IT Project Management

CIS 8000

Session 2:Project Methodologies & Processes

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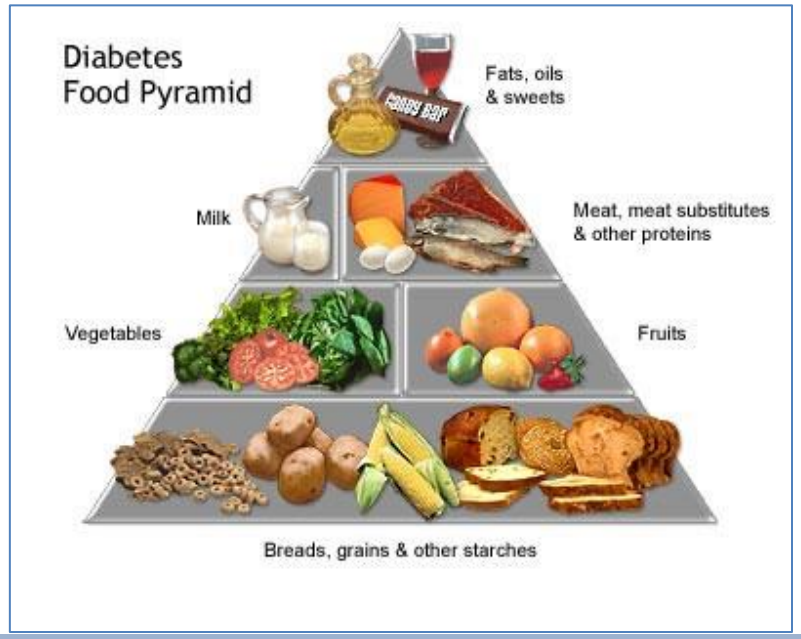
Methodology

(Systematic Way to Plan, Manage and Execute the Work)

Diet

(balance glucose w/ exercise & weight)

- Glucose testing
- Exercise + diet + weight control



Medication

(balance glucose w/ insulin)

- Glucose testing
- Insulin medicine
- Special diet + exercise

Project Management Methodology

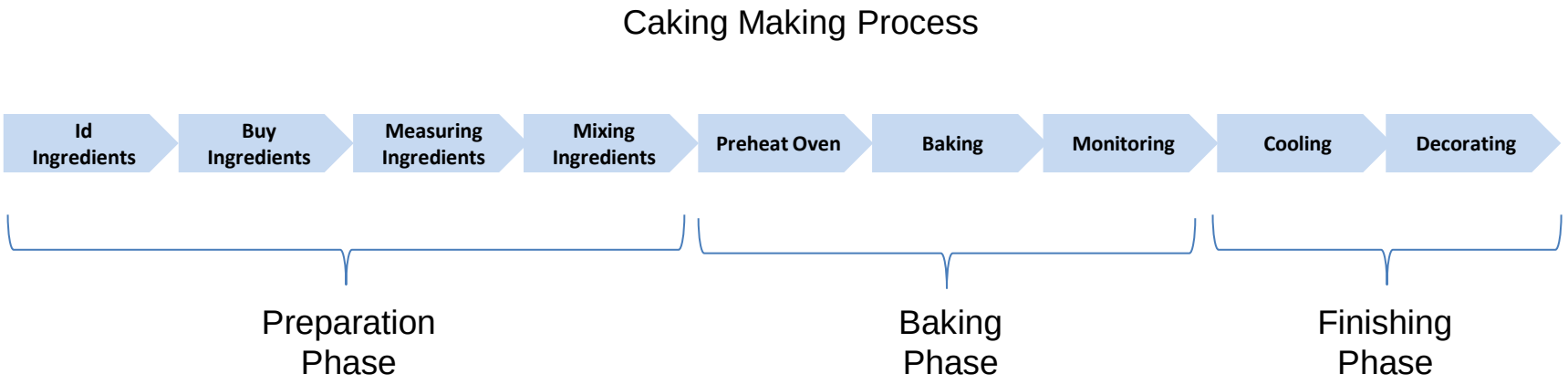
(How Are We Going To Do The Project?)

- Provides a systematic way to plan, manage and execute the work to be completed by prescribing –
  - Processes
  - Phases
  - Tools
  - Techniques

- Can Be –
  - Flexible (e.g., Project Type, Skills, Organizational Culture)
  - Establishing a common language and basis for comparison
  - Evolving to improve

Project Management Methodology

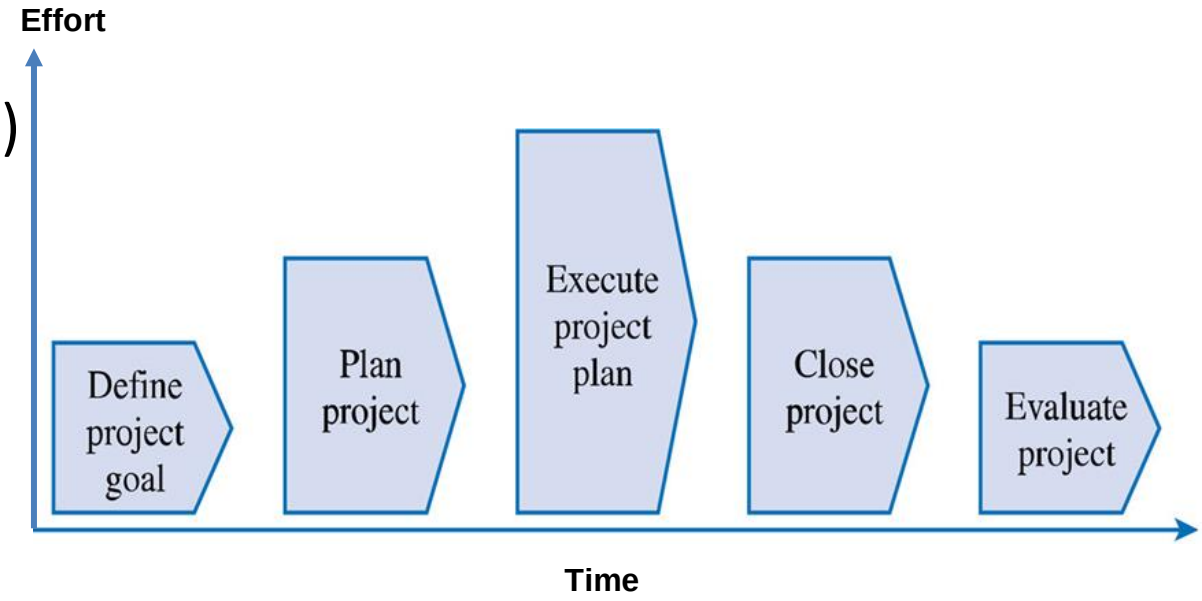
(How Are We Going To Do The Project?)



