08 project performance domains

1) Stakeholders
2) Team
3) Development Approach and Life Cycle
4) Planning
5) Project Work
6) Delivery
7) Measurement
8) Uncertainty

DEVELOPMENT APPROACH AND LIFE CYCLE PERFORMANCE DOMAIN

The Development Approach and Life Cycle Performance Domain addresses activities and functions associated with the development approach, cadence, and life cycle phases of the project.

Effective execution of this performance domain results in the following desired outcomes:

- Development approaches that are consistent with project deliverables.
- A project life cycle consisting of phases that connect the delivery of business and stakeholder value from the beginning to the end of the project.
- A project life cycle consisting of phases that facilitate the delivery cadence and development approach required to produce the project deliverables.

- **Deliverable.** Any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project.

- **Development Approach.** A method used to create and evolve the product, service, or result during the project life cycle, such as a predictive, iterative, incremental, adaptive, or hybrid method.

- **Cadence.** A rhythm of activities conducted throughout the project.

- **Project Phase.** A collection of logically related project activities that culminates in the completion of one or more deliverables.

- **Project Life Cycle.** The series of phases that a project passes through from its start to its completion

DELIVERY CADENCE

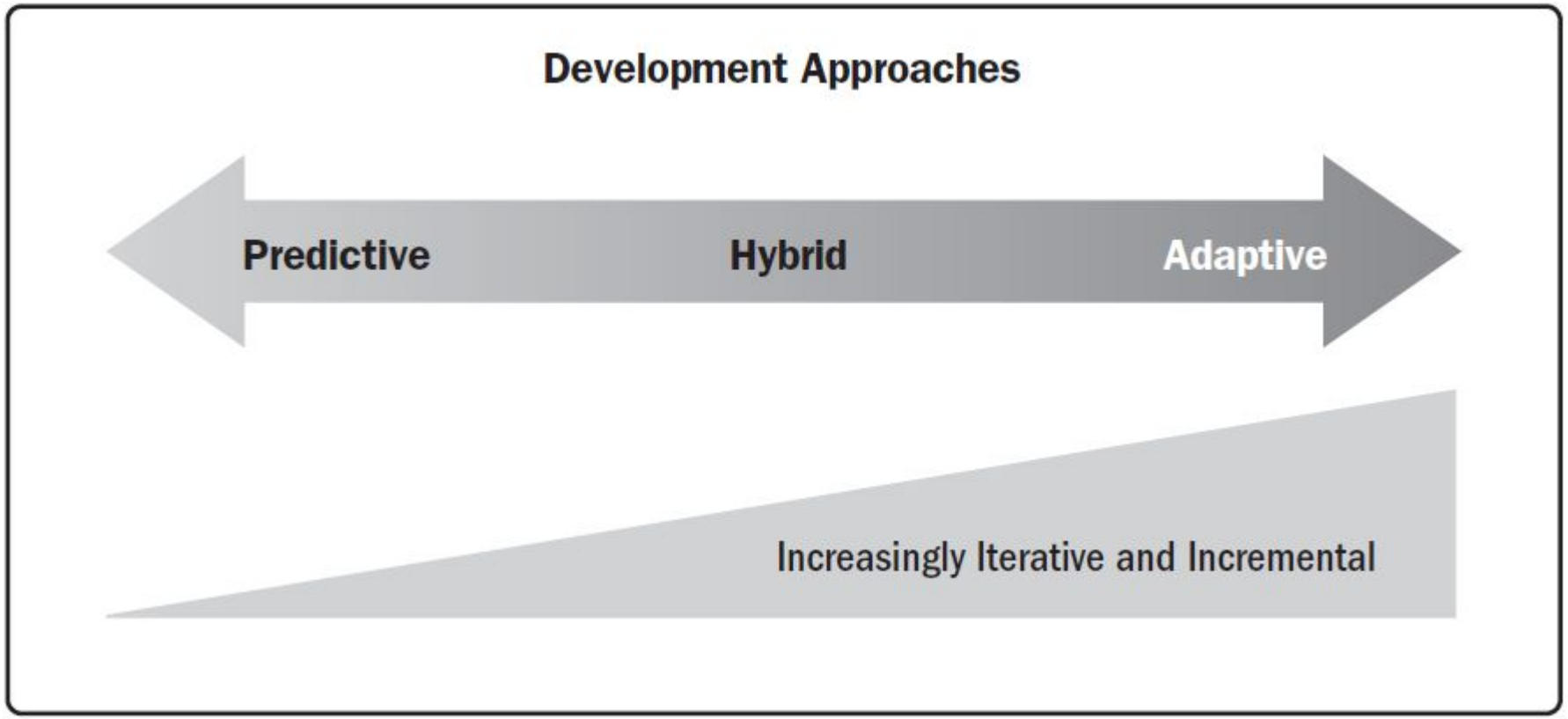
- It refers to the timing and frequency of project deliverables
- Projects can have a single delivery, multiple deliveries, or periodic deliveries.
- Single delivery
  - Projects that have a single delivery deliver at the end of the project.
- Multiple deliveries
  - A project may have multiple components that are delivered at different times throughout the project
  - A project to develop a new drug may have multiple deliveries, such as preclinical submissions, Phase 1trial results, Phase 2 trial results, Phase 3 trial results, registration, and then launch
  - deliveries may be sequential or can be developed separately
  - Example a project to update building security may include physical barriers to entry, new badges, new key code pads etc. which can be delivered separately

