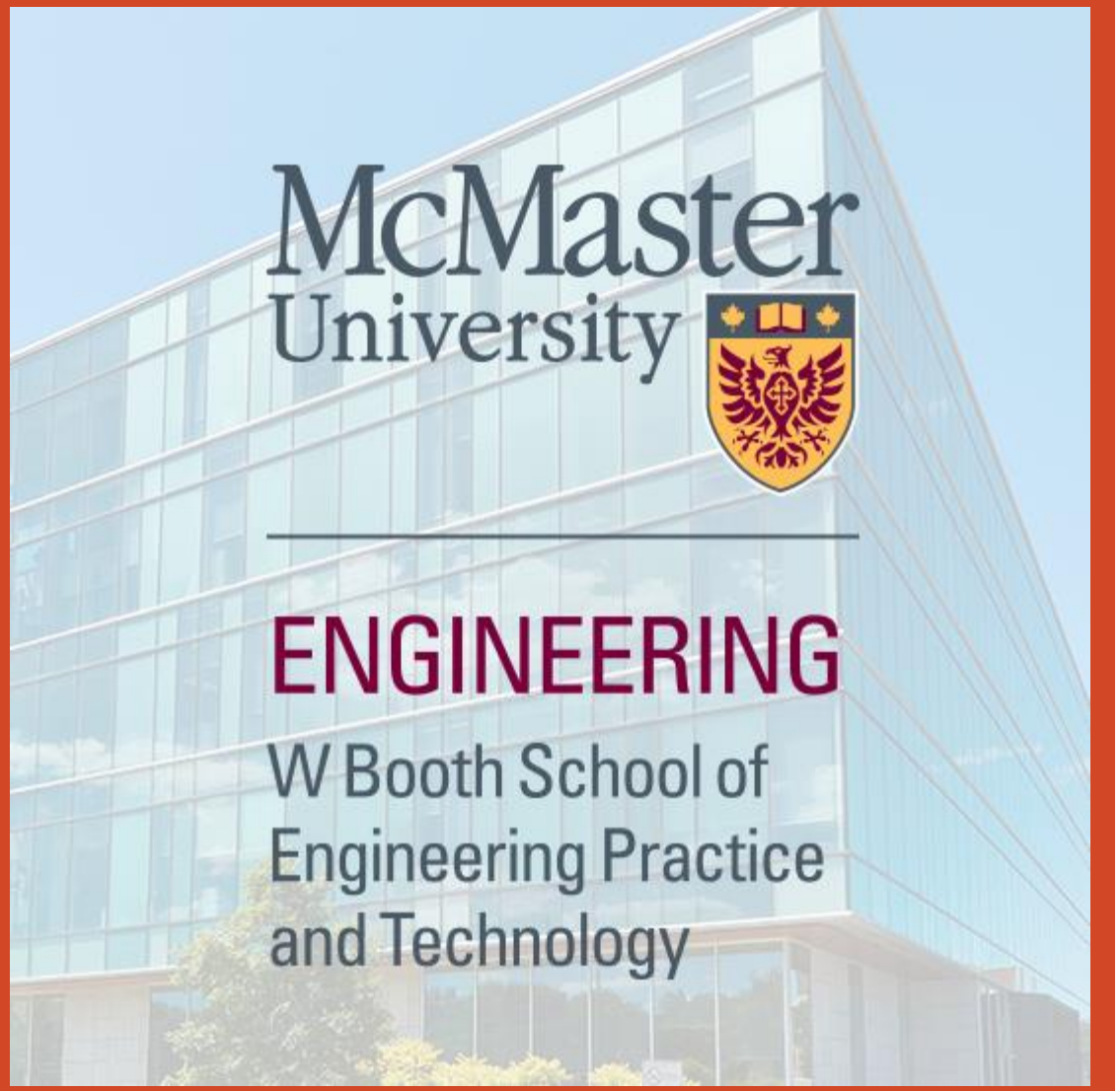
Practical Project Management for Today's Business Environment

Fall 2024

Week 7: Adaptive & Emerging Project Management Techniques

Dr. Mikhail Hanna, PhD, PMP, PMI-RMP



Learning Objectives

1. Understand adaptive and emerging project management methodologies: Agile, Lean, Kanban, and Hybrid models.
2. Compare these techniques with traditional methods.
3. Evaluate pros and cons of emerging techniques.
4. Develop insights into managing uncertainties in projects.

