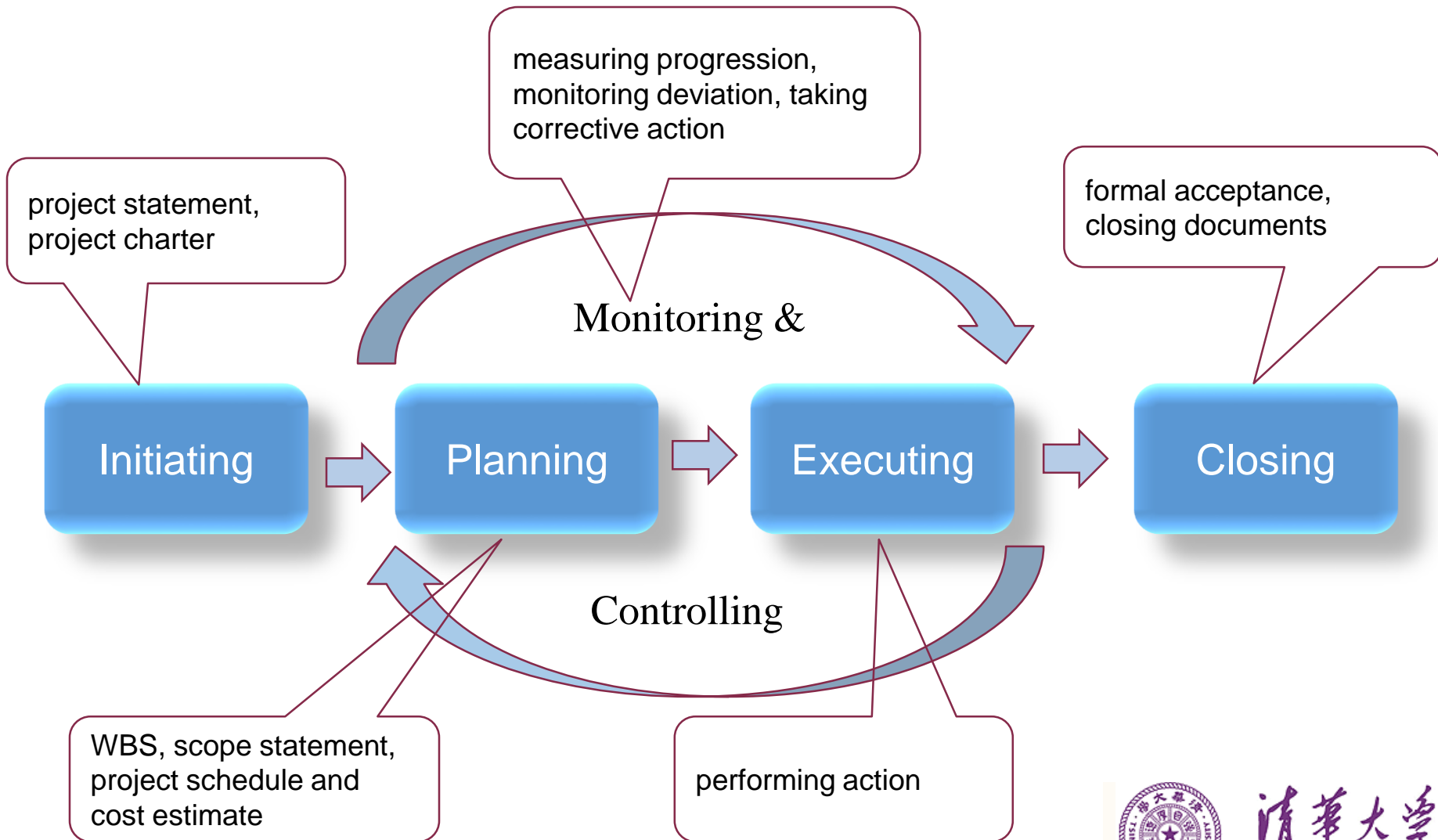
Percentage of Time Spent on Each Process Group







Process Groups Outcomes



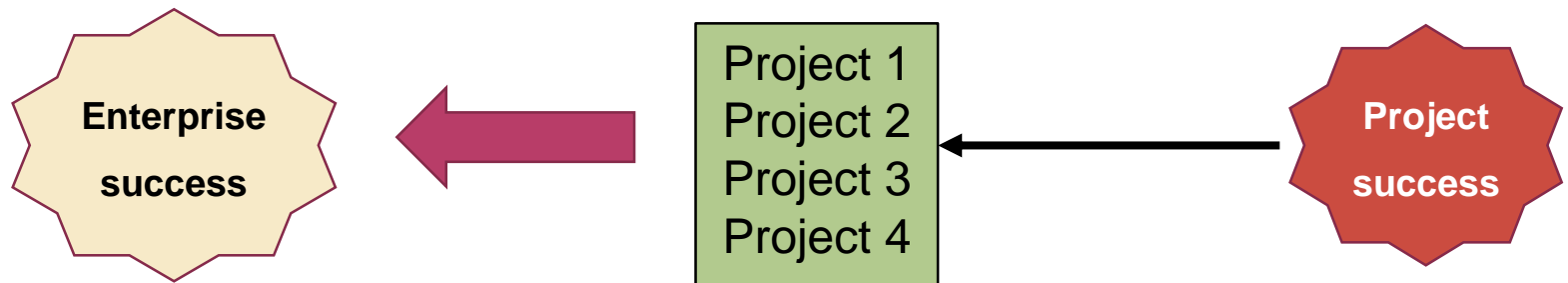
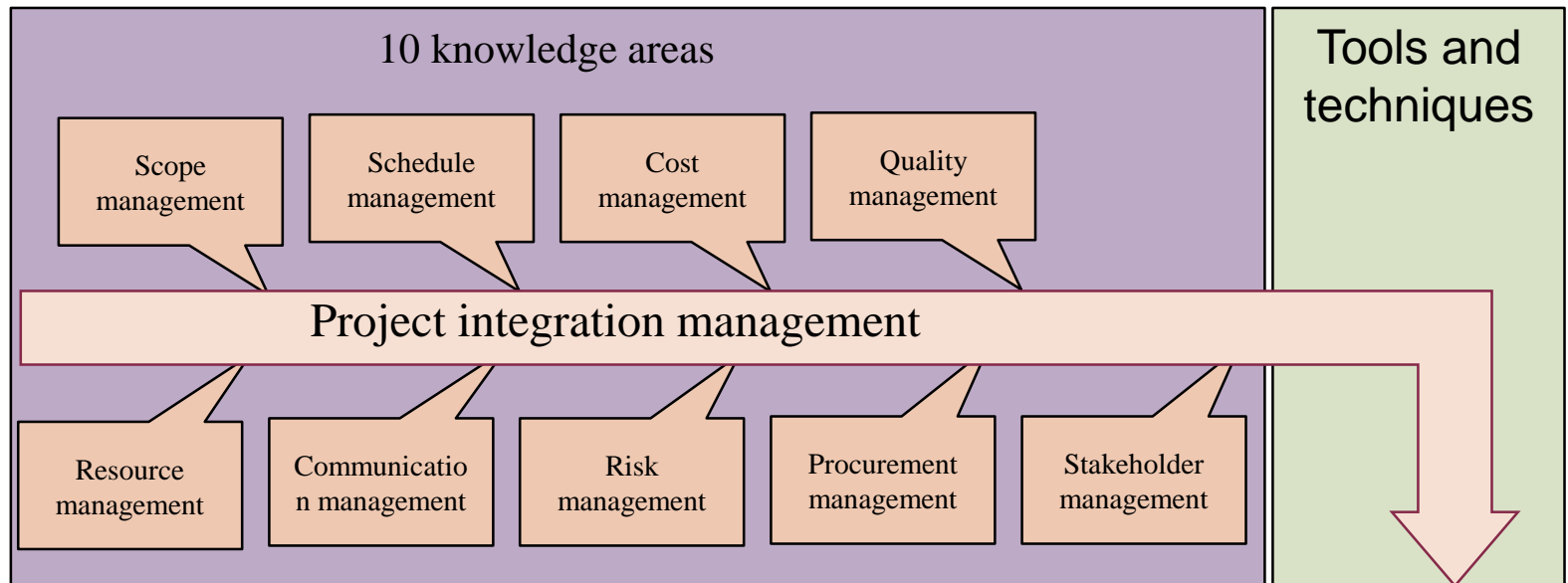