DELIVERY CADENCE

- Periodic deliveries
  - Periodic deliveries are like multiple deliveries, but they are on a fixed delivery schedule, such as monthly or bimonthly.
  - Example, A new software application may have internal deliveries every two weeks, and then periodically release the deliveries into the market.
- Continuous delivery
  - Continuous delivery is the practice of delivering feature increments immediately to customers, often through the use of small batches of work and automation technology.
  - Continuous delivery can be used for digital products.

DEVELOPMENT APPROACHES

- A development approach is the means used to create and evolve the product, service, or result during the project life cycle
- Three commonly used approaches- predictive, hybrid, and adaptive



Predictive approach

- It is useful when the project and product requirements can be defined, collected, and analyzed at the start of the project
- Also referred to as a waterfall approach
- The scope, schedule, cost, resource needs, and risks can be well defined in the early phases of the project life cycle, and they are relatively stable
- Many times, projects that use this approach have templates from previous, similar projects
- Example
  - A project to develop a new community center might use a predictive approach for the construction of the grounds and facilities.
  - The scope, schedule, cost, and resources would be determined up front, and changes would likely be minimal.
  - The construction process would follow the plans and blueprints.

Adaptive approach

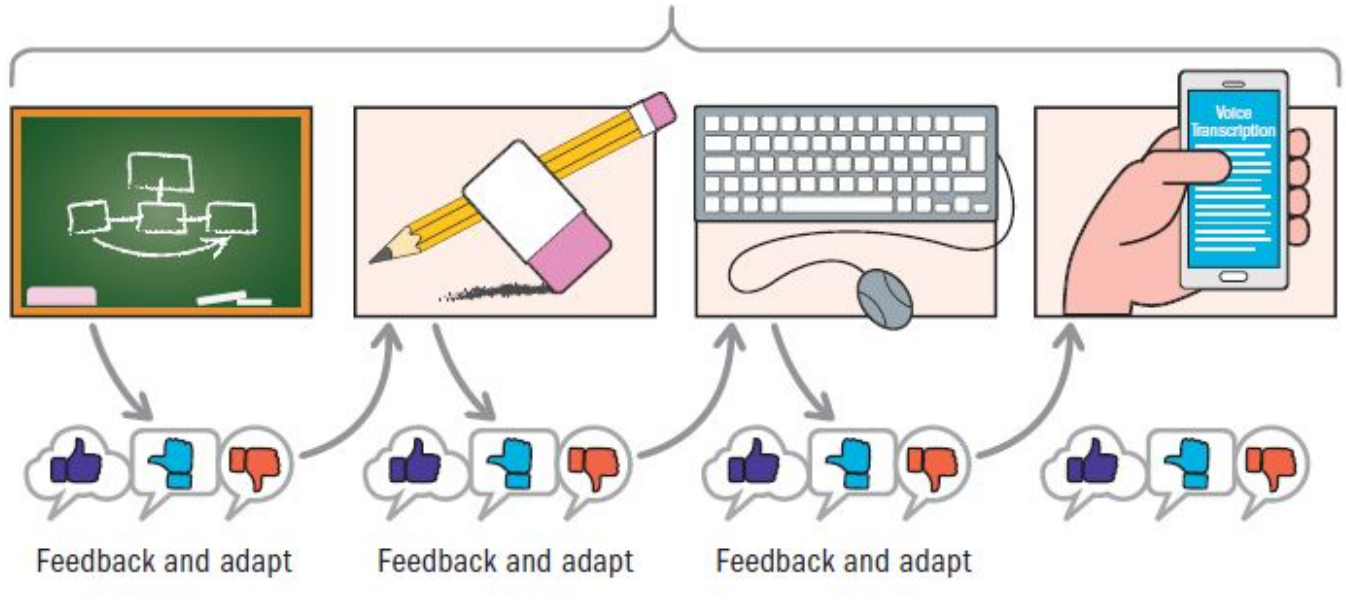
- useful when requirements are subject to a high level of uncertainty and volatility and are likely to change throughout the project
- Adaptive approaches use iterative and incremental approaches
- the iterations tend to get shorter and the product is more likely to evolve based on stakeholder feedback
- Example
  - The community center will need a website so community members can access information from their home computer, phone, or tablet.
  - The high-level requirements, design, and page layouts can be defined up front. An initial set of information can be deployed on the website.
  - User feedback, new services, and internal stakeholder needs would provide content for a backlog. The backlog information would be prioritized, and the web team would develop and deploy new content.
  - As new requirements and new scope emerge, the estimates for the work would be developed, the work would be done, and once tested, it would be demonstrated for stakeholders.
  - If approved, the work would be deployed to the website.