Project Life Cycle

Managing a **Project**

- Project Life Cycle (PLC)
- Stage Gate
- Fast Tracking



2 Most Common Project Management Methodologies

- PMBOK® (Project Management Body of Knowledge) – from PMI®
- PRINCE2® (Projects IN Controled Environments) – from UK's CCTA)

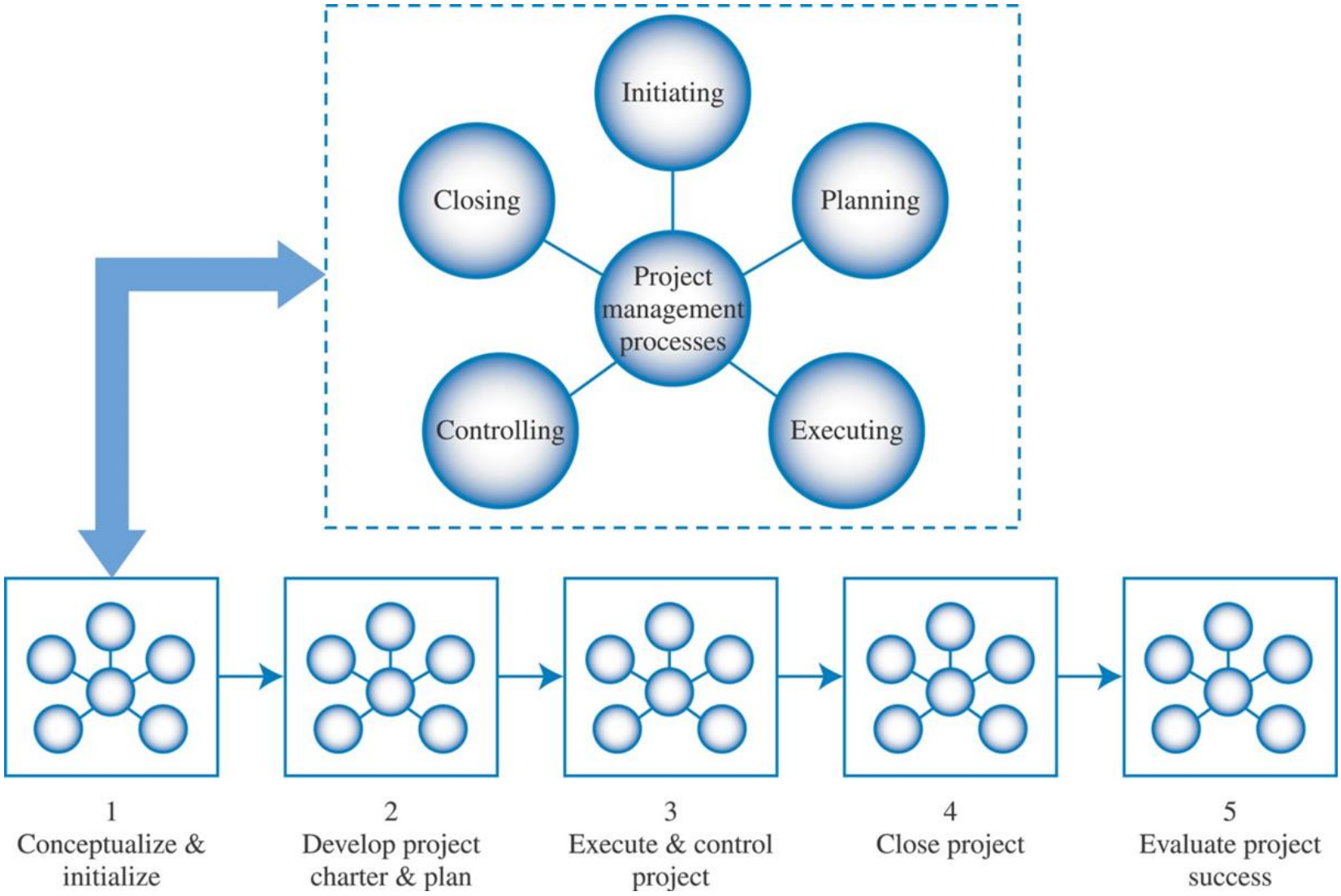
PMBOK Knowledge Areas

PMBOK Process Groups

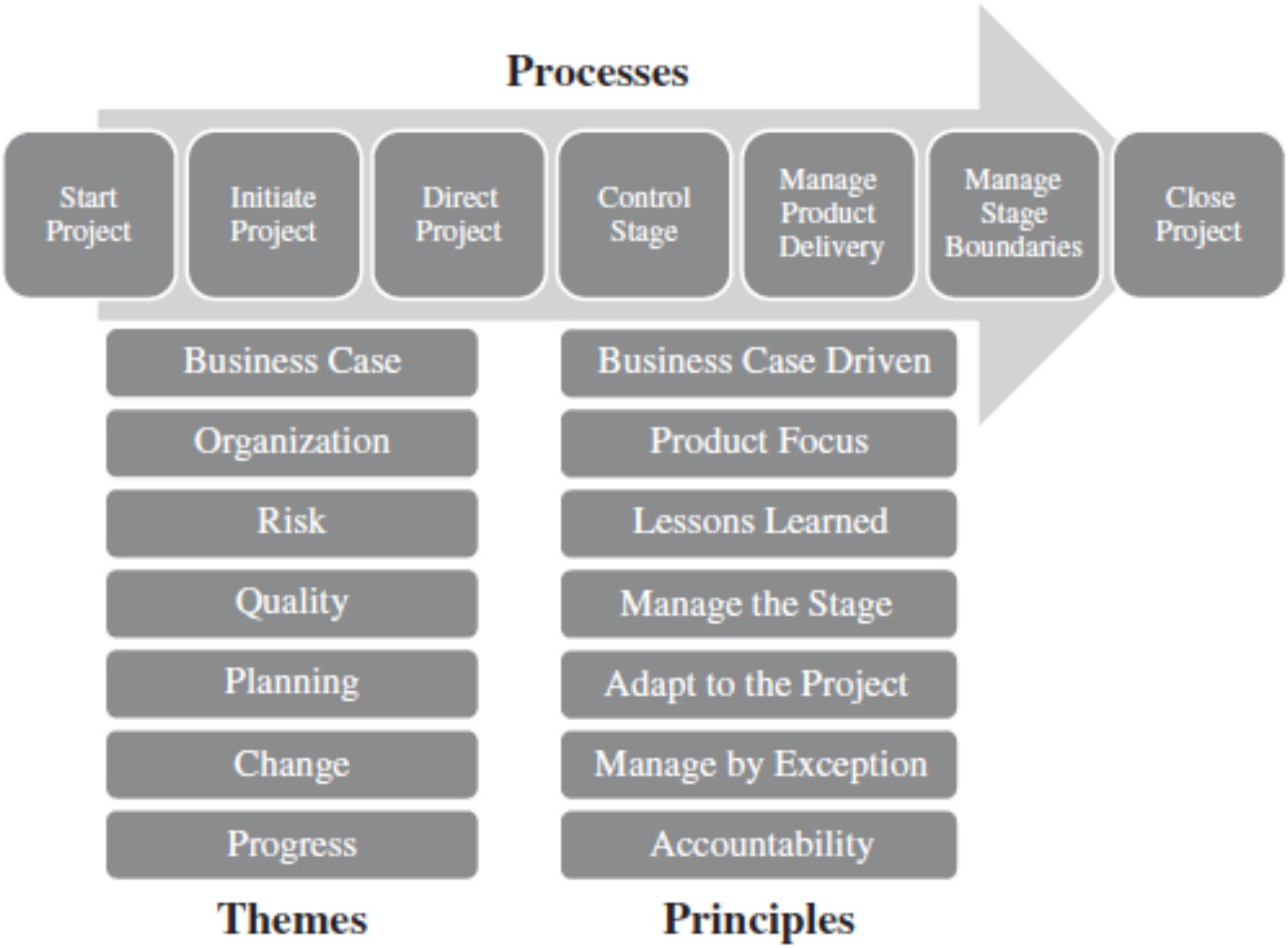
(Process – a set of interrelated activities performed to achieve a pre-defined result)

1. **Initiating** – *Signals the beginning of the project or a phase*
   - *Defines how the project will be managed and processes*
   - *Develops and obtains approval of business case*
2. **Planning** – *Planning of the entire project and individual phases*
   - *Scope, Activities, Resources, Procurement, Cost and Schedule Estimating*
   - *An iterative Process – More accurate estimation as project progresses*
3. **Executing** – *Integrating people and resources to implement plan*
   - *IT Projects – Systems Design Methodologies (e.g., SDLC)*
   - *Includes Quality Assurance, Risk Management and Team Development*
4. **Monitoring & Controlling** – *Managing and measuring progress toward goals*
   - *Scope, Change, Schedule, Budget, Quality and Communication Plan*
5. **Closing** – *Formally accepting the project's product, service or system*
   - *Contract Closure – (e.g., deliverables completed, release resources, payment settled)*
   - *Administrative Closure – (e.g., documentation, lessons learned, evaluation)*