Contents

- Project Management Process Groups
- Map the Process Groups to the Knowledge Areas
- Develop an IT Project Management Methodology
- Case Study 1: Predictive Approach
- Case Study 2: Agile Approach
- Templates by Process Group

Project Management Framework

Stakeholders'
needs and
expectations



Project portfolio



清华大学
Tsinghua University

Mapping the Process Groups to the Knowledge Areas

- Note that there are activities from each knowledge area under the planning and monitoring and controlling process groups
- Two new processes were added in 2008: identify stakeholders and collect requirements
- One new area was added in 2012: project stakeholder management
- In 2017, three new processes have been added into the 47 processes and one process is removed



Three New Processes in PMBOK 6th

- Project Integration Management
 - Executing
 - Manage Project Knowledge
- Project Resource Management
 - Monitoring and Controlling
 - Control Resources
- Project Risk Management
 - Executing
 - Implement Risk Responses



Knowledge Area	Project Management Process Groups				
	Initiating	Planning	Executing	Monitoring and Controlling	Closing
Integration	√	√	√	√	√
Scope		√		√	
Schedule(Time)		√		√	
Cost		√		√	
Quality		√	√	√	
Resource(HR)		√	√	√	
Communication		√	√	√	
Risk		√	√	√	
Procurement		√	√	√	
Stakeholder	√	√	√	√	

Project Management Process Groups and Knowledge Area Mapping

Knowledge Area	Project Management Process Groups				
	Initiating	Planning	Executing	Monitoring and Controlling	Closing
Project Integration Management	Develop project charter	Develop project management plan	Direct and manage project execution, Manage project knowledge	Monitor and control project work, Perform integrated change control	Close project or phase
Project Scope Management		Plan scope management Collect requirements Define scope Create WBS		Verify scope, Control scope	
Project Schedule Management		Plan schedule management Define activities, Sequence activities, Estimate activity durations,		Control schedule	

Knowledge Area	Project Management Process Groups				
	Initiating	Planning	Executing	Monitoring and Controlling	Closing
Project Cost Management		Plan cost management Estimate costs, Determine budget		Control costs	
Project Quality Management		Plan quality management	Manage Quality	Perform quality control	
Project Resource Management		Plan resource management, Estimate activity resources	Acquire resources, Develop team, Manage team	Control resources	

Knowledge Area	Project Management Process Groups				
	Initiating	Planning	Executing	Monitoring and Controlling	Closing
Project Communications Management		Plan communications management	Manage communications	Monitor communications	
Project Risk Management		Plan risk management, Identify risks, Perform qualitative risk analysis, Perform quantitative risk analysis, Plan risk responses	Implement risk responses	Monitor risks	
Project Procurement Management		Plan procurement	Conduct procurements	Control procurements	
Project stakeholder management	Identify stakeholders	Plan stakeholder engagement	Manage stakeholder engagement	Monitor stakeholder engagement	



Contents

- Project Management Process Groups
- Map the Process Groups to the Knowledge Areas
- Develop an IT Project Management Methodology
- Case Study 1: Predictive Approach
- Case Study 2: Agile Approach
- Templates by Process Group

Developing an IT Project Management Methodology

- Just as projects are unique, so are approaches to project management
- Many organizations develop their own project management methodologies, especially for IT projects