Hybrid approach

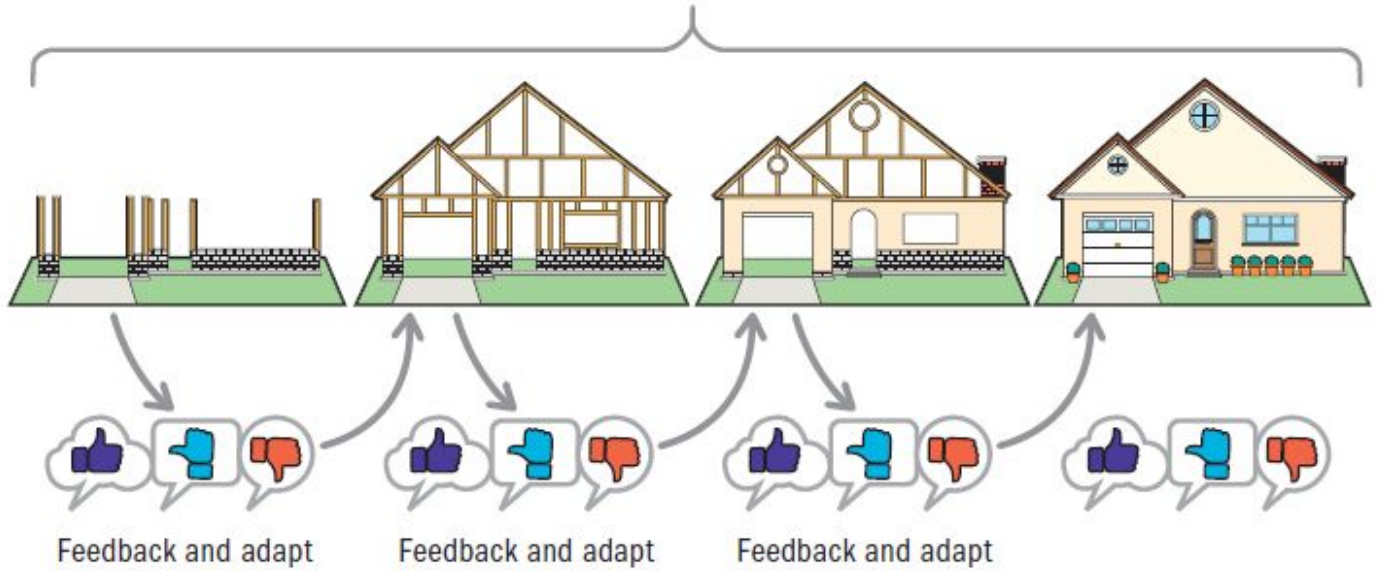
- It is a combination of adaptive and predictive approaches
- some elements from a predictive approach are used and some from an adaptive approach are used
- approach is useful when there is uncertainty or risk around the requirements
- Example
  - a project with two main deliverables where one deliverable is developed using an adaptive approach and the other using a predictive approach

Iterative
Try different ideas to clarify scope, approach, and requirements

Customer:
I need a method to capture ideas that might change.



Incremental
Progressively develop features and functions



factors that influence the selection of a development approach

(1)Product, Service, or Result

(2)Project

(3)Organization

Product, Service, or Result influence on development approach

- (i)Degree of innovation
  - *predictive approach*-where the scope and requirements are well understood, that the project team has worked with before
  - *adaptive approach*-Deliverables that have a high degree of innovation or where the project team does not have experience
- (ii) Requirements certainty
  - *predictive approach*-When the requirements are well known and easy to define
  - *adaptive approach*- When requirements are uncertain, volatile, or complex and are expected to evolve throughout the project
- (iii)Scope stability
  - *Predictive approach-If* the scope of the deliverable is stable and not likely to change
  - *adaptive approach*- scope is expected to have many changes

