

Predictive and Adaptive Project Management

# Predictive, Adaptive, and Hybrid Project Management

Prepared by Don Ardiel

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Predictive and Adaptive Project Management

## Lesson Summary

In this presentation, we will discuss:

- The traditional predictive approach to project management
- Adaptive project management
- Hybrid approaches to project management
- The application of adaptive and hybrid approaches in Integrated Project Delivery

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Predictive and Adaptive Project Management

## Predictive and Adaptive Methodologies

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Predictive and Adaptive Project Management

### Definition: Predictive Life Cycle

“A form of project life cycle in which the project scope, time, and cost are determined in the early phases of the life cycle.”

*PMBOK Guide® 6th Edition pp. 714*

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Predictive and Adaptive Project Management

### Definition: Predictive Life Cycle

- Scope, schedule and cost of the project, necessary to deliver the project are determined early in the project's lifecycle.
- Deliverables and products are already defined from the start ... manage the changes in the scope to prevent any problems
- Predictive life cycle follow a series of sequential or even overlapping phases.”

Project Management Knowledge: <https://project-management-knowledge.com/?s=predictive+life+cycle>

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Predictive and Adaptive Project Management

### The Design Project Life Cycle: to the Design Professionals

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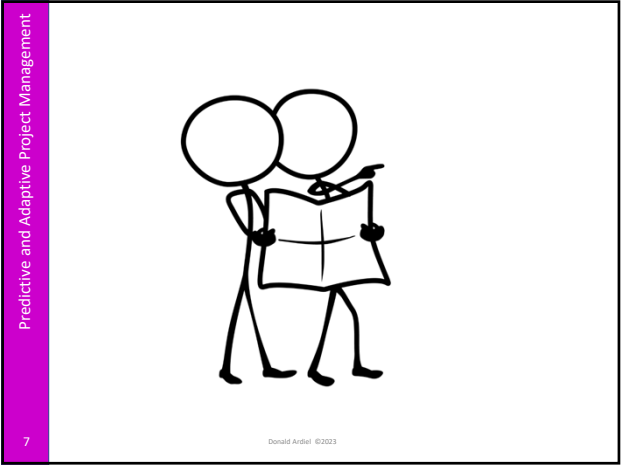
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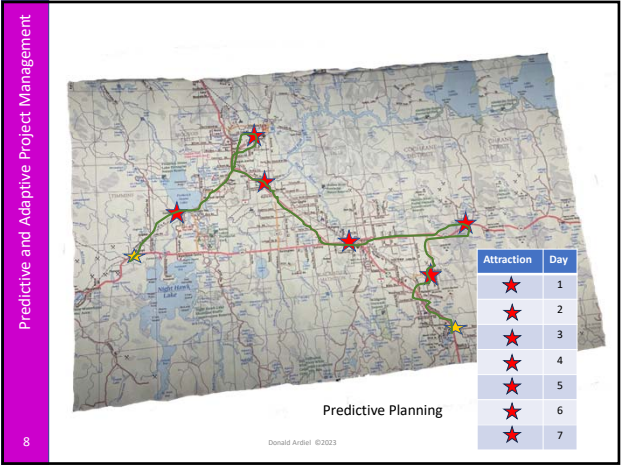
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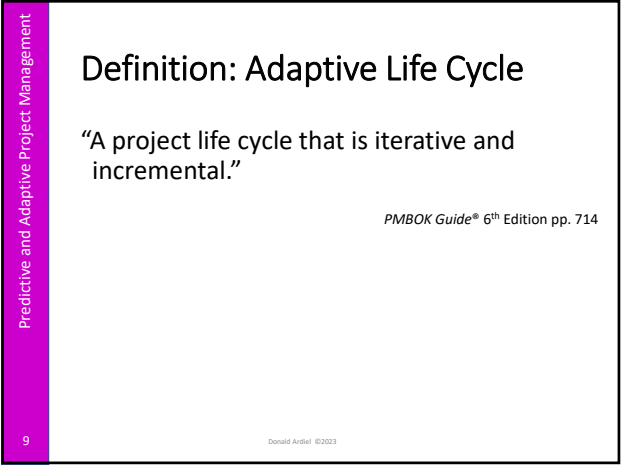
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Predictive and Adaptive Project Management

### Definition: Adaptive Life Cycle

- Adaptive life cycle:
- Flexible or change-focused method (or agile or change-driven methods)
- Responds to high levels of change
- Ongoing participation of different parties involves, including client