Standard

vs

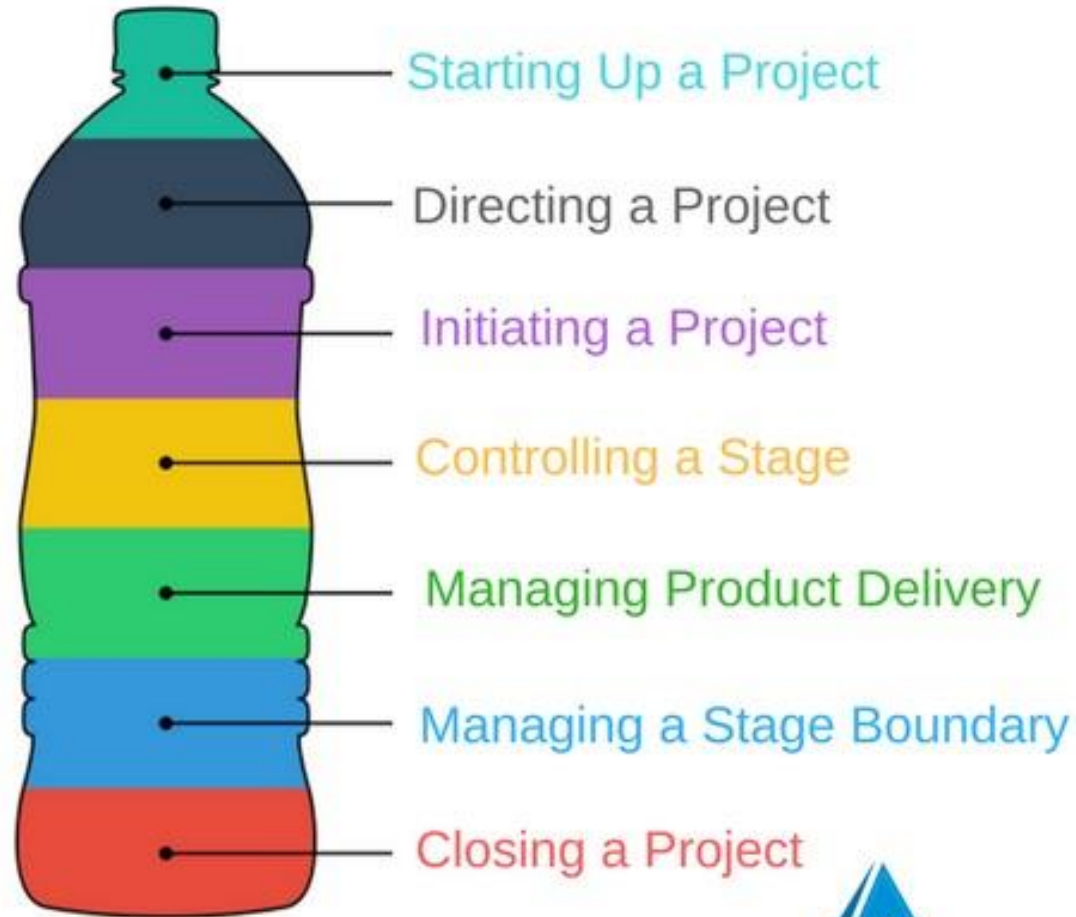
Methodology

What should be done

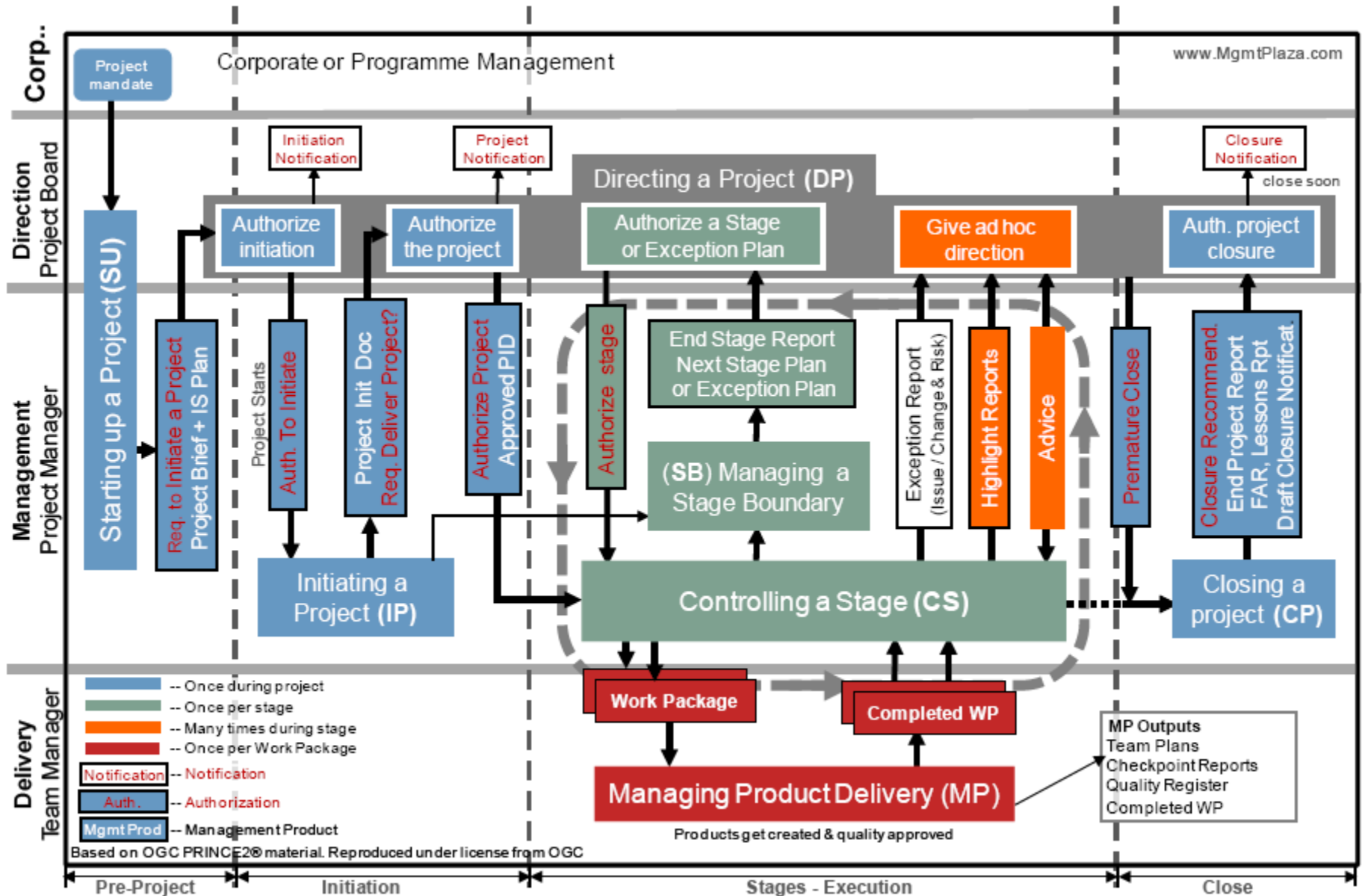
How things should be done



7 Processes of Prince2



Process Model

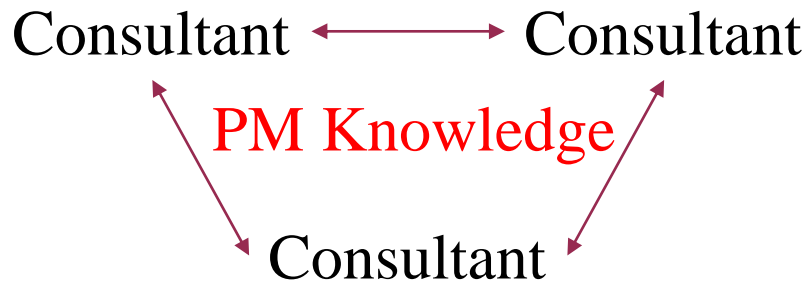


Guides for Methodology

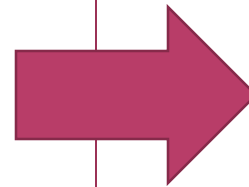
- Rational Unified Process (RUP) framework: an iterative software development process that focuses on team productivity and delivers software best practices to all team members.
- Six Sigma (from quality experts)
 - DMAIC
(Define, Measure, Analyze, Improve and Control)
 - DMADV
(Define, Measure, Analyze, Design and Verify)



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



1. Project management templates
2. Tools
3. Articles
4. Links to other sites
5. “Ask the Expert”



Current customers



Future customers

Purpose of the Case Study

- This case study provides an example of what's involved in initiating, planning, executing, monitoring and controlling, and closing a software project
- Microsoft Project is used to demonstrate how project management software can assist in several aspects of managing a project.



Two Approaches

- Predictive/Waterfall:
pre-initiation, initiation, planning, execution, monitoring and controlling, project closing
- Agile:
All agile methods include an iterative workflow and incremental delivery of software in short iterations. Popular agile methods include eXtreme Programming, Scrum, feature driven development, lean software development, Agile Unified Process (AUP), Crystal, and Dynamic Systems Development Method (DSDM).

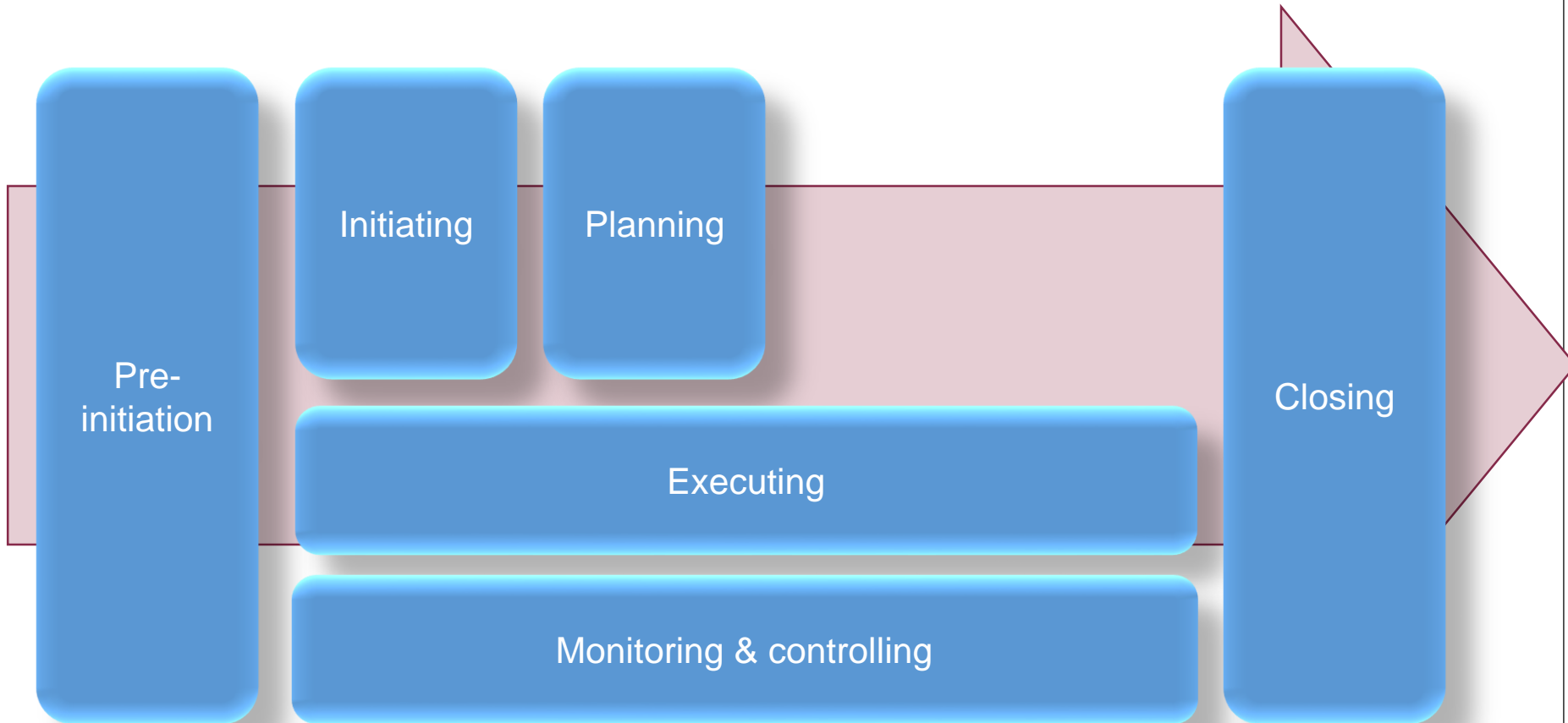




Contents

- Project Management Process Groups
- Map the Process Groups to the Knowledge Areas
- Develop an IT Project Management Methodology
- Case Study 1: Predictive Approach
- Case Study 2: Agile Approach
- Templates by Process Group

Predictive Approach



Project Pre-initiation

Lay the groundwork for a project before it officially starts

Senior Manager

- 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
- 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
-



Reasons to Initiate Projects

Support business objectives, such as provide a good return on investment at a reasonable level of risk

CPMIS

- Help JWD reduce internal costs by working more effectively
- Bring more business by allowing existing and potential customers to access some of the firm's information



Business Case

- Introduction/background
- Business objective
- Current situation and problem/opportunity statement
- Critical assumptions and constraints
- Analysis of options and recommendation
- Preliminary project requirements
- Budget estimate and financial analysis
- Schedule estimate
- Potential risks
- Exhibits



5.0 Analysis of Options and Recommendation

There are three options for addressing this opportunity:

1. Do nothing. The business is doing well, and we can continue to operate without this new project.
2. Purchase access to specialized software to support this new capability with little in-house development.
3. Design and implement the new intranet capabilities in-house, using mostly existing hardware and software.