Adaptive Project Management Techniques

Introduction to Adaptive Project Management Techniques

Traditional project management methodologies such as Waterfall, is known for its linear, sequential phases that follow a strict order.

Advantages

- clear structure, predictability, and strong documentation.

Limitations

- Rigidity, difficulty adapting to changing requirements, and the risk of discovering issues late in the project lifecycle.
- This can lead to cost overruns and missed deadlines.

Evolution of **Adaptive methodologies**:

Emphasized the increasing need for flexibility, faster delivery cycles, and direct customer involvement led to the development of adaptive project management techniques.

These methodologies allow teams to pivot based on feedback and changes in requirements.

Introduction to Adaptive Project Management Techniques

Examples of adaptive methodologies include:

- **Agile**: Iterative work cycles, emphasis on collaboration and customer feedback.
- **Lean**: Maximizing value while minimizing waste.
- **Kanban**: Visualizing workflow, limiting work-in-progress to enhance efficiency.

Discussion: Why are adaptive techniques gaining popularity across industries such as IT, manufacturing, and construction?

Think of increasing complexity and uncertainty in projects and the need for methods that can handle continuous change.

Agile Project Management

Agile Project Management: Pros and Cons

Agile is based on **iterative** development, where requirements and solutions evolve through collaboration among cross-functional teams. Emphasize the values and principles outlined in the Agile Manifesto.

Focus on customer satisfaction through continuous delivery, welcoming changing requirements even late in the project, delivering working software frequently, and maintaining close, daily cooperation between business stakeholders and developers.

Introduction to popular Agile frameworks like **Scrum** (with roles such as Scrum Master, Product Owner, and development team) and **XP (Extreme Programming)**, which focuses on technical excellence through practices like pair programming and continuous integration.

Comparison with traditional project management: Agile's iterative, incremental approach contrasts with the rigid, sequential structure of Waterfall.

Agile promotes adaptability, collaboration, and faster value delivery.