Product, Service, or Result influence on development approach

- (iv)Ease of change
  - *Predictive approach*- if the nature of the deliverable makes it difficult to manage and incorporate changes
  - *adaptive approach*- Deliverables that can adapt easily to change
- (v)Risk
  - *Predictive approach*- High-risk products may require significant up-front planning and rigorous processes to reduce threats
  - *adaptive approach*- products can reduce risk by building them modularly and adapting the design and development based on learning to take advantage of emerging opportunities or reduce the exposure to threats
- (vi) Safety requirements
  - *Predictive approach*- Products that have rigorous safety requirements
- (vii) Regulations
  - *Predictive approach*- Environments that have significant regulatory oversight

Project variables that influence the development approach

- (i)Stakeholders
  - Projects that use adaptive methods require significant stakeholder involvement throughout the process.
  - Certain stakeholders, such as the product owner, play a substantial role in establishing and prioritizing work
- (ii)Schedule constraints
  - If there is a need to deliver something early, even if it is not a finished product, an iterative or adaptive approach is beneficial
- (iii)Funding availability
  - Projects that work in an environment of funding uncertainty can benefit from an adaptive or iterative approach.
  - A minimum viable product can be released with less investment than an elaborate product

Organizational variables influence the development approach

- (i)Organizational structure
  - An organizational structure that has many levels, a rigid reporting structure, and substantial bureaucracy frequently uses a predictive approach.
  - Projects that use adaptive methods tend to have a flat structure and may operate with self organizing project teams
- (ii)Culture
  - A predictive approach fits better in an organization with a culture of managing and directing, where the work is planned out and progress is measured against baselines.
  - Adaptive approaches fit better within an organization that emphasizes project team self management.
- (iii)Organizational capability
  - Organizational policies, ways of working, reporting structure, and attitude should all be aligned in order to employ adaptive methods successfully
- (iv)Project team size and location
  - Adaptive approaches, especially agile methods, often work better with project teams of 7 ± 2.
  - Large project teams and project teams- predictive approach is favourable

LIFE CYCLE AND PHASE DEFINITIONS

The type and number of project phases in a project life cycle depend upon many variables,

chief among them the delivery cadence and the development approach, as described previously.

Examples of phases in a life cycle include:

- Feasibility. This phase determines if the business case is valid and if the organization has the capability to deliver the intended outcome.
- Design. Planning and analysis lead to the design of the project deliverable that will be developed.
- Build. Construction of the deliverable with integrated quality assurance activities is conducted.
- Test. Final quality review and inspection of deliverables are carried out before transition, go-live, or acceptance by the customer.
- Deploy. Project deliverables are put into use and transitional activities required for sustainment, benefits realization, and organizational change management are completed.
- Close. The project is closed, project knowledge and artifacts are archived, project team members are released, and contracts are closed