Based on discussions with stakeholders, we believe that option 3 is the best option.

should be able to access or download the desired information.

7. Other features suggested by users, if they add value to the business.

A preliminary estimate of costs for the entire project is \$140,000. This estimate is based on the project manager working about 20 hours per week for six months and other internal staff working a total of about 60 hours per week for six months. The customer representatives would not be paid for their assistance. A staff project manager would earn \$50 per hour. The hourly rate for the other project team members would



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

Knowledge Area	Initiating Process	Outputs
Project Integration Management	Develop project charter	Project charter Assumption log
Project Stakeholder Management	Identify stakeholders	Stakeholder register Change requests Project management plan updates Project documents updates

Stakeholder Register

Joe Fleming
CEO

Erica Bell
PMO Director

Michael Chen
Team member

Louise Mills
PR Director

Kim Phuong
Business analyst

Internal

External



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



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.

Project Charter

1. Project Title
2. Project Start Date: XXXX
3. Project Finish Date: XXXX
4. Budget Information
5. Project Manager
6. Project Objectives
7. Main Project Success Criteria
8. Approach
9. Roles and Responsibilities

Sign-Off



Project Title: Project Management Intranet Site Project

Project Start Date: May 2

Projected Finish Date: November 4

Budget Information: The firm has allocated \$140,000 for this project. The majority of costs for this project will be internal labor. An initial estimate provides a total of 80 hours per week.

Project Manager: Erica Bell, (310) 555-5896, erica_bell@jwdconsulting.com

Project Objectives: Develop a new capability accessible on JWD Consulting's

Main Project Success Criterion: The project should pay for itself within one year of completion.

Approach:

- Develop a survey to determine critical features of the new intranet site and solicit input from consultants and customers.
- Review internal and external templates and examples of project management documents.
- Research software to provide security, manage user inputs, and facilitate the article retrieval and Ask the Expert features.
- Develop the intranet site using an iterative approach, soliciting a great deal of user feedback.
- Develop a way to measure the value of the intranet site in terms of reduced costs and new revenues, both during the project and one year after project completion.

ROLES AND RESPONSIBILITIES (PARTIAL LIST)

Name

Role

Position

Contact Information

Kick-off Meetings

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



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:

Kick-Off Meeting

[Date of Meeting]

Project Name: Project M

Meeting Objective: Introduce the project to key stakeholders, review the project charter, and discuss the project goals and objectives.

How to design the agenda?

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:

How to design the agenda?



Does a virtual team need kick-off meeting?



Project Planning

- The main purpose is to *guide execution*
- Every knowledge area includes planning information
 - A team charter
 - 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)

Key outputs

The most difficult and unappreciated process



Team Building Meeting

The main purpose is to *help the project team get to know each other*

Steps

1. All participants introduces themselves
2. An icebreaking activity
3. Explain the importance of the project, again review the signed project charter, create team contract
4. Clarify the scope of the project
 - List one item that is most unclear to you about the scope of this project
 - What other questions do you have or issues do you foresee about the scope of the project?
 - List what you believe to be the main deliverable for this project
 - Which deliverables do you think you will help create or review?



Code of Conduct: As a project team, we will:

- Work proactively, anticipating potential problems and working to prevent them.
- Keep other team members informed of information related to the project.
- Focus on what is best for the entire project team.

Participation: We will:

- Be honest and open during all project activities.
- Encourage diversity in team work.
- Provide the opportunity for equal participation.
- Be open to new approaches and consider new ideas.
- Have one discussion at a time.
- Let the project manager know well in advance if a team member has to miss a meeting or may have trouble meeting a deadline for a given task.

Communication: We will:

- Decide as a team on the best way to communicate. Because a few team members cannot often meet face to face, we will use e-mail, a project website, and other technology to assist in communicating.
- Have the project manager facilitate all meetings and arrange for phone and video conferences, as needed.
- Work together to create the project schedule and enter actuals into the enterprise-wide project management system by 4 p.m. every Friday.
- Present ideas clearly and concisely.
- Keep discussions on track.

Problem Solving: We will:

- Encourage everyone to participate in solving problems.
- Only use constructive criticism and focus on solving problems, not blaming people.
- Strive to build on each other's ideas.

Meeting Guidelines: We will:

- Have a face-to-face meeting the first and third Tuesday morning of every month.
- Meet more frequently the first month.
- Hold other meetings as needed.
- Record meeting minutes and send them via e-mail within 24 hours of all project meetings, focusing on decisions made and action items from each meeting.

Scope Meeting?

Schedule Meeting?

Cost Meeting?

Risk Meeting?



Scope Statement (Version xx)

Project Title:

Date: **Prepared by:**

Project Summary and Justification:

Product Characteristics and Requirements:

Product User Acceptance Criteria:

Summary of Project Deliverables

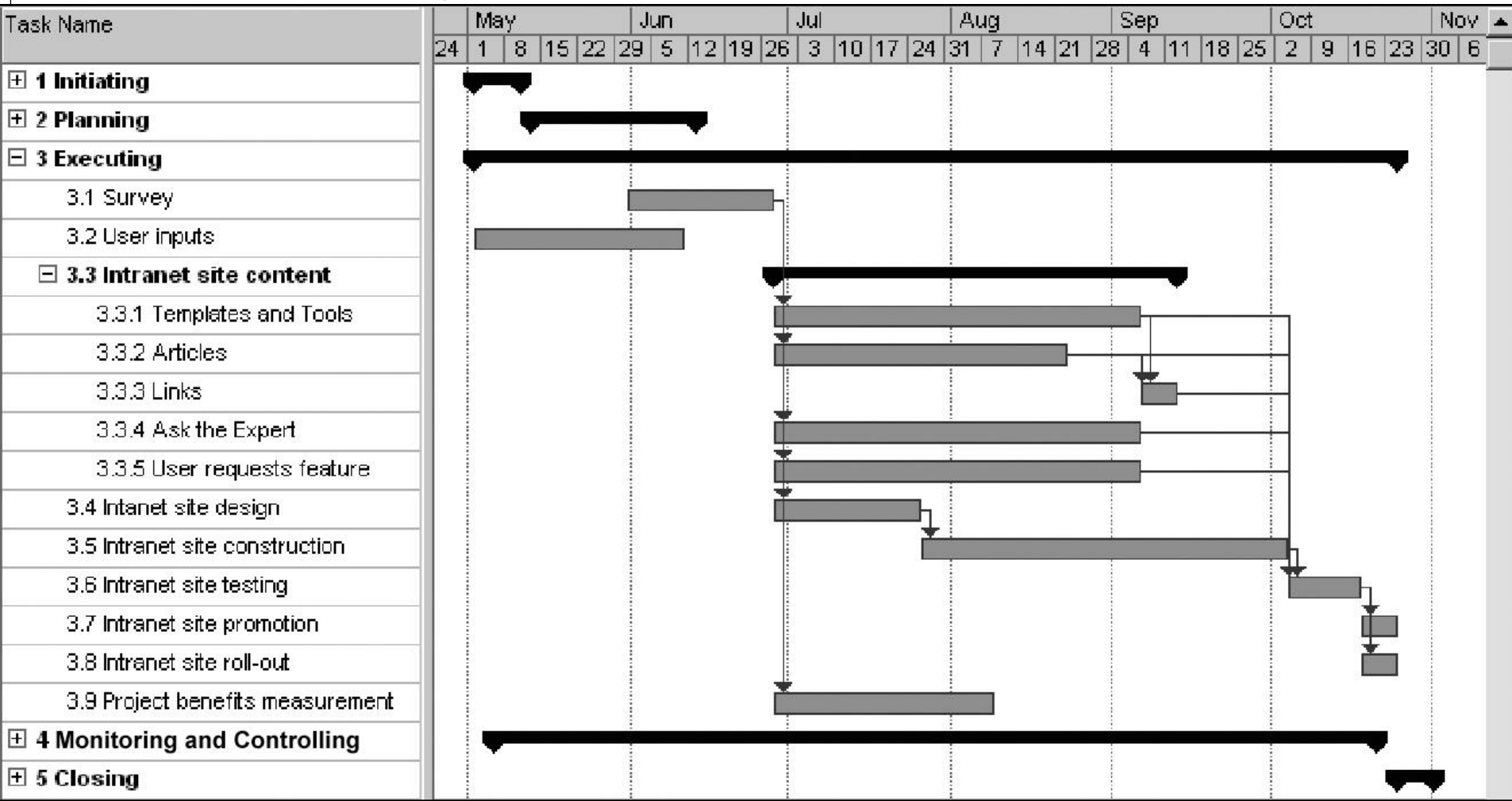
Project management-related deliverables: business case, charter, team contract, scope statement, WBS, schedule, cost baseline, status reports, final project presentation, final project report, lessons-learned report, and any other documents required to manage the project.