PMI's PMBOK PROCESS GROUPS



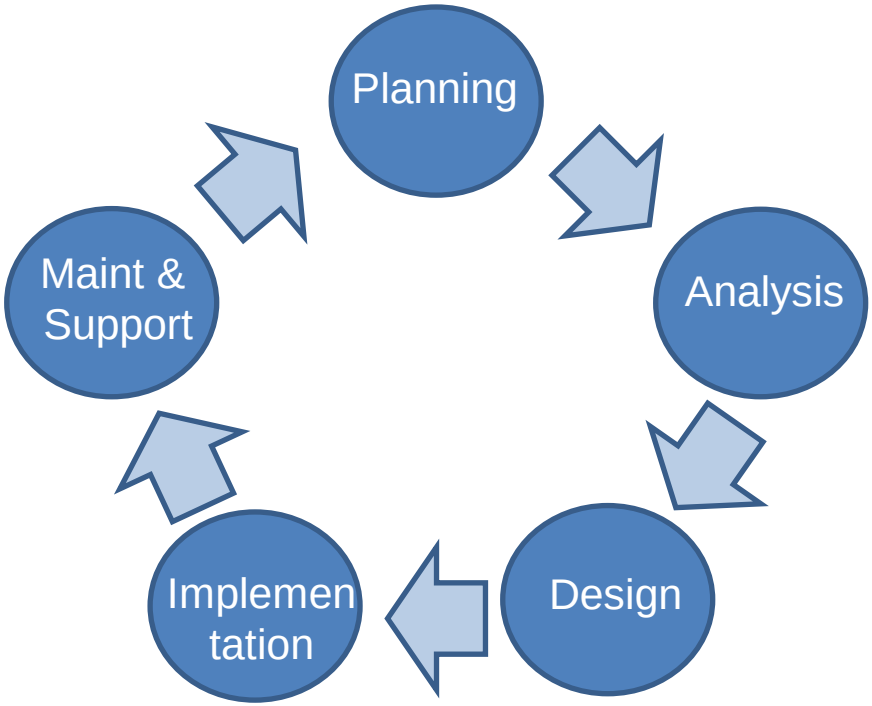
PRINCE2


Processes
Start Project
Initiate Project
Direct Project
Control Stage
Manage Product Delivery
Manage Stage Boundaries
Close Project
Business Case
Organization
Risk
Quality
Planning
Change
Progress
Themes
Business Case Driven
Product Focus
Lessons Learned
Manage the Stage
Adapt to the Project
Manage by Exception
Accountability
Principles

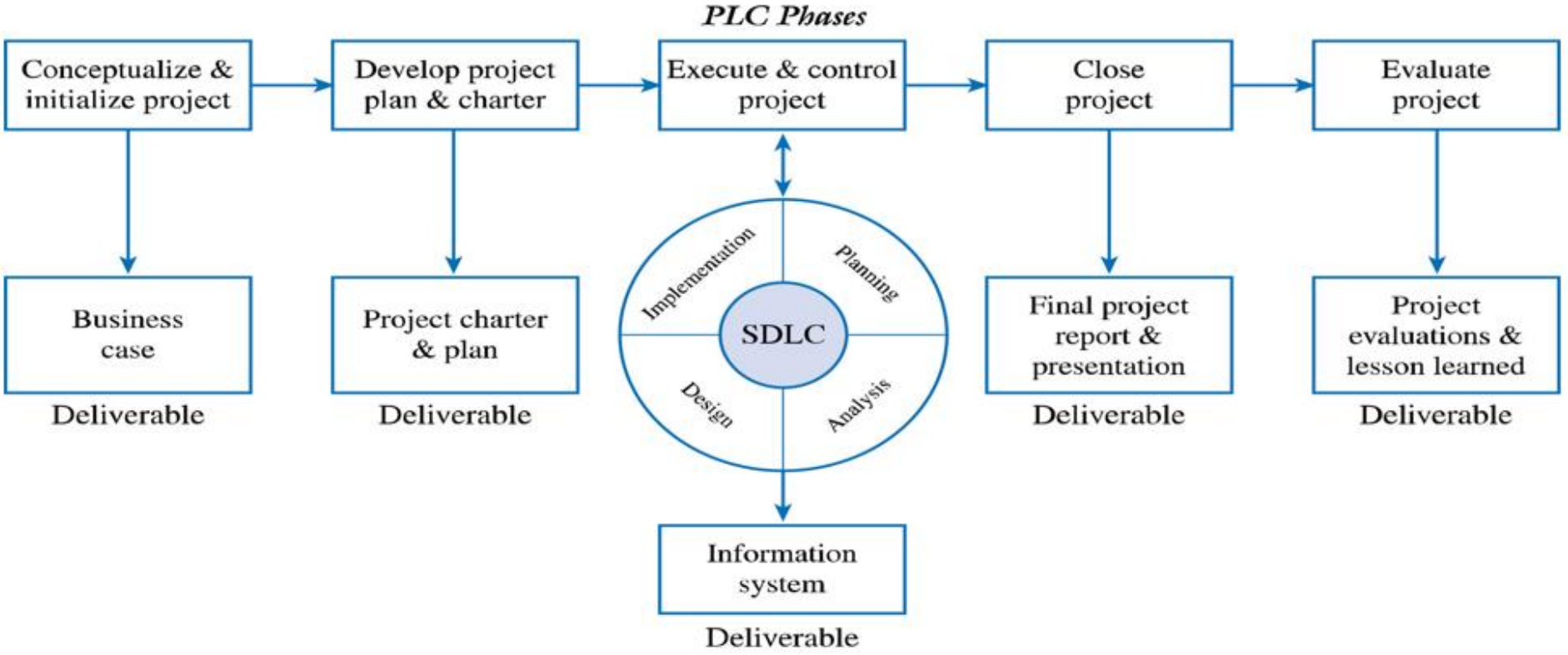
Software Development Life Cycle – SDLC

(Primarily Execution Phase)

- Creating the Product or Service that is the desired outcome of the project.