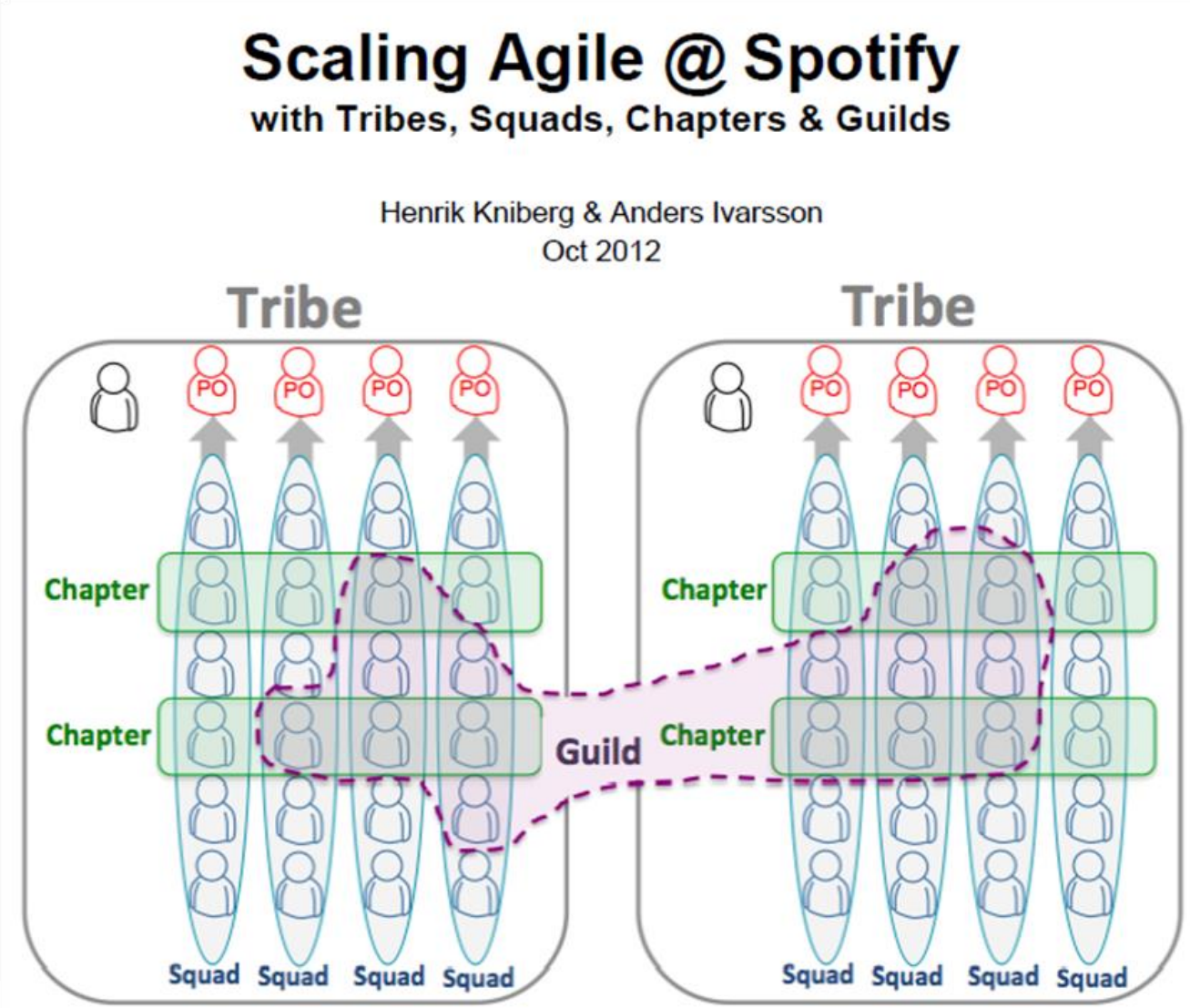
Real-World Example

Spotify adopted Agile practices by organizing its teams into **squads, tribes, chapters, and guilds**.

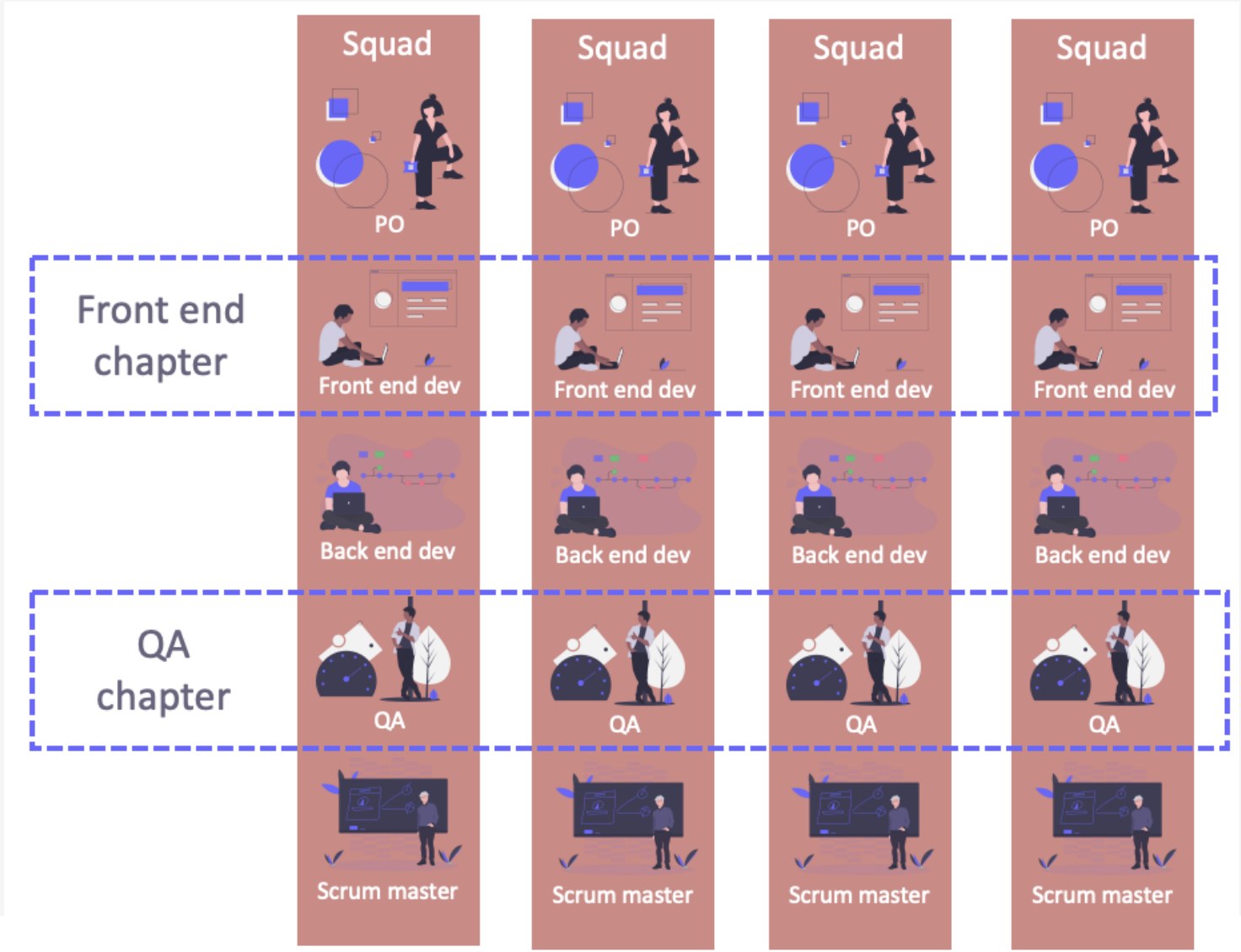
Each squad operates like a mini-startup, empowered to make decisions and develop features independently.