Product-related deliverables: research reports, design documents, software code, hardware, etc.

Project Success Criteria:



JWD Consulting Intranet Site Project Baseline Gantt Chart



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



Project Executing

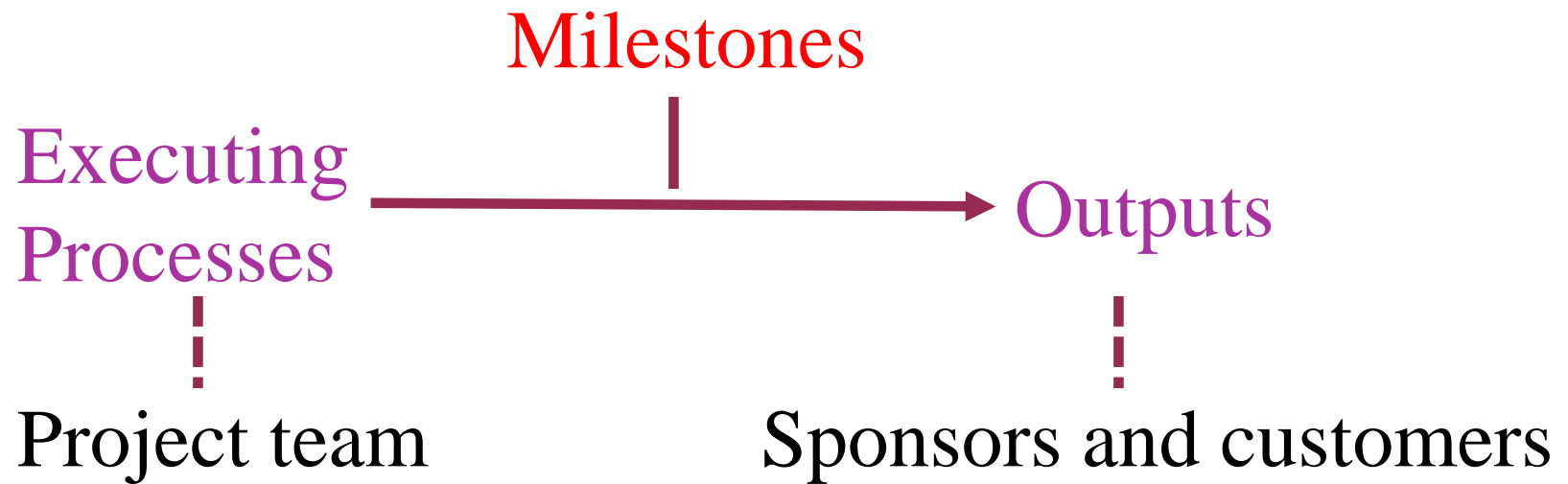
- Usually takes the most time and resources to perform project execution
- Project managers must use their leadership skills to handle the many challenges that occur during project execution



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
	Manage project knowledge	Lessons learned register, project management plan updates, organizational process assets updates
Project Quality Management	Manage quality	Quality reports, test and evaluation documents, change requests, project management plan updates, project documents updates
Project Resource Management	Acquire resources	Physical resource assignments, project team assignments, resource calendars, change requests, project management plan updates, project documents updates, enterprise environmental factors updates, organizational process assets updates
	Develop team	Team performance assessments, change request, project management plan updates, project documents updates, enterprise environmental factor updates, organizational process assets updates
	Manage team	Change requests, project management plan updates, project documents update, enterprise environmental factor updates

Knowledge Area	Executing Process	Outputs
Project Communications Management	Manage communications	Project communications, project management plan updates, project documents updates, organizational process assets updates
Project Risk Management	Implement risk responses	Change requests, project documents updates
Project Procurement Management	Conduct procurement	Selected sellers, agreements, change requests, project management plan updates, project documents updates, organizational process assets updates
Project Stakeholder management	Manage stakeholder engagement	Change request, project management plan updates, project documents updates





Milestone	Date	Status	Responsible	Issues/ Comments
<i>Initiating</i> 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
<i>Planning</i> 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	
<i>Executing</i> Survey completed	June 28		Erica	Poor response so far!
Intranet site design completed	July 26		Kevin	

Best Practice

- Identified champions in each stakeholder group to help inspire others to achieve project goals
- Implemented a web site dedicated to public concerns
- Two-day review meetings at the beginning of each project phase to discuss problems and develop solutions to prevent conflict
- Financial investors were asked for input to increase their stake
- Recognized the value of hiring high-quality experts



Project Monitoring and Controlling

- Involves measuring the progress toward project objectives, monitoring deviation from the plan, and taking corrective actions
- Affects all other process groups and occurs during all phases of the project life cycle
- Involves 10 project management knowledge areas
- Outputs include performance reports, change requests, and updates to various plans



Weekly Progress Report

- Project name
- Team member name
- Date
- Work complete this week
- Work to complete next week
- What's going well and **why**
- What's not going well and **why**
- Suggestions/Issues
- Project changes



Project Closing

- Involves gaining stakeholder and customer acceptance of the final products and services, and then bringing the project or project phase to an orderly end

Knowledge Area	Closing Process	Outputs
<i>Project Integration Management</i>	Close project or phase	Project documents updates Final product, service, or result transition Final report Organizational process assets updates

Uncompleted project?

Lessons-learned report

Project Name:	JWD Consulting Project Management Intranet Site Project
Project Sponsor:	Joe Fleming
Project Manager:	Erica Bell
Project Dates:	May 2 – November 4
Final Budget:	\$150,000

1. Did the project meet scope, time, and cost goals?

We did meet scope and time goals, but we had to request an additional \$10,000, which the sponsor approved.

2. What were the success criteria listed in the project scope statement?

Below is what we put in our project scope statement under project success criteria:

.....



