

## Interactive Session Activities - Chapter 9

### In-Class Activities – Answers

#### 1. What are the factors affecting the acquisition of software for an organization?

- Cost: Both the initial purchase price and ongoing maintenance expenses.
- Compatibility: Ensuring the software integrates well with existing systems.
- Scalability: The ability of the software to grow with the organization's needs.
- Vendor Support and Reliability: The reputation and support services provided by the software vendor.
- Functionality: Meeting the specific requirements of the organization.

These considerations help ensure that the selected software aligns with the organization's strategic objectives and operational needs.

#### 2. Compare and contrast Waterfall and Rapid Application Development (RAD) software development methodologies

##### Waterfall Methodology

Waterfall is a traditional software development methodology where the process flows sequentially, like a waterfall, through several phases:

1. Requirements: Gathering and documenting requirements.
2. Design: Creating system and software designs based on the gathered requirements.
3. Implementation: Coding and programming based on the design specifications.
4. Testing: Conducting testing to ensure the software meets the requirements.
5. Deployment: Deploying the software to the users.
6. Maintenance\*: Providing ongoing support and maintenance.

##### Rapid Application Development (RAD) Methodology

RAD is an iterative software development methodology that prioritizes rapid prototyping and quick feedback loops. It typically involves the following phases:

1. Requirements Planning: Gathering high-level requirements and defining project scope.
2. User Design: Involving users in designing prototypes or mock-ups of the software.
3. Construction: Rapidly building the software in iterations or increments.
4. Cutover: Deploying the software to users in a phased manner.
5. Feedback: Gathering feedback from users and iterating on the software based on their input.

##### Similarities

1. Iterative Approach: Both methodologies involve iterative development, though to different extents.
2. Customer Focus: Both methodologies emphasize customer involvement, though RAD typically involves more direct user participation.
3. Project Management: Both methodologies require project management to oversee the development process.

## Contrasts

### 1. Project Type Suitability

- Waterfall: Best suited for projects with well-defined requirements and low levels of uncertainty.

- RAD: Suitable for projects where requirements are expected to evolve or where rapid delivery is essential, such as prototyping or proof-of-concept projects.

### 2. Deliverable Availability

- Waterfall: Deliverables are typically available only at the end of each phase, leading to longer wait times for stakeholders to see progress.

- RAD: Deliverables are available incrementally throughout the development process, allowing for quicker feedback and adjustments.

### 3. Customer Involvement

- Waterfall: Customer involvement tends to be limited to the requirements and testing phases.

- RAD: Customer involvement is ongoing throughout the development process, with frequent feedback loops and user testing.

### 4. Project Duration

- Waterfall: Projects typically have longer durations due to the sequential nature of the methodology.

- RAD: Projects can be completed more quickly due to the iterative and incremental development approach.

### 5. Documentation Requirements

- Waterfall: Emphasizes extensive documentation at each phase of the development process.

- RAD: Documentation tends to be lighter and more focused on prototypes and user feedback.

### 6. Resource Requirements

- Waterfall: Requires significant upfront planning and resource allocation.

- RAD: Can be more resource-efficient, as development cycles are shorter and can adapt more easily to changing requirements.

## 3. What is Scrum?

Scrum is an agile software development methodology designed to address the challenges of rapidly changing requirements and deliver high-quality software incrementally. It emphasizes collaboration, flexibility, and continuous improvement throughout the development process. Here's an overview of Scrum and its key terms, contrasting it with the Waterfall methodology:

Scrum is an agile methodology, which means it prioritizes iterative development, adaptive planning, and customer collaboration over rigid planning and documentation. Unlike Waterfall, where all requirements are defined upfront and followed sequentially, Scrum acknowledges that requirements can change and seeks to accommodate them through regular feedback and adjustment.

### 1. Product Backlog

- A prioritized list of features, enhancements, and fixes that need to be addressed in the product. It is managed by the Product Owner, who is responsible for maximizing the value of the product and ensuring that the backlog is constantly refined and updated.

### 2. Sprint Planning Meeting

- A meeting held at the beginning of each sprint (time-boxed iteration typically lasting 2-4 weeks) where the Scrum Team plans the work to be done during the sprint. The Product Owner presents the items from the Product Backlog to the team, and together

they agree on which items will be tackled in the upcoming sprint.

### 3. Sprint Backlog

- A subset of items from the Product Backlog that the Scrum Team commits to completing during the sprint. It serves as a plan for the sprint and is owned by the Development Team, who self-organize to execute the work.

### 4. Daily Scrum Meeting

- A short, time-boxed meeting held each day during the sprint where the Development Team synchronizes their activities, discusses progress made since the last meeting, and identifies any impediments or blockers. It helps keep everyone aligned and focused on the sprint goal.

### 5. Sprint Review

- A meeting held at the end of each sprint where the Development Team presents the completed work to the stakeholders (including customers and end-users) and gathers feedback. The Product Owner reviews the Product Backlog and may adjust priorities based on stakeholder input.

### 6. Sprint Retrospective

- A meeting held at the end of each sprint where the Scrum Team reflects on their processes and identifies ways to improve. It provides an opportunity to celebrate successes, discuss challenges, and make adjustments to optimize future sprints.

People Involved

- Product Owner: Represents the interests of stakeholders and is responsible for maximizing the value of the product by managing the Product Backlog.
- Scrum Master: Facilitates the Scrum process, removes impediments, and ensures that the team adheres to Scrum principles and practices.
- Development Team: Self-organizing, cross-functional team responsible for delivering potentially shippable increments of the product at the end of each sprint.

### **Contrast with Waterfall**

In contrast to Waterfall, where requirements are defined upfront and changes are difficult to accommodate, Scrum embraces change and adapts to evolving requirements throughout the development process. Scrum emphasizes collaboration, flexibility, and continuous feedback, allowing for quicker delivery of value to customers. Instead of delivering the entire product at once, Scrum delivers working increments of the product in short, iterative cycles, enabling stakeholders to provide feedback early and often. Additionally, Scrum encourages self-organization and empowers teams to make decisions, whereas Waterfall typically relies on top-down planning and control.

[https://www.youtube.com/watch?v=iJ\\_sl6J8PRg](https://www.youtube.com/watch?v=iJ_sl6J8PRg)

### **4. What is the difference between software development and Information Systems development?**

Software development and Information Systems (IS) development are related but distinct concepts within the realm of technology and computer science.

Software development refers specifically to the process of creating software applications or programs. It involves activities such as designing, coding, testing, and debugging

software to meet specific requirements or solve particular problems. Software development can range from small-scale projects, such as developing a mobile app, to large-scale projects, such as creating an operating system or enterprise software.

On the other hand, Information Systems development encompasses a broader scope. It involves not only the development of software but also the integration of various components such as hardware, software, data, processes, and people to support organizational goals and objectives. Information Systems development focuses on designing, implementing, and managing systems that collect, process, store, and distribute information within an organization.

While software development is a subset of Information Systems development, IS development involves additional aspects beyond just creating software. It includes analyzing business requirements, designing system architectures, integrating different technologies, managing data, ensuring security and compliance, and providing support and maintenance for the entire information system.

In summary, while software development focuses specifically on creating software applications, Information Systems development encompasses a broader range of activities aimed at designing, implementing, and managing integrated systems to support organizational functions and objectives.