This structure enabled Spotify to foster innovation and flexibility, allowing rapid adaptation to changing customer preferences and technological advancements.

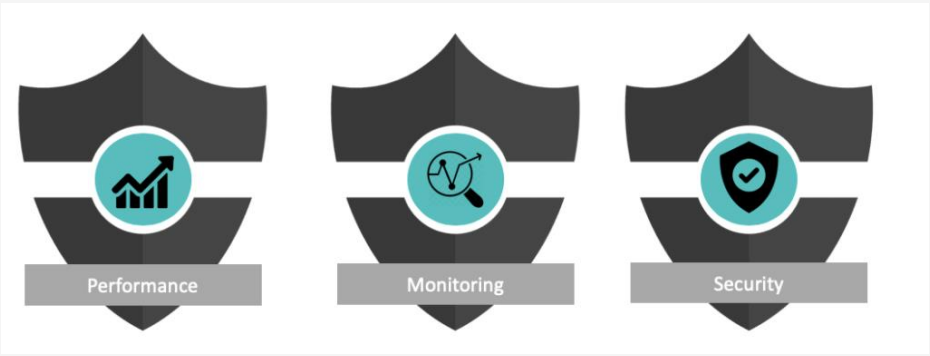
Spotify's use of Agile helped maintain a high level of productivity and creativity while ensuring alignment with the company’s overall goals.



Implementation



Guilds



Agile Project Management: Pros and Cons

Pros: Flexibility, iterative development allowing regular assessment and adjustment, customer involvement providing valuable feedback, quick response to changes that align with evolving market needs.

Cons: Less predictability in timelines and budgets, challenges in managing scope, stakeholder misalignment if expectations are not managed properly.

Group discussion - Applying Agile to construction projects. Teams brainstorm how Agile concepts, like iterative feedback and customer collaboration, could be adapted to phases like design or prototyping in construction.

Lean and Kanban: Streamlining Efficiency

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Lean: Originating from the Toyota Production System, Lean is focused on eliminating waste and maximizing customer value.

Value Stream Mapping (identifying and analyzing the flow of materials and information),

Continuous Improvement (Kaizen) (encouraging every employee to suggest improvements)

Reducing variability and building quality into processes from the start.