Final Project Report

1. Project Objectives
2. Summary of Project Results
3. Original and Actual Start and End Dates
4. Original and Actual Budget
5. Project Assessment (Why did you do this project? What did you produce? Was the project a success? What went right and wrong on the project?)
6. Transition Plan
7. Annual Project Benefits Measurement Approach

Attachments:



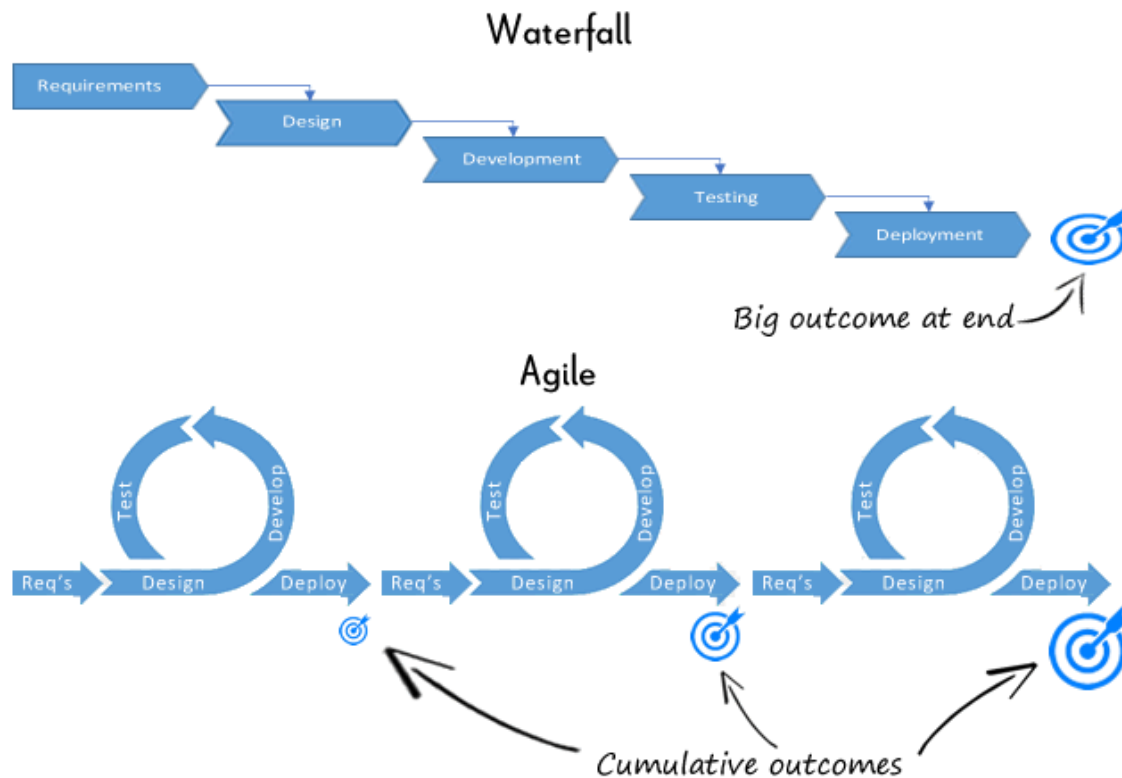


Contents

- Project Management Process Groups
- Map the Process Groups to the Knowledge Areas
- Develop an IT Project Management Methodology
- Case Study 1: Predictive Approach
- Case Study 2: Agile Approach
- Templates by Process Group

Agile Approach

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.



Predictive vs Agile

Method 1	Method 2
Heavy constraints	Less rigid constraints
inexperienced and dispersed teams	experienced and preferably co-located teams
large risks	smaller risks
generally clear up-front requirements	unclear requirements
a fairly rigid completion date	more flexible scheduling



Three Main Roles in Scrum

1. Product Owner (PO)



I decide what to do & why.

- I'm responsible for the product vision & delivering value.
- I manage the Product Backlog (requirements)

2. Scrum Master (SM)



I focus on how to work better.

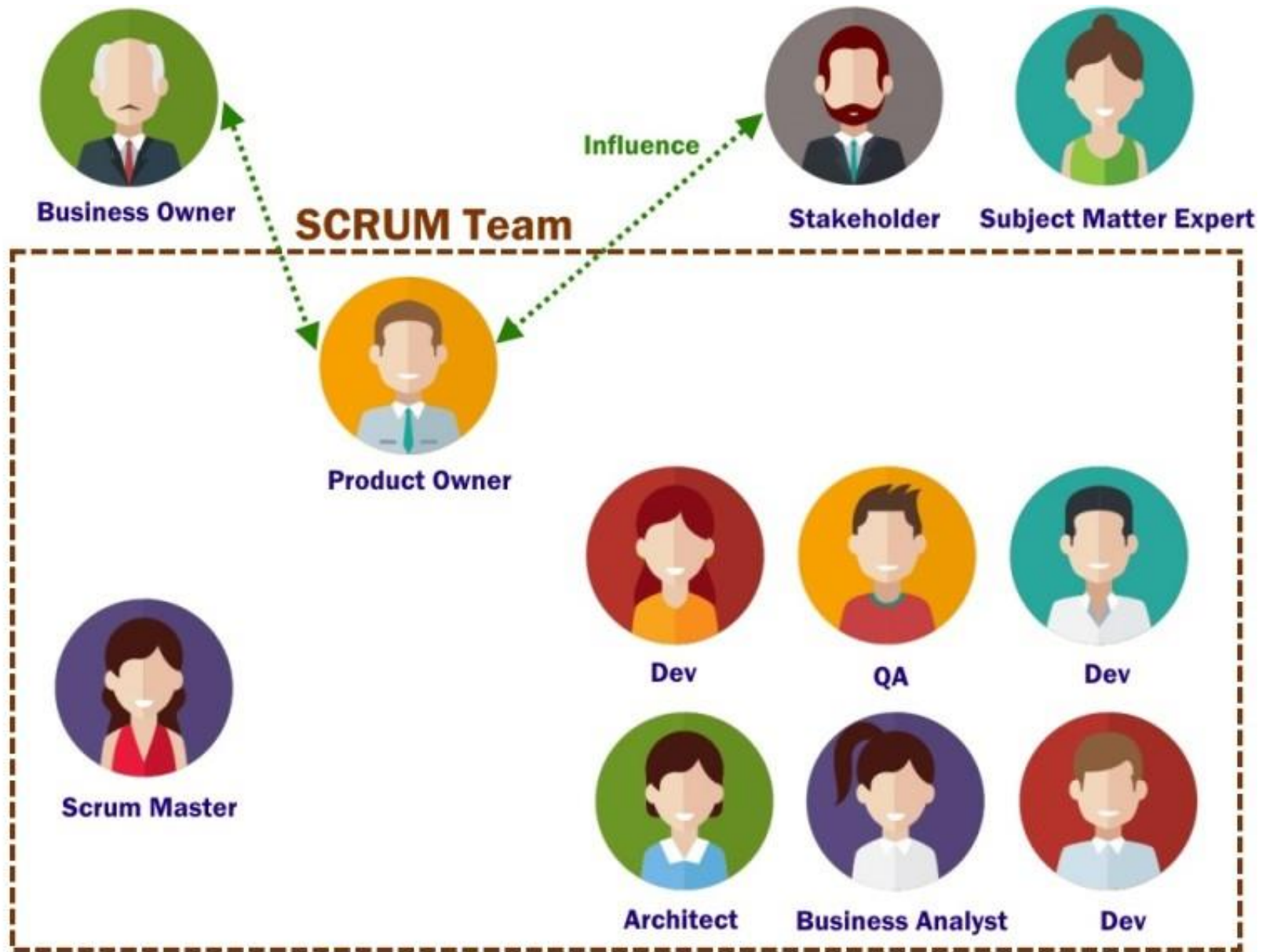
- I coach my team on Scrum.
- I work with stakeholders to remove obstacles and improve team velocity.

3. Team (3-9 Pax)



We do the work / development.

- We have the skills to deliver the product.
- We decide how to achieve each product increment.