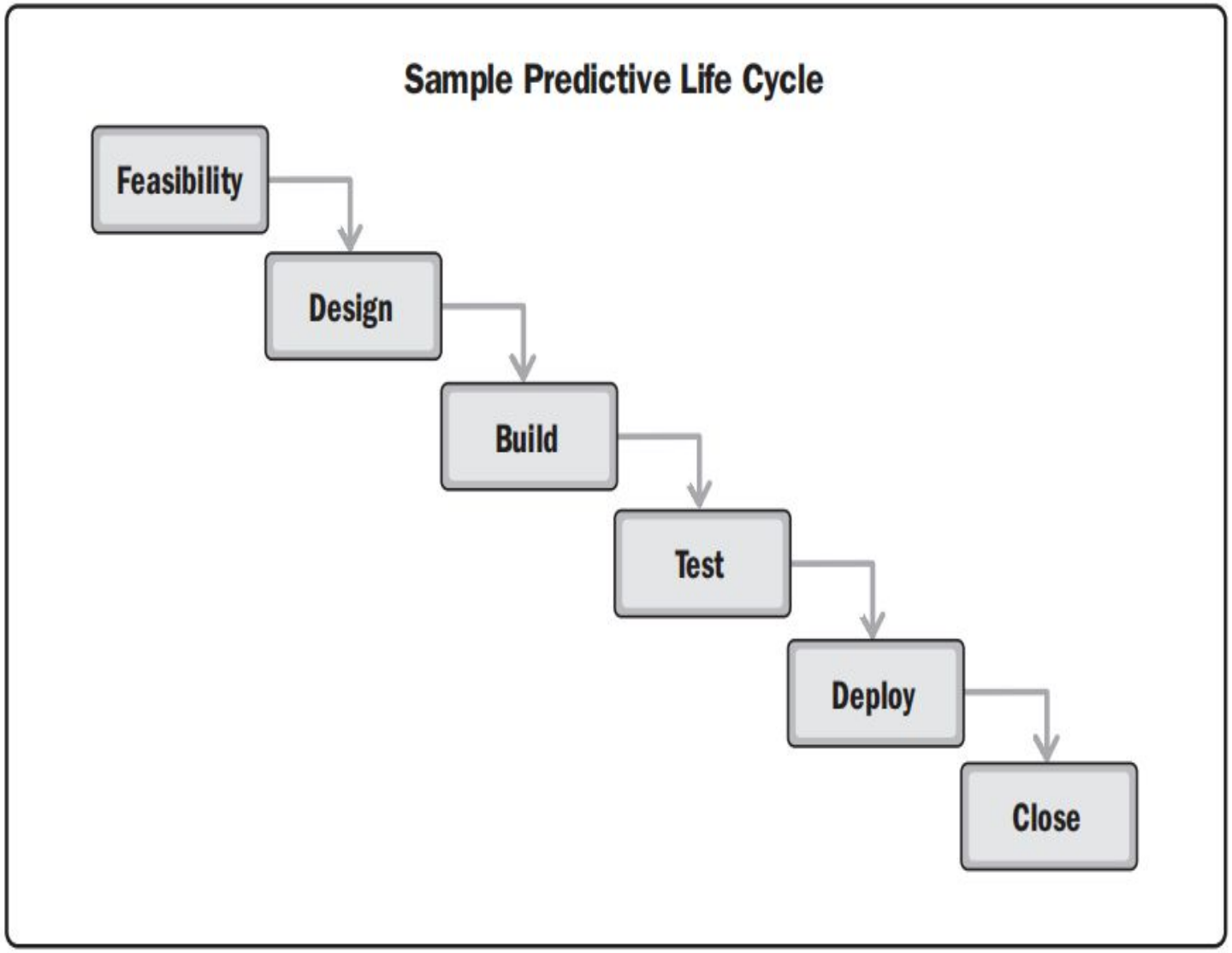


Figure 2-9. Sample Predictive Life Cycle

Figure shows a life cycle where one phase finishes before the next one begins. This type of life cycle would fit well with a predictive development approach since each phase is only performed once, and each phase focuses on a particular type of work. However, there are situations, such as adding scope, a change in requirements, or a change in the market that cause phases to be repeated.