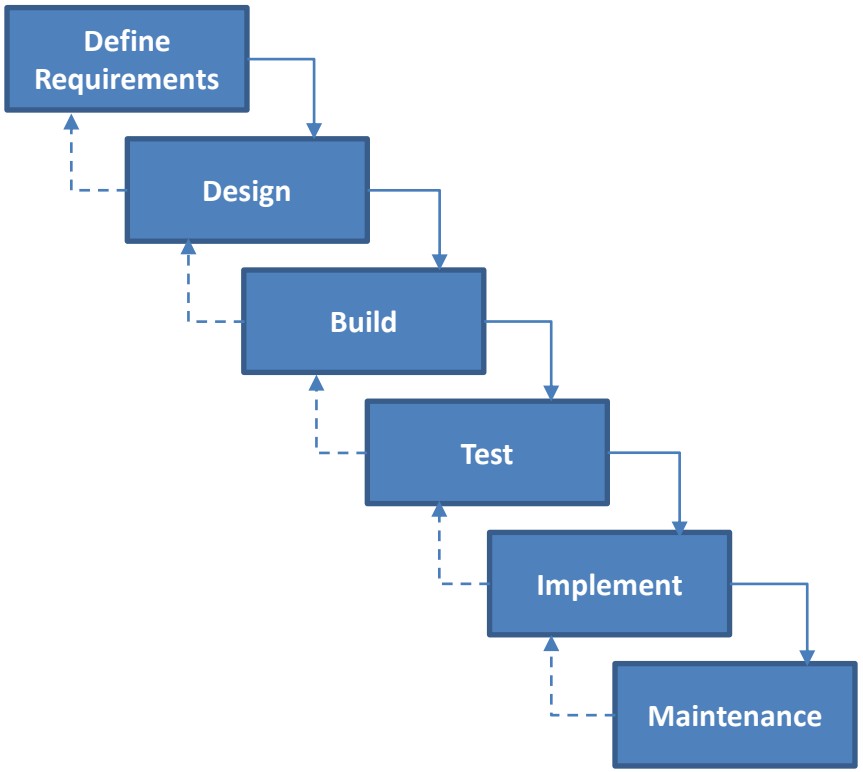


PLC & Deliverables

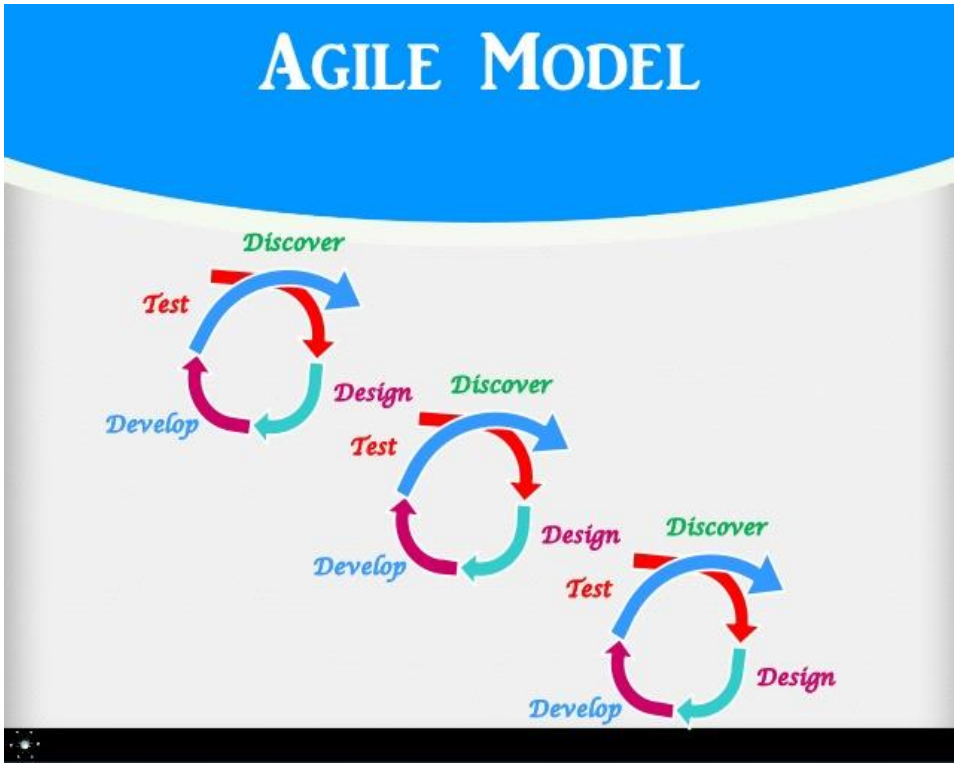


SDLC – Common Methodologies

(Product Oriented Processes)