Kanban: Originated as part of Lean and its use as a visual workflow management system to improve efficiency.

Kanban boards are used to visualize tasks, limit work-in-progress, and manage flow.

Lean is a holistic philosophy that encompasses the entire organization, while **Kanban is a specific tool** to manage and visualize work processes.

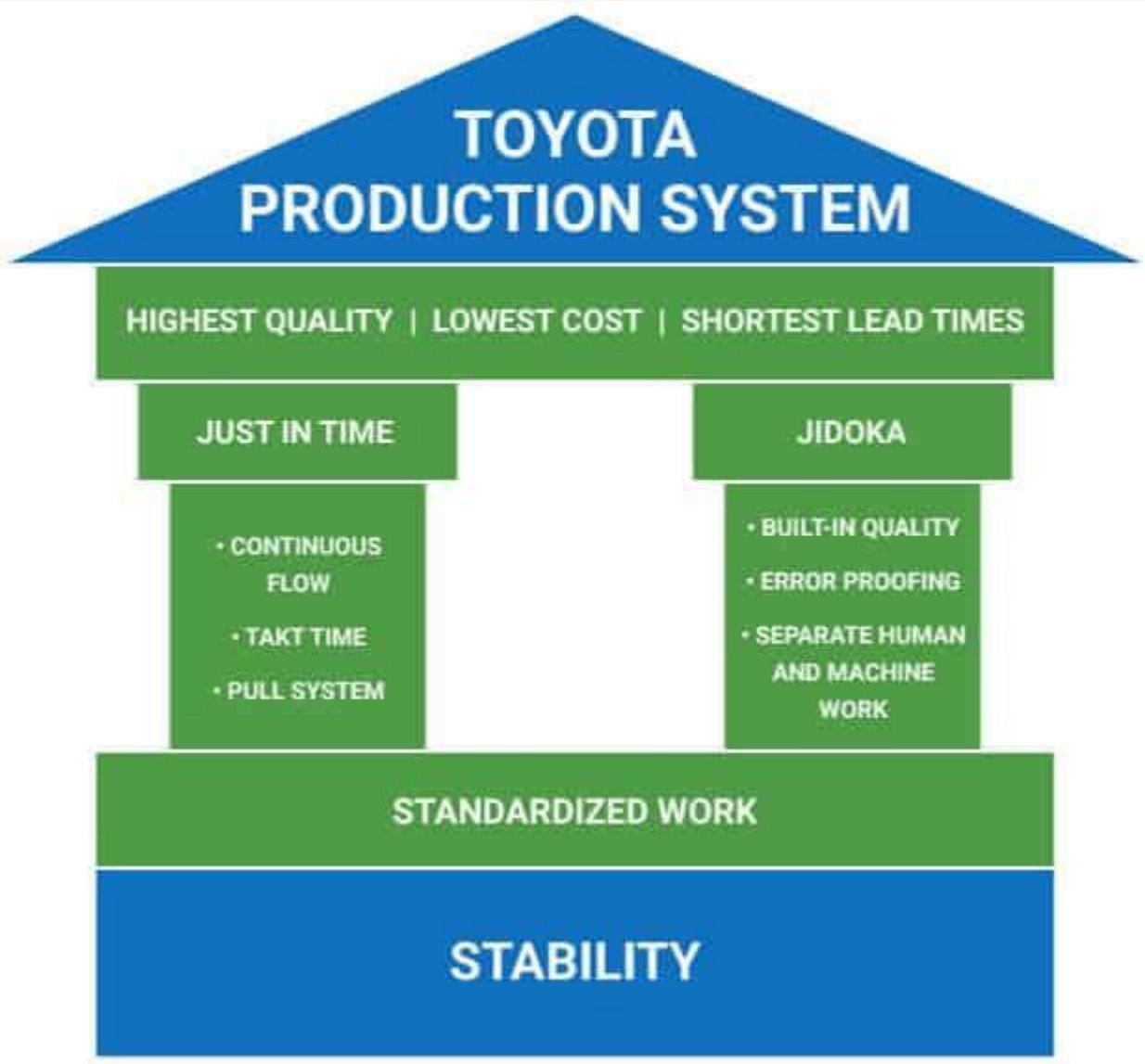
Lean principles can help identify **non-value-added activities** and **optimize resource use**
Kanban can help **manage work in progress** and **avoid overburdening teams**.