feasibility, design, build,
test, deploy, close

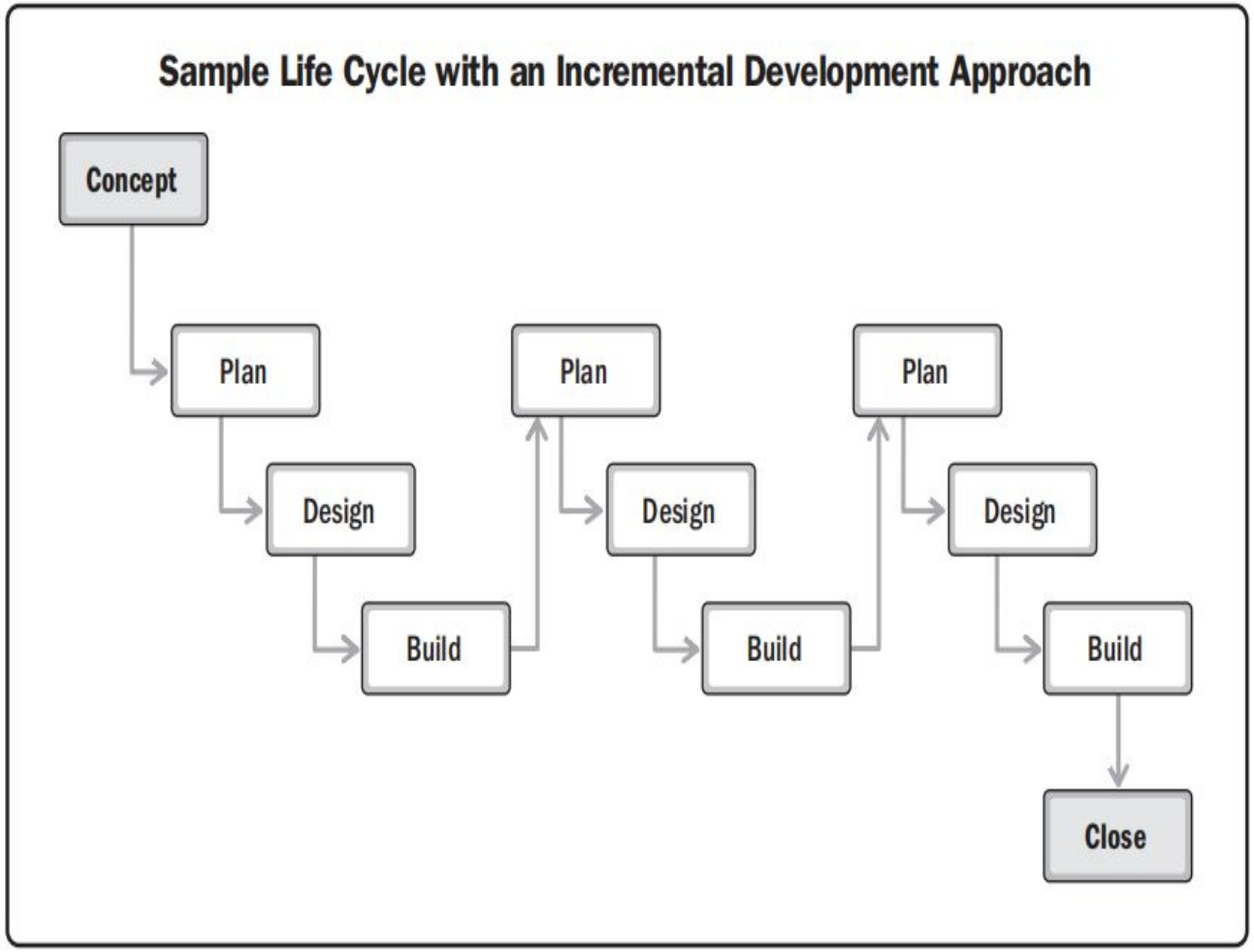


Figure 2-10. Life Cycle with an Incremental Development Approach

shows a life cycle with an incremental development approach. There are three iterations of plan, design, and build shown in this example. Each subsequent build would add functionality to the initial build.