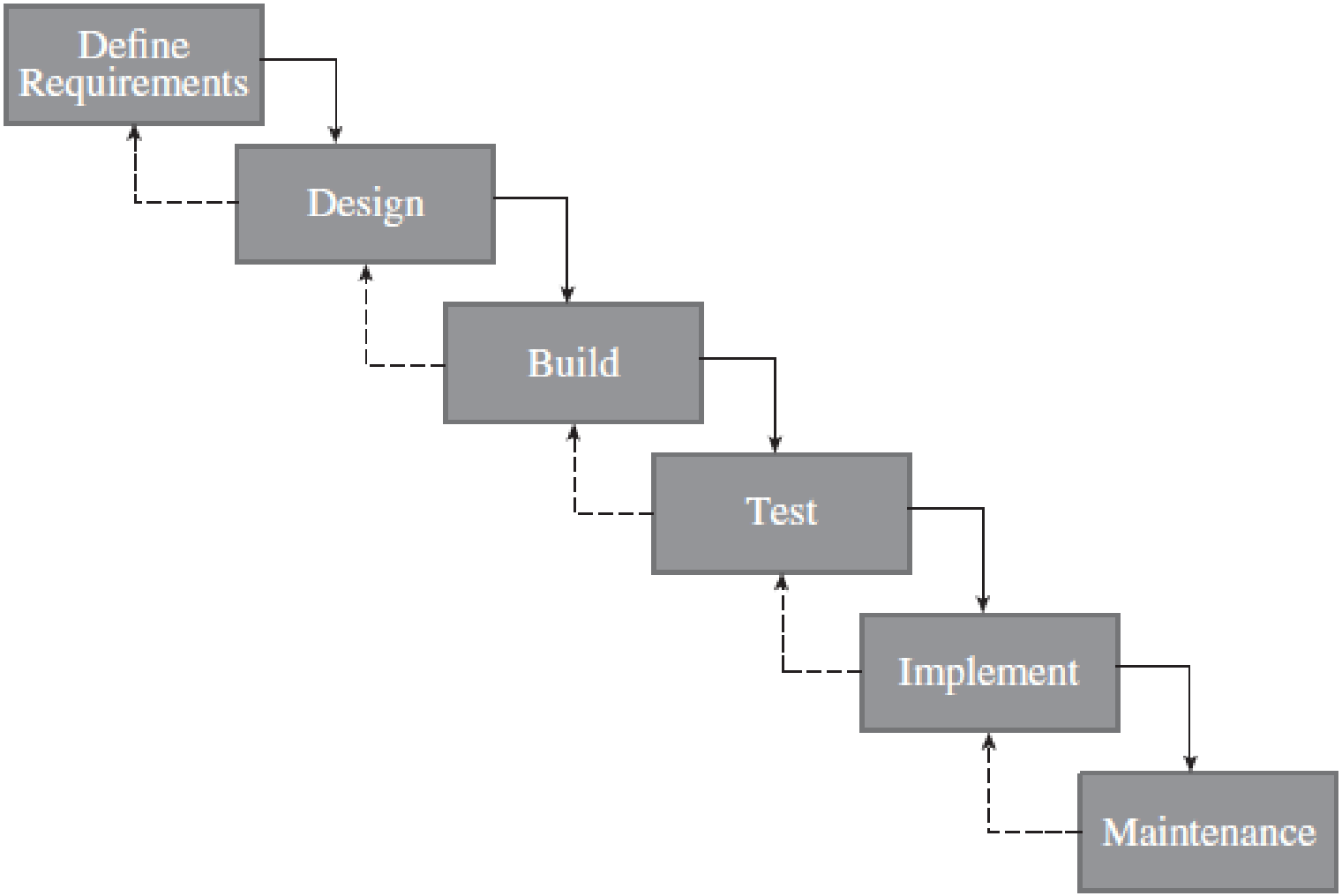


Waterfall Model



Agile Model

Waterfall SDLC



(Dis)advantages of Waterfall?

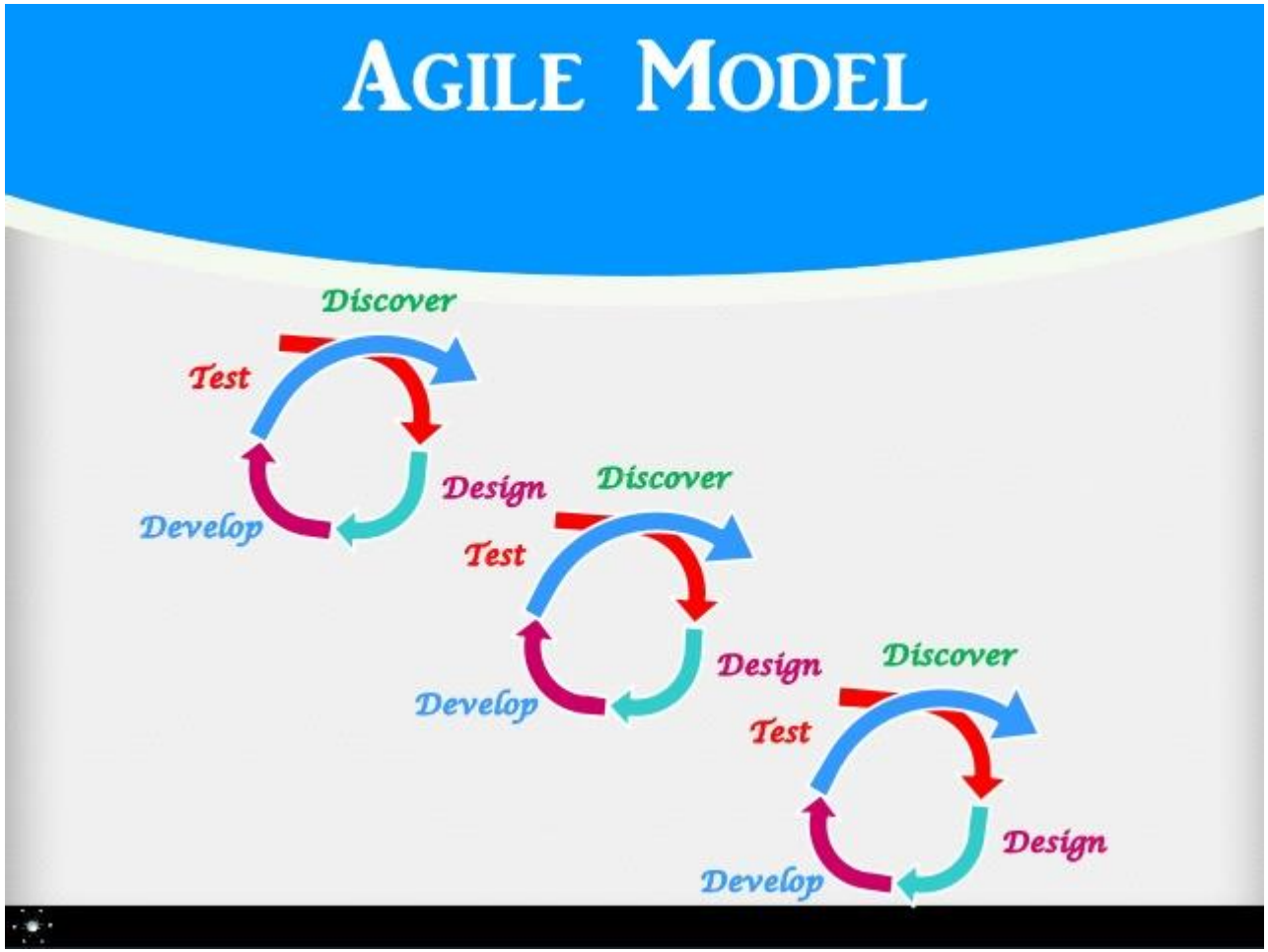
Advantages

1) Provides a Structured Approach
2) Plans Each Phase in Detail Enabling Time and Cost Estimation
3) Works well when have inexperienced team
4) Suits large complex projects where requirements don't change much.