Danielcoding.net: Scrum Part 3 - The Team

Three Artifacts(deliverable)

- **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 (12-16 hours/task)
- **Burndown chart** – show the cumulative work remaining in a sprint on a day-by-day basis



Four Ceremonies

DAILY SCRUM MEETING

≤ 15 minutes



SPRINT PLANNING MEETING



4 hours – 1 day

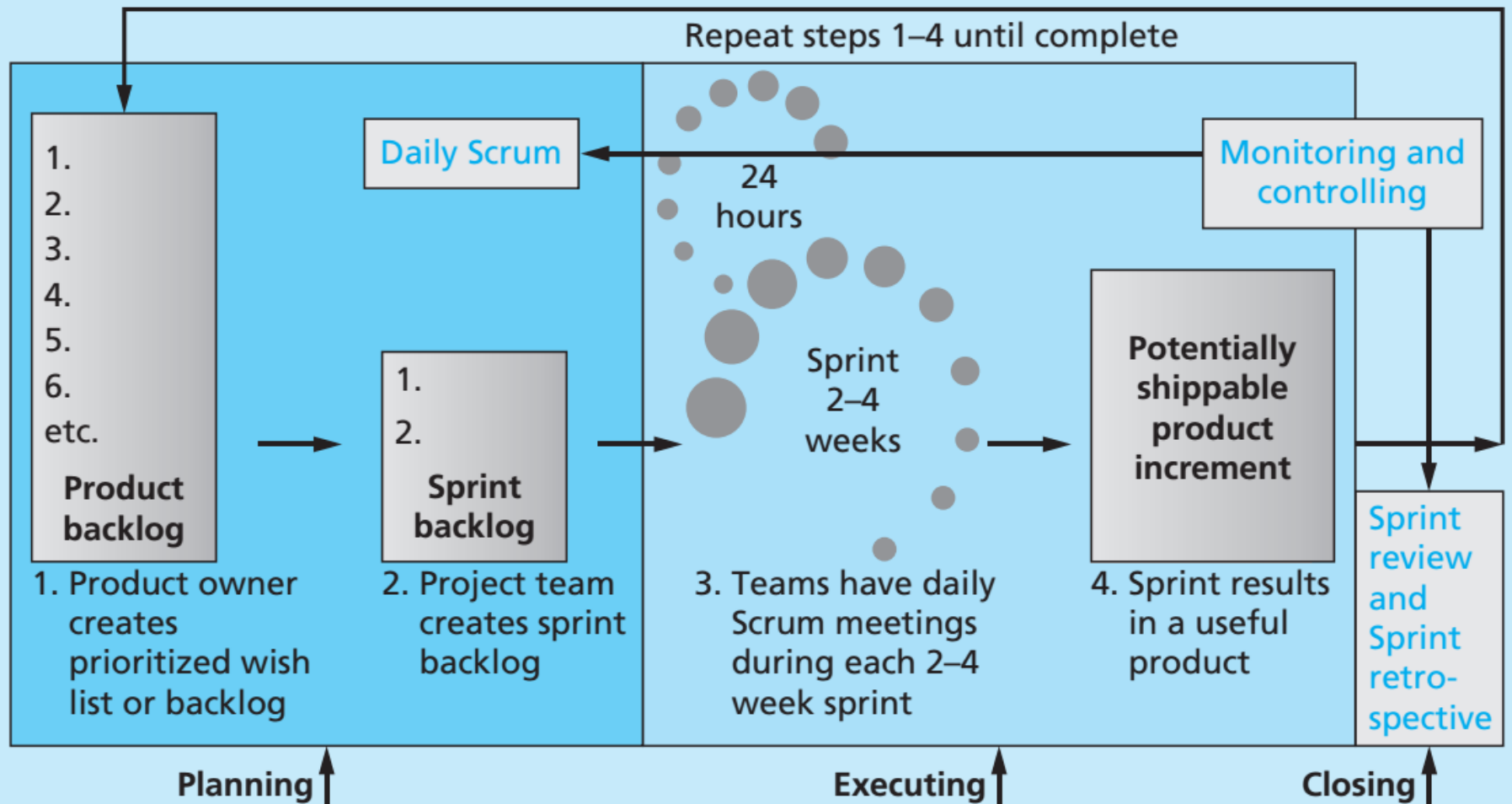
SCRUM
CEREMONIES

SPRINT REVIEW MEETING



SPRINT RETROSPECTIVE MEETING





Unique Scrum Activities by Process Groups

Process Groups	Activities
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

Pre-Initiation

- What functionality would be delivered as part of each release
- How many sprints for a release
- How many releases of software to deliver