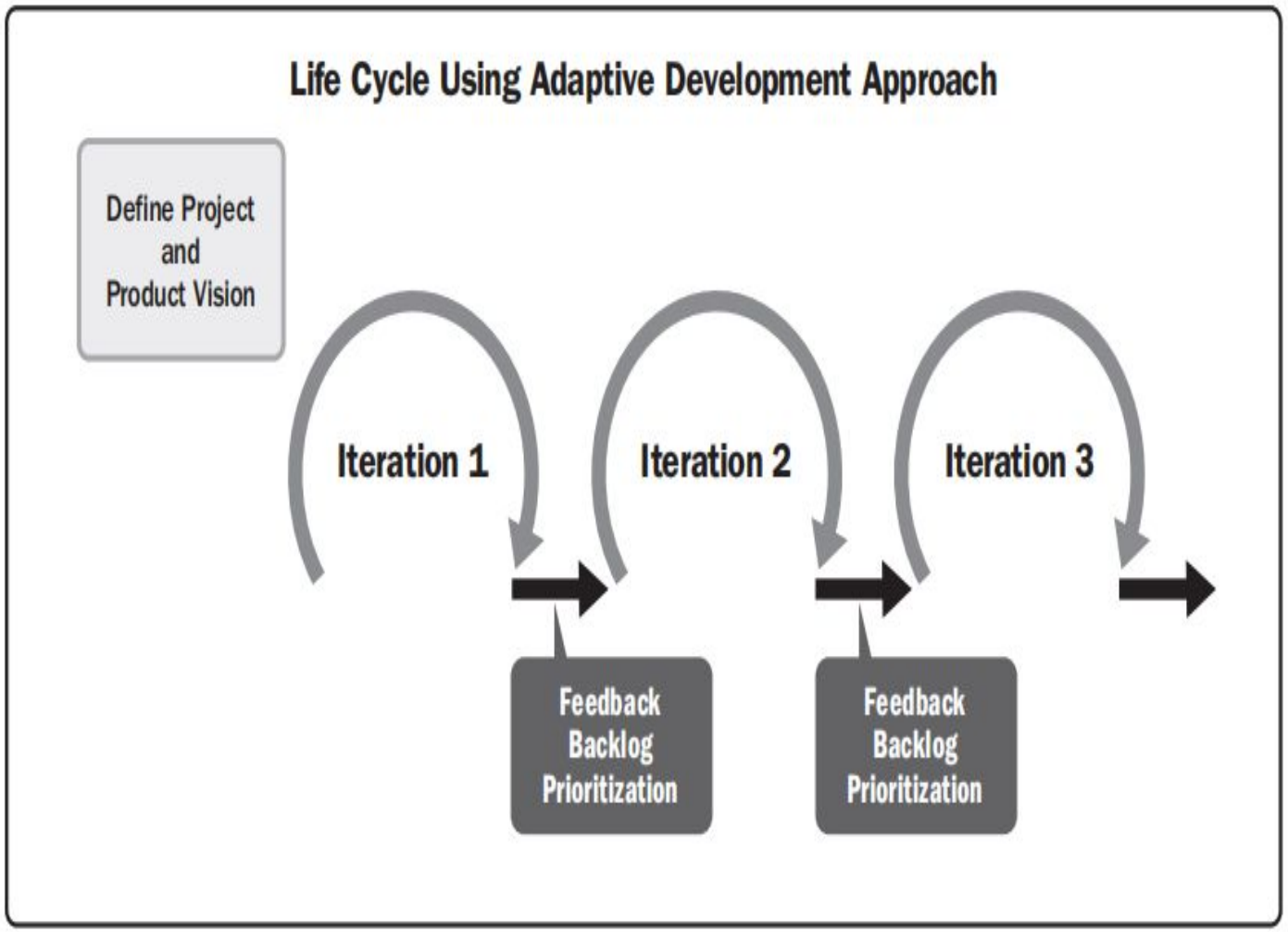


Figure 2-11. Life Cycle with Adaptive Development Approach

shows a life cycle using an adaptive development approach.

At the end of each iteration (sometimes known as a sprint), the customer reviews a functional deliverable.

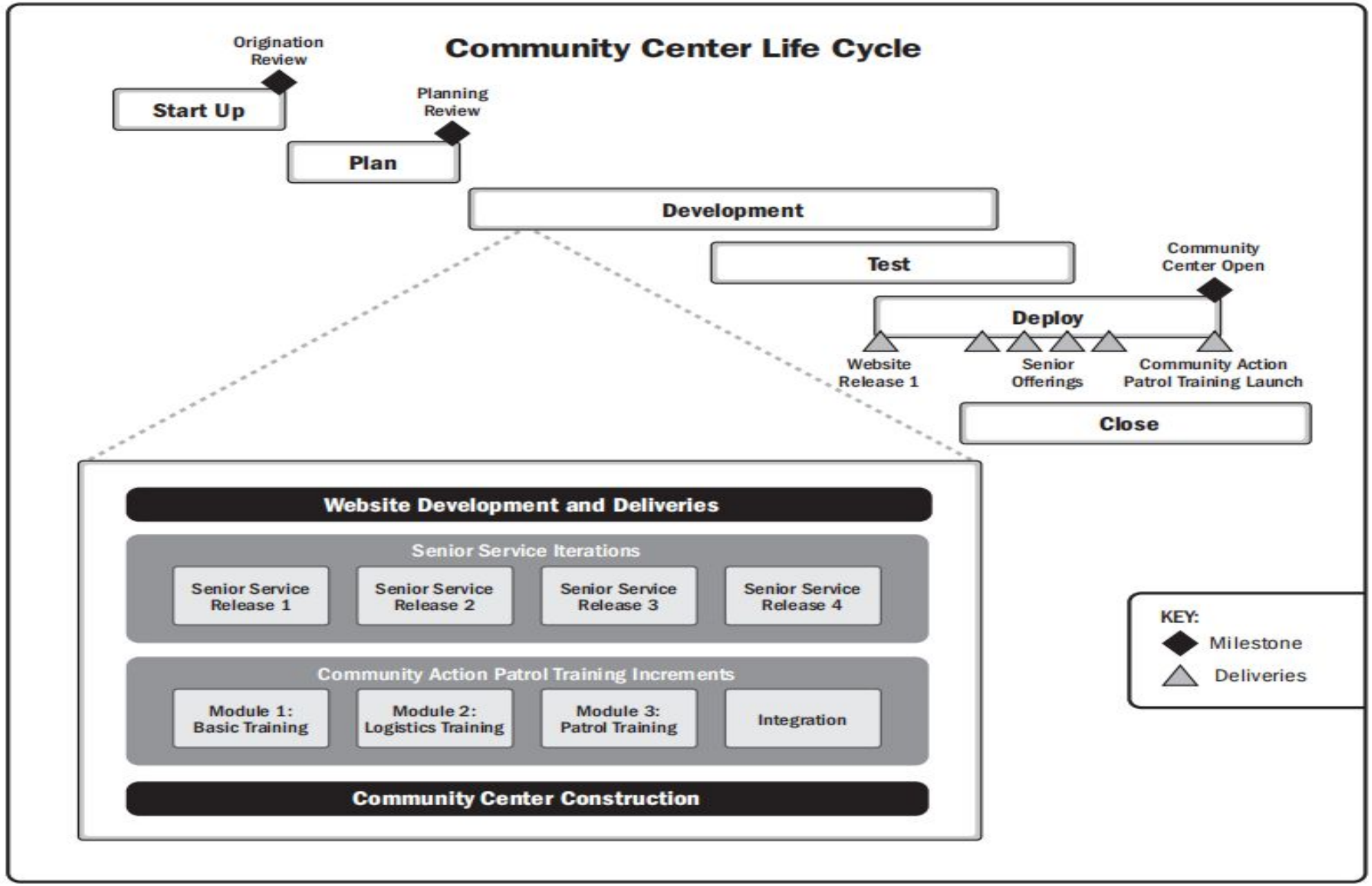
At the review, the key stakeholders provide feedback, and the project team updates the project backlog of features and functions to prioritize for the next iteration.