Real-World Example

Toyota Production System - Toyota's Lean approach revolutionized the manufacturing industry by focusing on **eliminating waste** (muda), **improving processes continuously** (kaizen), and **empowering workers at every level** to contribute to improvements.

Toyota implemented techniques like **Just-in-Time (JIT)** inventory to minimize storage costs and Jidoka to stop production when issues were detected.

This approach **improved efficiency** but also ensured **high product quality** and enabled **rapid response to customer demand**, setting the standard for Lean manufacturing globally.



Pros and Cos

Lean Methodology

Pros:

Cost reduction through waste elimination, improved efficiency and quality, a culture of continuous improvement.

Cons:

Requires a cultural shift that may be resisted, challenging to implement in creative or complex projects where processes are less defined.

Kanban Methodology

Pros:

Easy to implement, enhances transparency through visual workflows, helps manage and balance work-in-progress.

Cons:

Lacks a prescriptive structure, meaning teams need discipline to manage work effectively. Can become inefficient for large teams if not managed properly.

Hybrid Models and Emerging Techniques

Hybrid Project management

Hybrid Project Management: combines the best of both predictive and adaptive methods to tailor project management processes according to the project's specific needs.

Benefits of Hybrid Models: leverage the stability and predictability of traditional methods while incorporating the flexibility of adaptive techniques.

Hybrid methods can be customized based on the type and phase of the project.

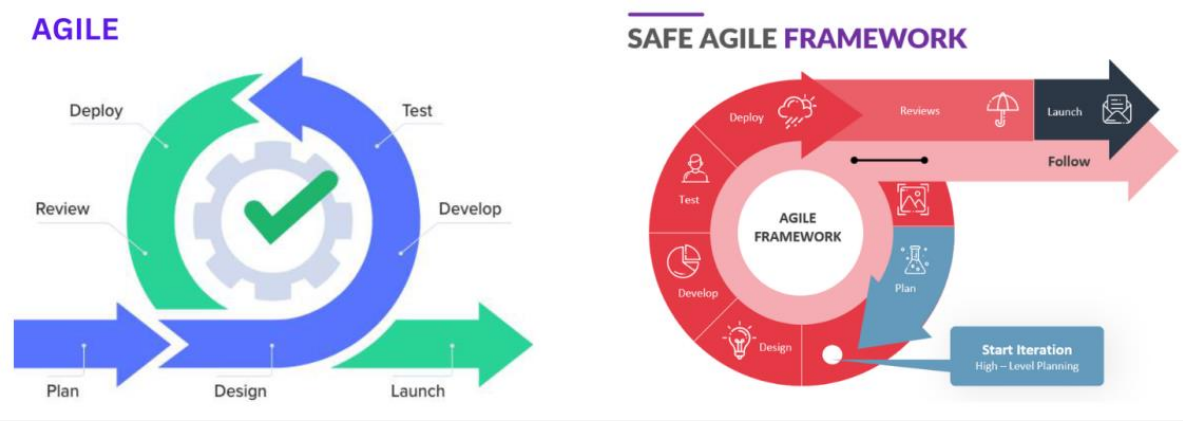
Examples of Hybrid use:

Construction projects often use Agile methods during the design and planning phases to adapt to changing stakeholder requirements, while using traditional project management for execution to maintain control.

Emerging Techniques

Scaled Agile Framework (SAFe):

SAFe's role in scaling Agile practices across large organizations by integrating different teams' efforts. Key elements like PI (Program Increment) planning, and alignment across teams.



The **basic level** or Agile Team: This concerns the work of the agile team. The objective is to apply agile methods such as **Scrum** or **Kanban**.

The **intermediate level** or Program: This level aligns **several teams** to work together on a common goal.

The **advanced** or **large solution** level: This is the value chain level. It is essential for large-scale projects and is used to **manage workflows and team coordination**.