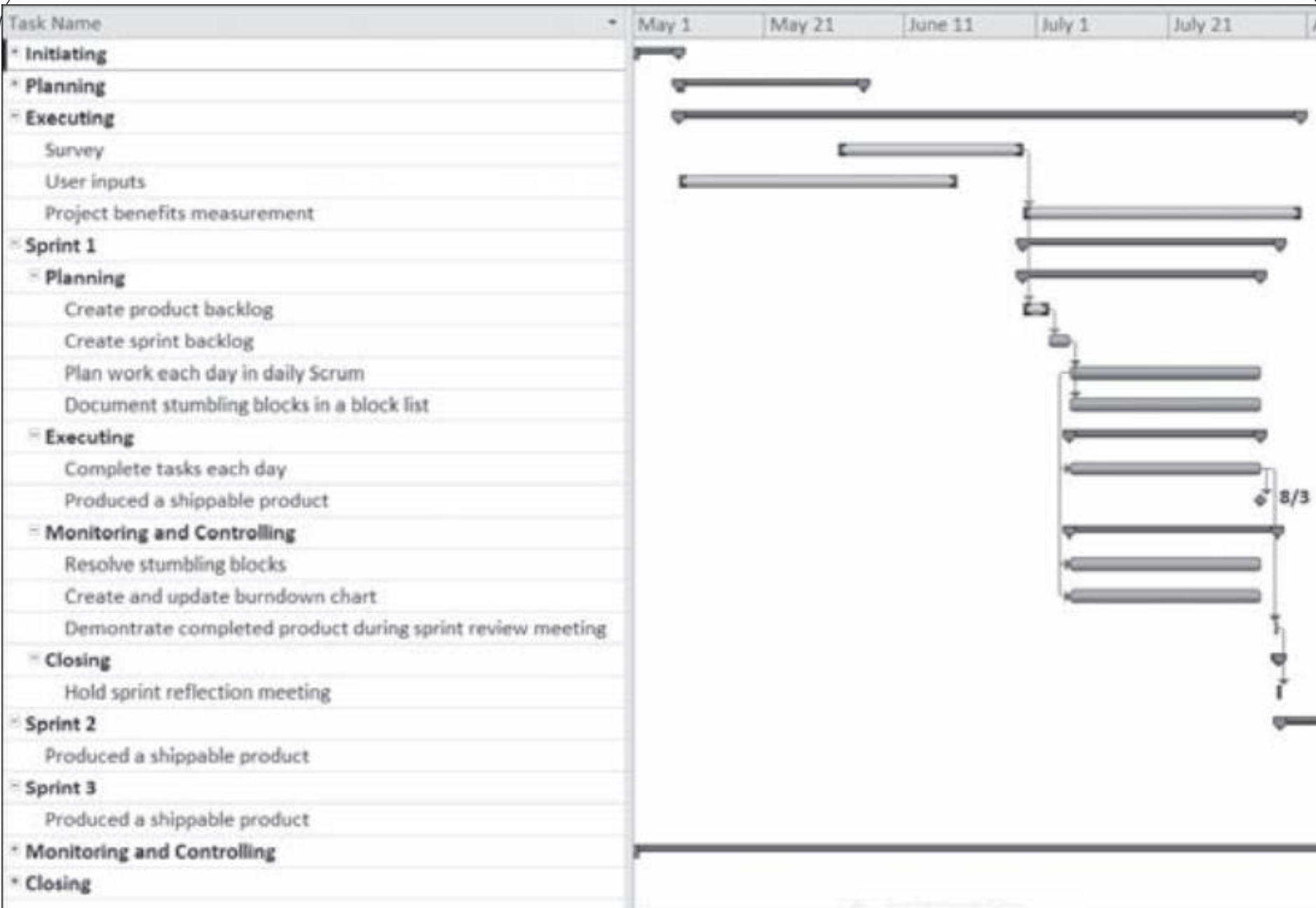
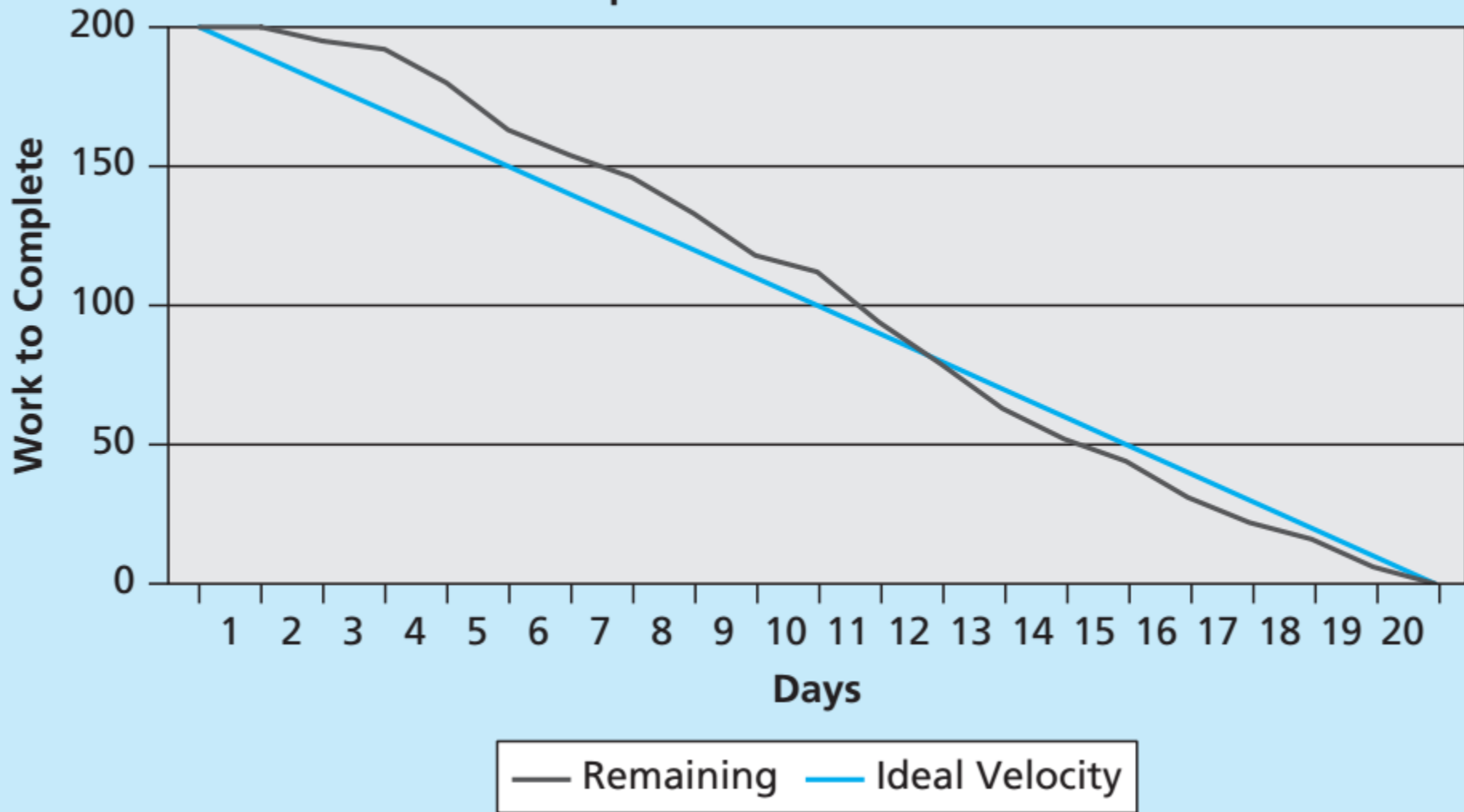
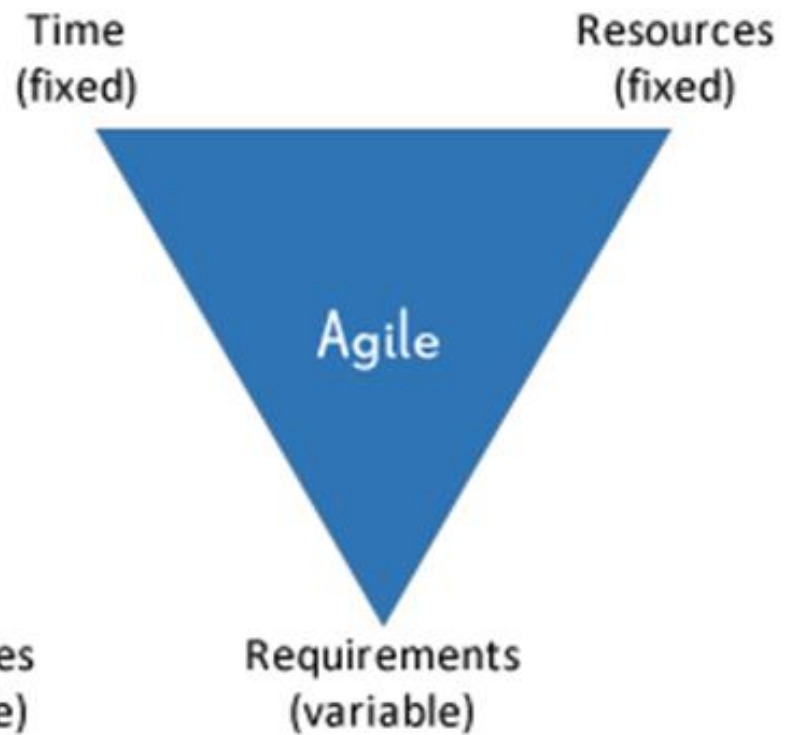
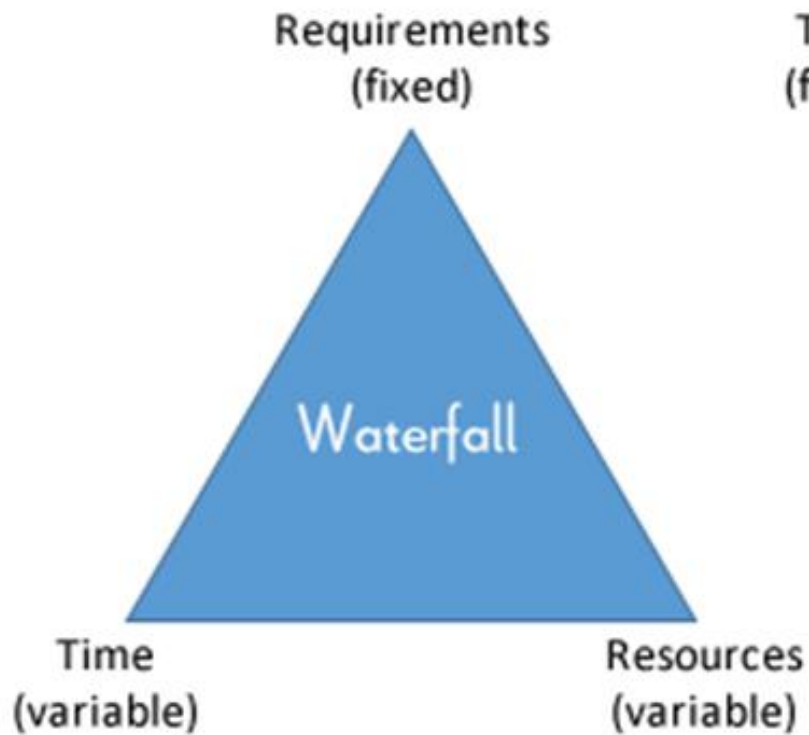


TABLE 3-19 Product and sprint backlogs

Product Backlog	Sprint Backlog
<ol style="list-style-type: none">1. User story templates, samples, and point person2. WBS templates, samples, and point person3. Project schedule templates, samples, and point person4. Ability to charge customers for some intranet products and services5. Ability to collect user suggestions6. Business case templates, samples, and point person7. Ask the Expert feature8. Stakeholder management strategy templates, samples, and point person9. Risk register templates, samples, and point person10. Etc.	<ol style="list-style-type: none">1. User story templates, samples, and point person2. WBS templates, samples, and point person3. Project schedule templates, samples, and point person4. Ability to charge customers for some intranet products and services5. Ability to collect user suggestions

Sprint 1 Burndown Chart







Contents

- Project Management Process Groups
- Map the Process Groups to the Knowledge Areas
- Develop an IT Project Management Methodology
- Case Study 1: Predictive Approach
- Case Study 2: Agile Approach
- Templates by Process Group

Templates

- Project teams prepare many documents throughout the life of a project
- Table 3-20 on pp.139-142 lists the templates by process group
- You can download them from:
<http://180.76.145.135/moin/SpmEng/2019/Templates>





Thanks!



清华大学
Tsinghua University