ALIGNING OF DELIVERY CADENCE, DEVELOPMENT APPROACH, AND LIFE CYCLE

Table 2-4. Delivery Cadence and Development Approach

Deliverable	Delivery Cadence	Development Approach
Building	Single delivery	Predictive
Senior services	Multiple deliveries	Iterative
Website	Periodic deliveries	Adaptive
Community action patrol training	Multiple deliveries	Incremental

deliverable
a) building
b) senior serivices
c) website
d) community action patrol training
predictive, iterative, adaptive, incremental


Community Center Life Cycle
Origination Review
Start Up
Planning Review
Plan
Development
Test
Community Center Open
Deploy
Website Release 1
Senior Offerings
Community Action Patrol Training Launch
Close
Website Development and Deliveries
Senior Service Iterations
Senior Service Release 1
Senior Service Release 2
Senior Service Release 3
Senior Service Release 4
Community Action Patrol Training Increments
Module 1: Basic Training
Module 2: Logistics Training
Module 3: Patrol Training
Integration
Community Center Construction
KEY:
Milestone
Deliveries

Based on this information, a potential life cycle might be:

- Start Up. Entry criteria for this phase are that the business case has been approved and the project charter has been authorized.

In this phase, the high-level roadmap is developed, initial funding requirements are established, project team and resource requirements are defined, a milestone schedule is created, and planning for a procurement strategy is defined.

These deliverables should be complete prior to exiting the start-up phase. Exit criteria will be reviewed at an origination phase gate review.

- ▶ Plan. In this phase, the high-level information for the building is decomposed into detailed plans.
- A detailed design document for the CAP training is completed.
- An analysis of the senior services offering is completed along with a gap analysis.
- The initial wireframe for the website is created.
- These deliverables should be complete prior to exiting the planning phase. Exit criteria will be reviewed at a planning phase gate review.

- Development. This phase will overlap with the test and deploy phases since the deliverables have different delivery cadences and different approaches.
- The website will have early deliveries to inform the public of the progress for the community center.
- Some senior services and the CAP training may begin prior to the opening of the community
- Each deliverable may have a separate review prior to entering the testing phase.

- ▶ Test. This phase will overlap with the development and deploy phases.
- The type of test will depend on the deliverable.
- This phase includes inspections for the building, a beta delivery of the CAP courses, small-scale trials for the senior services, and operating in test environment for each release for the website.
- Each deliverable will go through the applicable testing prior to moving to the deploy phase.

- Deploy.
- This phase will overlap with the development and test phases.
- The first deployment of the website may be somewhat early in the project. Activities in this phase will iterate as more deliverables become available.
- The final deployment for the project will be the opening of the community center. Ongoing updates to the website and the senior services will be part of operations once the community center is open.

- ▶ Close.
- This phase takes place periodically as deliverables are completed. When the initial website has been deployed, project personnel (including contractors) will be released and retrospectives or lessons learned for each deliverable will be completed.
- When the entire project is done, information from the various phase gate reviews and an overall evaluation of project performance compared to baselines will be conducted.
- Prior to final closeout, the project charter and the business case will be reviewed to determine if the deliverables achieved the intended benefits and value.

MEASURING OUTCOMES

Outcome	Check
Development approaches that are consistent with project deliverables	The development approach for deliverables (predictive, hybrid, or adaptive) reflects the product variables and is appropriate given the project and organizational variables.
A project life cycle consisting of phases that connect the delivery of business and stakeholder value from the beginning to the end of the project	Project work from launch to close is represented in the project phases. Phases include appropriate exit criteria.
Project life cycle phases that facilitate the delivery cadence and development approach required to produce the project deliverables	The cadence for development, testing, and deploying is represented in the life cycle phases. Projects with multiple deliverables that have different delivery cadences and development methods are represented by overlapping phases or phase repetitions, as necessary.