Portfolio level: At the portfolio level, the aim is to **align the company's overall strategy** with the work carried out at the previous levels.

Emerging Techniques

Disciplined Agile Delivery (DAD):

DAD addresses all aspects of the full delivery life cycle, supporting multiple ways of working (WoW) that can be tailored for the context that you face.

DAD encompasses all aspects of agile software development in a robust, pragmatic, and governable manner.

Unlike Scrum, DAD addresses other important aspects of software development such as architecture, design, testing, programming, documentation, deployment and many more.

DAD supports several delivery life cycles, including a Scrum-based agile life cycle, a Kanban-based lean life cycle, continuous delivery life cycles.

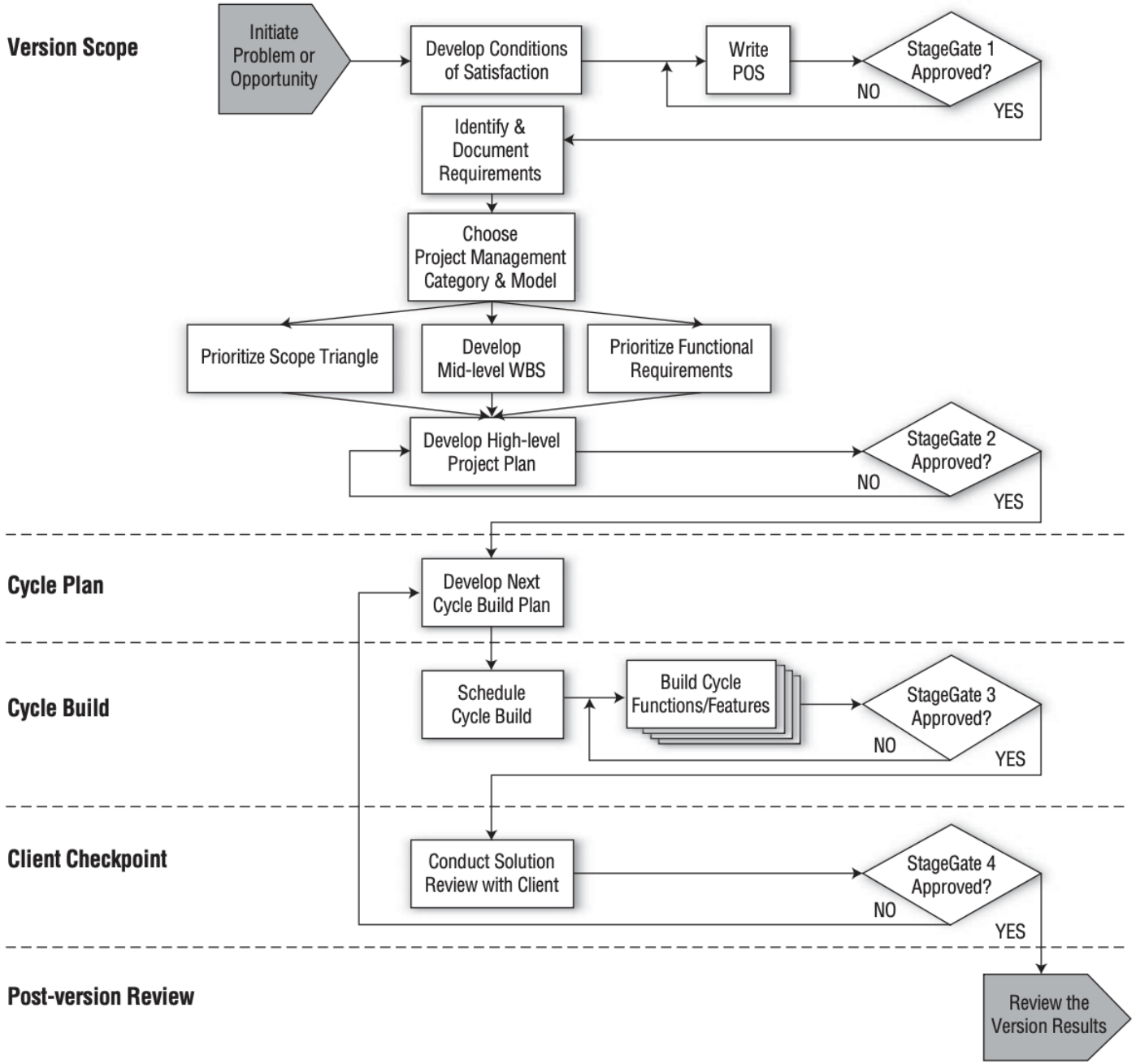
SAFe leaves the details of construction to you and as a result can prove to be fragile in many organizations. DAD provides the solid process foundation missing from SAFe and is in fact complementary to SAFe.