Disadvantages

- May take too long to realize business value
- Downstream changes may significantly impact cost, schedule and resources
- More risky on product and quality due to less customer / user interactions
- Potential negative impact on team morale due to friction due to requirement changes

Agile SDLC


AGILE MODEL
Discover
Test
Design
Develop
Discover
Test
Design
Develop
Discover
Test
Design
Develop

What Is Agile?

- Condenses the SDLC into an iteration or sprint
- Users and developers work closely together to define and prioritize important ("must have") features
- Emphasize working software to measure progress and rely heavily on face-to-face communication
- Umbrella term that includes a number of approaches or methods
- 3 Key Roles –
  - Product Owner, Scrum Master, Development Team

Manifesto for Agile *Software Development*

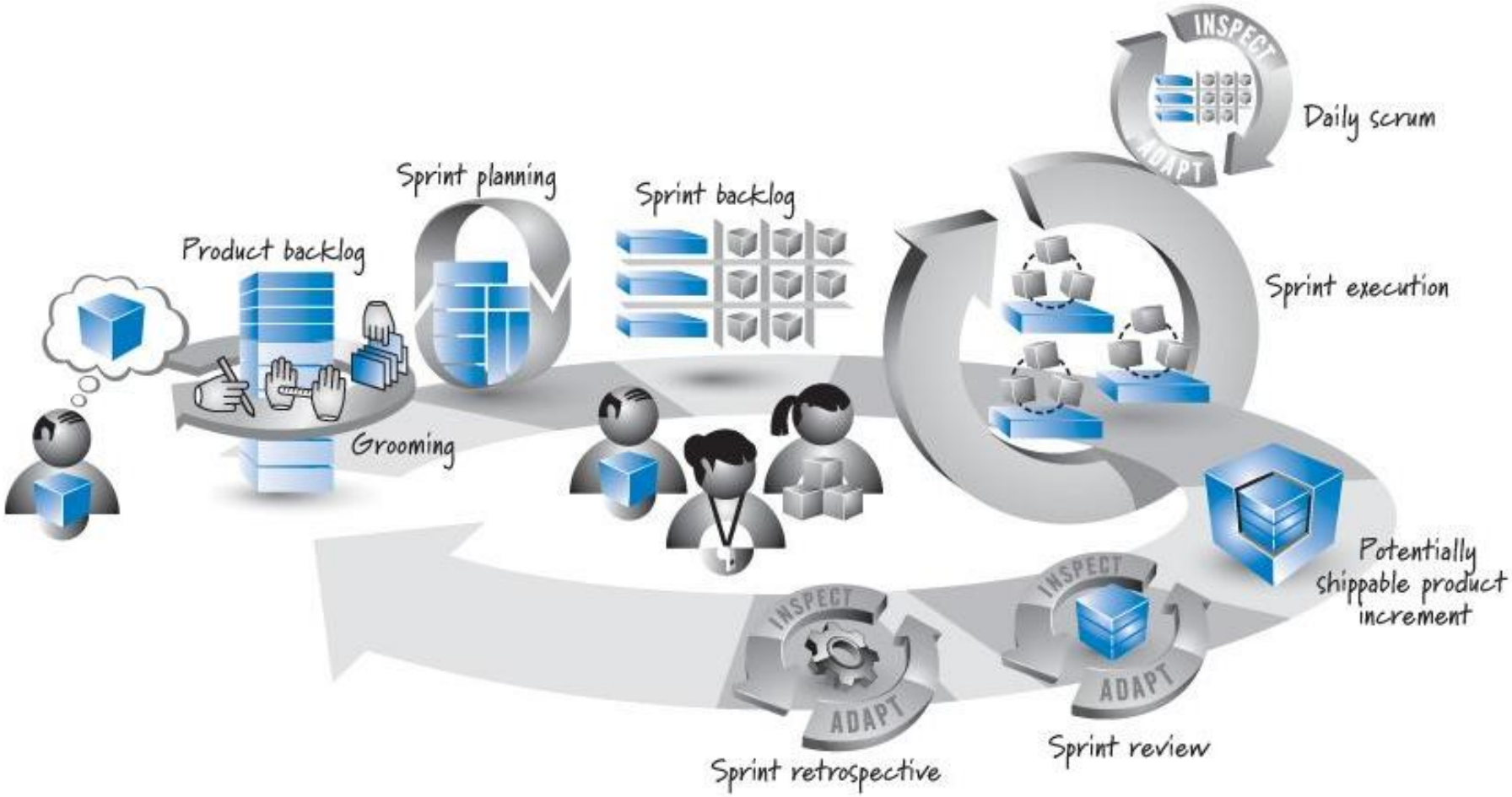
We are uncovering better ways of developing
software by doing it and helping others do it.
Through this work we have come to value:

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.

http://agilemanifesto.org/

Scrum Process



Epic – Agile Context

Summary: *An agile epic is a body of work that can be broken down into specific tasks (called user stories)* based on the needs/requests of customers or end-users. Epics are an important practice for agile and DevOps teams.

When adopting agile and DevOps, an epic serves to manage tasks. It's a defined body of work that is segmented into specific tasks (called “stories,” or “user stories”) based on the needs/requests of customers or end-users.

Epics are a helpful way to organize your work and to create a hierarchy. The idea is to break work down into shippable pieces so that large projects can actually get done and you can continue to ship value to your customers on a regular basis. Epics help teams break their work down, while continuing to work towards a bigger goal.

Source: Atlassian Project Management

“March 2050 Space Tourism Launch”

Software Team Supporting Ticketing System

Epic: March 2050 Launch		
Story: Update date range to include March 2050 Launch dates.	Story: Reduce load time for requested flight listings to < 0.45 seconds	Story: Promote Saturn Summer Sale on confirm page for First Class bookings.