Project Management Knowledge:  
<https://project-management-knowledge.com/definitions/a/adaptive-life-cycle/>

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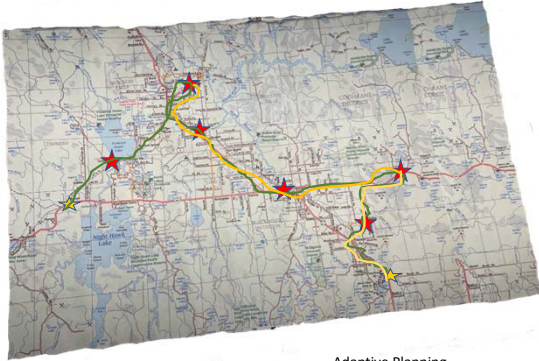
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Predictive and Adaptive Project Management



Adaptive Planning

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Predictive and Adaptive Project Management

### Advantages and Disadvantages of Adaptive Project Management

- Advantages:
  - Appropriate for projects that involve higher levels of complexity and uncertainties
  - Iterations address issues for every task
  - *The risk is minimized for this particular project life cycle.*
- Disadvantages
  - The project is developed iteratively, therefore the deliverables scope, schedule and cost are not known until work is completed.
- Trade-off
  - The risk of not achieving project outcomes is reduced and outcomes may be achieved earlier, but you don't know in advance when outcomes will be achieved or how much it will cost in advance of starting the work.

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Predictive and Adaptive Project Management

### Minimum Viable Product (MVP)

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Predictive and Adaptive Project Management

### Minimum Viable Product (MVP)

**Task inventory**

ID	Name	Start	End	Progress
1	Project Kickoff	2023-07-01	2023-07-01	100%
2	Requirements Gathering	2023-07-02	2023-07-05	80%
3	UI/UX Design	2023-07-06	2023-07-10	60%
4	Backend Development	2023-07-11	2023-07-15	40%
5	Frontend Development	2023-07-16	2023-07-20	20%
6	Integration Testing	2023-07-21	2023-07-25	10%
7	Deployment	2023-07-26	2023-07-26	0%
8	Post-launch Support	2023-07-27	2023-07-31	0%

**Task completion log**

Task ID	Start	End	Actual	Progress
1	2023-07-01	2023-07-01	2023-07-01	100%
2	2023-07-02	2023-07-05	2023-07-04	80%
3	2023-07-06	2023-07-10	2023-07-08	60%
4	2023-07-11	2023-07-15	2023-07-12	40%
5	2023-07-16	2023-07-20	2023-07-17	20%
6	2023-07-21	2023-07-25	2023-07-22	10%
7	2023-07-26	2023-07-26	2023-07-26	0%
8	2023-07-27	2023-07-31	2023-07-27	0%

**Burndown graph**

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Predictive and Adaptive Project Management

### Minimum Viable Product (MVP)

Image courtesy Justin Gammon

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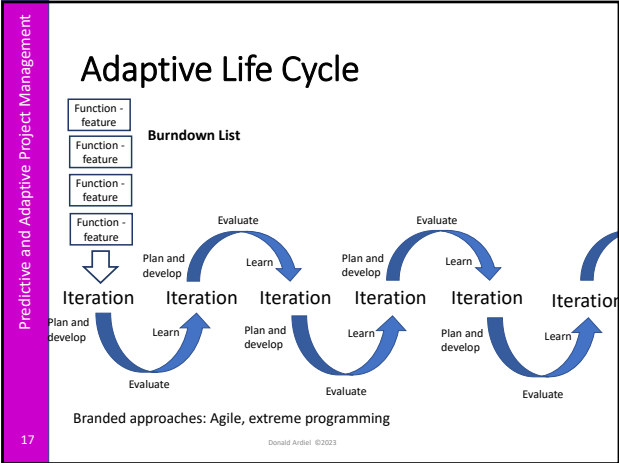
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Predictive and Adaptive Project Management

### The Agile Manifesto

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

Individuals and interactions over processes and tools  
Working software over comprehensive documentation  
Customer collaboration over contract negotiation  
Responding to change over following a plan