Emerging Techniques

Adaptive Project Framework (APF): APF is specifically designed to embrace change and handle high uncertainty.

It allows continuous adjustment, making it highly flexible for projects where requirements are expected to evolve.

Approach projects with the understanding that key components are constantly in flux, teams can adopt a flexible mindset to continually learn by re-evaluating results and decisions throughout a project


Version Scope
Initiate Problem or Opportunity
Develop Conditions of Satisfaction
Write POS
StageGate 1 Approved?
NO
YES
Identify & Document Requirements
Choose Project Management Category & Model
Prioritize Scope Triangle
Develop Mid-level WBS
Prioritize Functional Requirements
Develop High-level Project Plan
StageGate 2 Approved?
NO
YES
Cycle Plan
Develop Next Cycle Build Plan
Cycle Build
Schedule Cycle Build
Build Cycle Functions/Features
StageGate 3 Approved?
NO
YES
Client Checkpoint
Conduct Solution Review with Client
StageGate 4 Approved?
NO
YES
Post-version Review
Review the Version Results

Adapting Techniques for Uncertainity

Adapting Techniques for Uncertainty

Managing Uncertainty: adaptive techniques help teams respond to unpredictable changes in projects.

Flexibility, continuous reassessment, and iterative development can deal with uncertain environments.

Regularly involving stakeholders helps align project goals with changing needs and expectations, thereby reducing the risks associated with uncertainty.

R&D Projects: In R&D, particularly in pharmaceuticals, the development of a new drug often requires iterative testing and adjustments based on trial results. Adaptive methodologies allow teams to modify their approach based on experimental outcomes, which helps manage risk and ensure resources are focused on viable solutions.

Adapting Techniques for Uncertainty

Renewable Energy Initiatives: Renewable energy projects, such as offshore wind farms, face numerous uncertainties, including changing regulations, unpredictable weather conditions, and evolving technology. Adaptive project management allows teams to make adjustments as new information becomes available, improving the likelihood of success.

Startups: Startups often operate in environments with rapidly changing market dynamics. For example, a tech startup developing an app might initially focus on one feature but pivot based on user feedback. Adaptive methodologies like Agile enable startups to adjust their product in response to user needs, which is critical for survival in competitive markets.

Group Exercise

Scenario

Imagine you are managing a project to develop a new mobile application for a financial technology startup.

The project has some uncertain requirements, and you expect the client to make several changes throughout the development process.

The team consists of developers, UX designers, and business analysts. The timeline is tight, and the startup aims to launch the product within six months.

Task: Based on what you learned today, decide which project management methodology (Agile, Lean, Kanban, Hybrid, or traditional Waterfall) would be best suited for this project and justify your decision.

Deliverables: Each team will present their decision and rationale, considering the following:

- How well does the chosen methodology handle uncertainty?
- What are the risks of using this approach?
- How will this methodology impact collaboration between different roles (developers, designers, analysts)?

Takeaways

Agile: Best for projects that need rapid adaptation and stakeholder involvement, suitable for environments with high change rates.

Lean and Kanban: Ideal for projects focused on efficiency, waste reduction, and process improvements.

Hybrid Models: Useful for complex projects needing a combination of predictability and flexibility, especially in different project phases.

Emerging Techniques (SAFe, DAD): Best for large-scale or enterprise-level projects with multiple teams working in parallel, requiring structured coordination.

Key considerations for selecting methodologies, including project type, complexity, team expertise, and stakeholder requirements.