Propulsion Team Supporting Rocket Engine

Epic: March 2050 Launch		
Story: Keep fuel tanks PSI > 250 PPM on launch	Story: Reduce overall fuel consumption by 1%.	Story: Hire new propulsion engineer to replace Gary. #garygate2050

(Dis)advantages of Agile?

Advantages

1) Faster business value realization
2) Focus on customer, product and communication
3) More responsive to changes
4) Framework based on team's self-organization, motivation, ownership, and pride.

Disadvantages

- Focus on continuous delivery may lead to sacrifice on quality
- Architecture risk
- May not consider size of requirement changes, which could result in additional sprints / iterations.
- May sacrifice certain project visibility (how to budget, ROI?) – Still a need for responsible project management.

Agile view of documentation

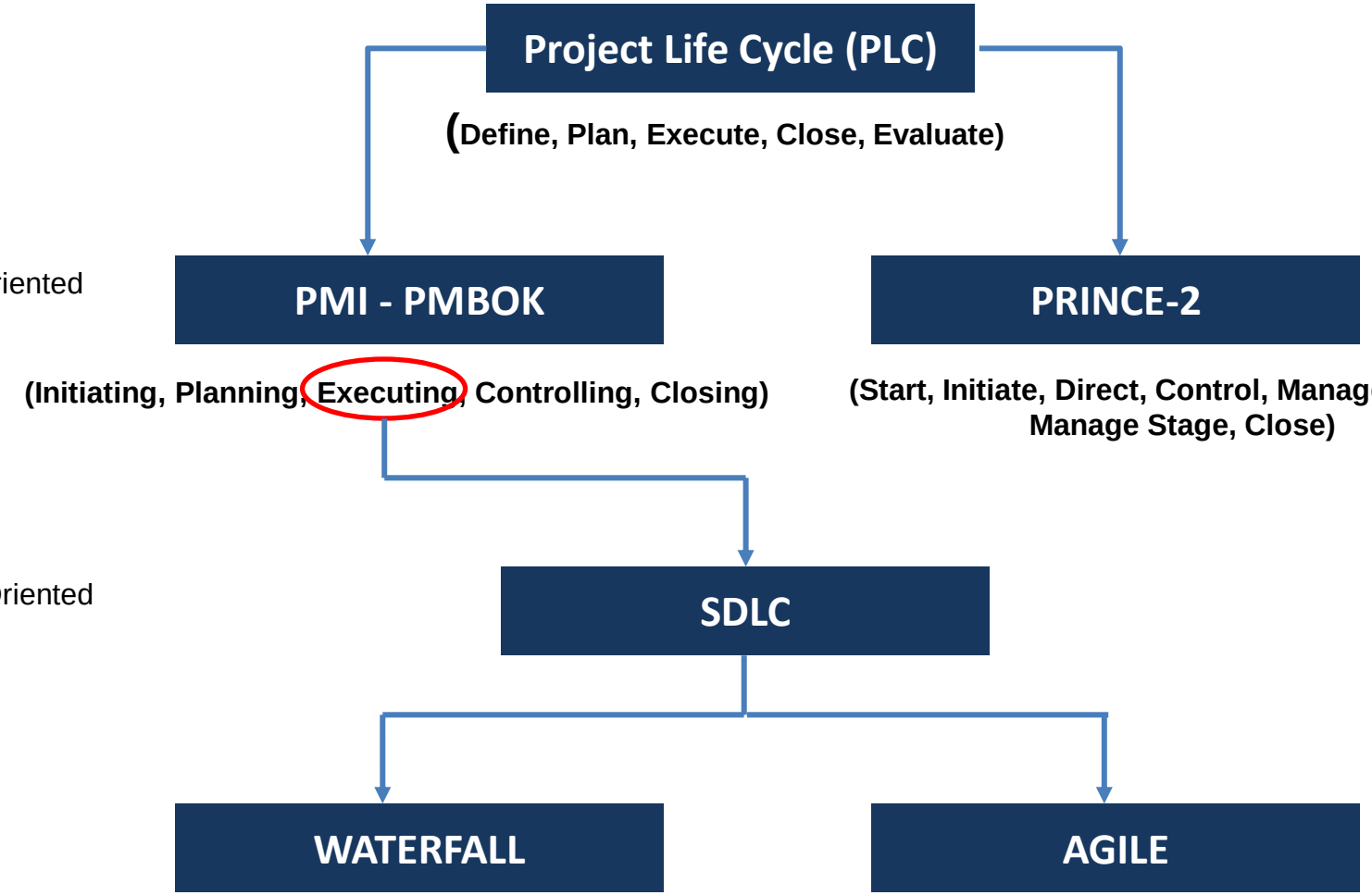
- Documentation should be “just barely good enough”.
- Document stable things, not speculative things.
- Documentation supports organizational memory, but is a poor way to communicate during a project.
- Understand the Total Cost of Ownership for a document.
- Developers rarely trust documentation because its out of date.
- Update documentation “only when it hurts”.
- Seek communication, interaction and feedback.

http://agilemodeling.com/essays/agileDocumentation.htm

Waterfall vs. Agile

"Which One Would You Pick?"

Let's Tie Them Together



Team Assignment 2: Team Learning Record & Action Plan

- Choose either Husky Air or Martial Arts Academy (Re-read Background from Ch. 1)
- A lot of unknowns at this point (that's okay) – Develop a Team Learning Record and the corresponding Action Plan using the templates in the assignment folder. (Refer to p.44 for examples)
- May need to conduct high-level research to gain industry knowledge
- Meaningful contributions are expected from each team member (remember your peers will evaluate your participation / performance).
- Assignment is due today before end of class (submit in dropbox)