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

Source: <https://agilemanifesto.org/>

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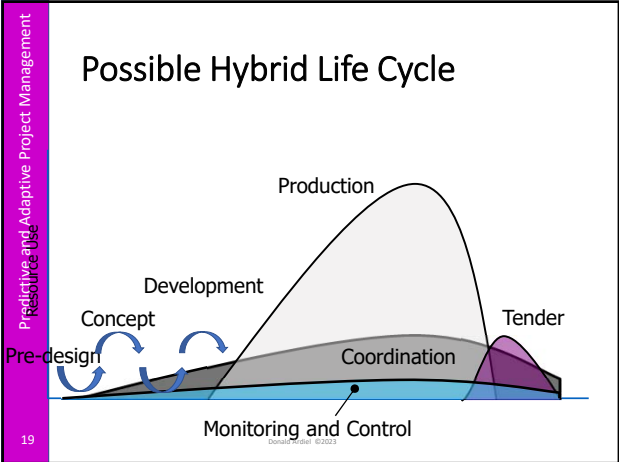
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- ### Approaches to Managing Life Cycles
- Predictive Life Cycle
    - Scope, deadline and cost are determined as soon as possible; efforts are focused on meeting established commitments
    - Traditional "Water Fall" approach to management
    - Sequential phases
    - Defining the scope and drawing up a detailed plan of the necessary activities. From there, work is focused on following the plan.
    - Certainty valued over functionality and time to delivery

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- ### Approaches to Managing Life Cycles
- Adaptive Life Cycle
    - Change-focused methods to optimize flexibility
    - Ongoing participation by interested parties (Client and User Stakeholders)
    - Could be used effectively in pre-design, conceptual, and development stages of design cycle
    - Optimal functionality valued over certainty and time to delivery

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Predictive and Adaptive Project Management

### Approaches to Managing Life Cycles

- Hybrid Life Cycle
  - Manage vague objectives or considerable complexity
  - Rapidly resolve uncertainty of project requirements to a point where scope, schedule, cost and quality can be determined.
  - When the partial delivery of the product is key to success, i.e. construction management.
  - A Construction management life cycle approach
  - Optimized delivery of requirements valued over initial certainty

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Predictive and Adaptive Project Management

### Application of Hybrid Methodologies in Architectural Practice

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Predictive and Adaptive Project Management

### Application of Adaptive Methodologies in Architectural Practice

#### Integrated Project Delivery (IPD)

Detailed Design and Implementation Documentation

GO/NO GO

Validation

Pre-validation

Fabrication & Construction

Occupancy

Coordination and Monitoring-Control by IPD Management Teams

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Integrated Project Delivery (IPD) - Function

- Improved cost, schedule, and quality on design-construction projects
- Less conflict and competition among stakeholders
  - More collaborative approach
- Less “waste”
- Reduces project risk when outcomes are unclear, requirements are yet to be fixed, and innovation is needed

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Integrated Project Delivery (IPD) - Features

- Multi-party contractual relationship in which all major stakeholders including the owner, designers, and constructors share the project risk and profit
- Designers and constructors compensated for costs.
- A risk pool is divided at completion of project based on the agreed formula
- Collaborative decision-making
- Extensive involvement of owner through project
- LEAN thinking

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Integrated Project Delivery (IPD) – Project Phases

- Path to contract
- Ongoing considerations
- Early Work
  - GO/NO GO Validation
  - Target Value Design
  - Design Management
  - Fabrication and Construction
- Later Work
- Closeout

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Predictive and Adaptive Project Management

### Integrated Project Delivery

- Who should consider IDP:**
  - Engaged - client prepared to become involved in the management process
  - Clients willing to accept risk of cost and schedule uncertainty
  - Requirements are not finalized
  - Client promotes a collaborative culture
- Not a good fit for IPD:**
  - Client does not have project management staff knowledgeable in design and construction
  - Schedule delays resulting from external approval processes (granting bodies)
  - Clients not prepared to engage with stakeholders in a process of continuous flow of design information
  - Client insists on fixed pricing and competitive bidding based on fee.

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Predictive and Adaptive Project Management

### IPD and Agile/Hybrid Project Management

- Adaptive Method**
  - Change-driven management
  - Incremental progress through iterations
  - Continuous flow of design information
  - Completion of work unknown until tested
    - Minimally viable product (MVP)
  - Cost may not be known until "Target Value Design" is achieved
  - Shared risk
  - Team-driven decision making
- Predictive Method**
  - Gather and fix requirements, design, develop in distinct phases
    - Sign-offs
  - Design, review, design
  - Change from previous decisions discouraged and expensive
  - Requirements are fixed and project or phase completed when requirements are met
  - Design builds toward pre-determined cost
  - Transferred risk
  - Owner driven decision making

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Predictive and Adaptive Project Management

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- Hybrid approaches to project management

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