

# *IT*

## *(Information Technology)*

*Khatam University*

*Session # 3*



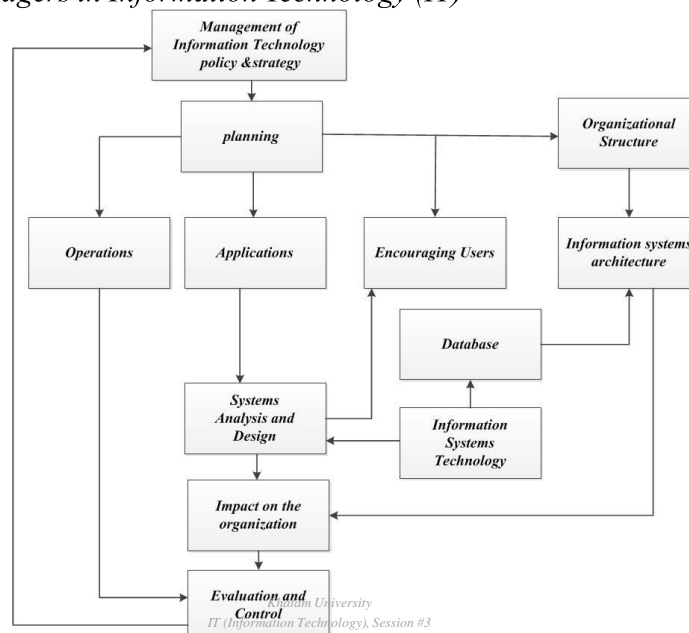
### *Course Description (Continued..)*

- *Contents:*
  - *Foundation of Information Technology (IT)* (1 session)
  - *A Look Toward the Future of Information Technology* (2 sessions)
  - *Information Management and IT Architecture* (2 sessions)
  - *Networks, Collaboration, and Sustainability* (2 sessions)
  - *E-Business & E-Commerce Models and Strategies* (4 sessions)
  - *Functional Area and Compliance Systems* (4 sessions)
  - *Enterprise Systems and Applications* (6 sessions)
  - *Business Process and Project Management* (5 sessions)
  - *Logistics and Information Technology* (8 sessions)

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## The role of managers in Information Technology (IT)



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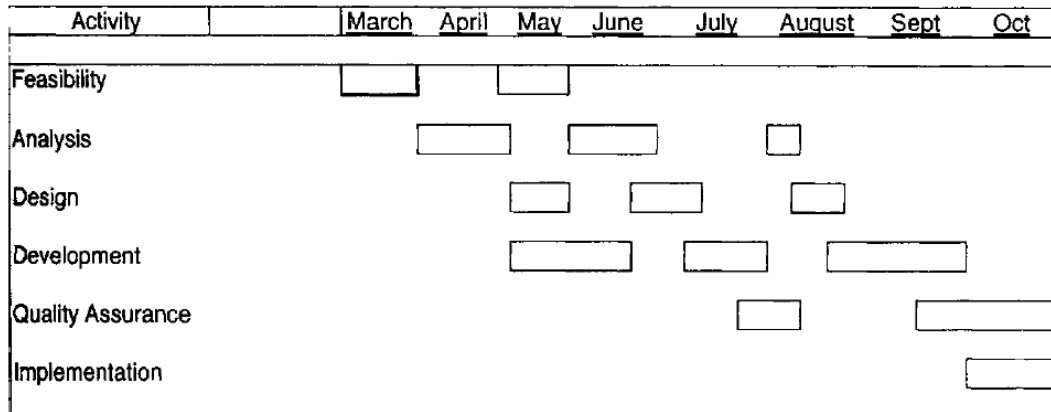
## The role of managers in Information Technology (IT)

- *Using technology to transform the organization*
  - *We are living in revolutionary times, a revolution brought on by dramatic advances in information technology.*
  - *If the steam engine, a new form of power, and mechanization created an Industrial Revolution over 150 years ago, **computers** and **communications equipment** have produced a Technology Revolution in the last half of the twentieth century.*

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## Information system development

- Information system development project
  - Realistic behavior

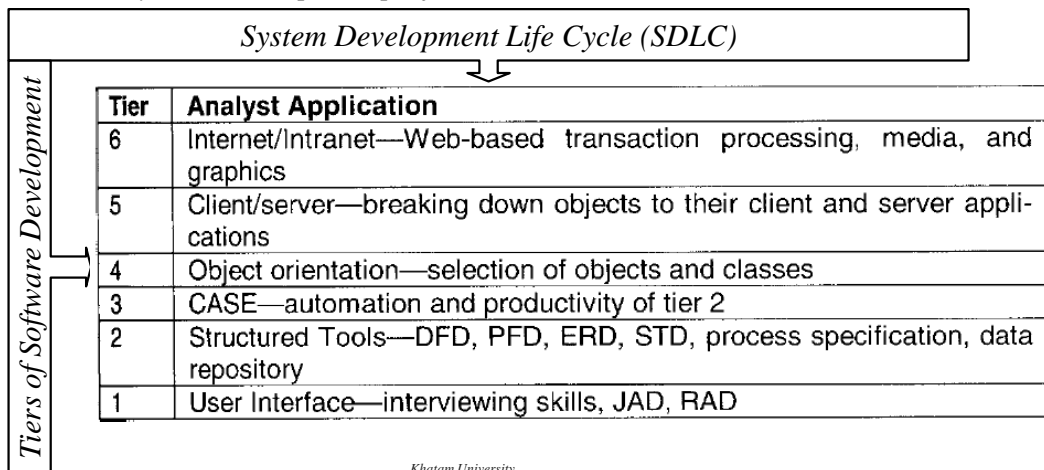


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## Information system development

- Information system development project



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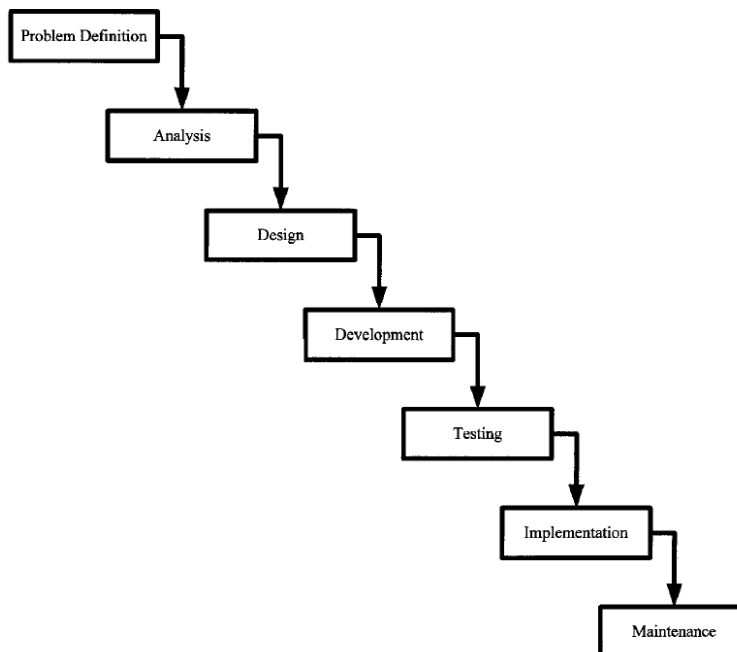
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## Information system development

### ■ System Development Life Cycle (SDLC)

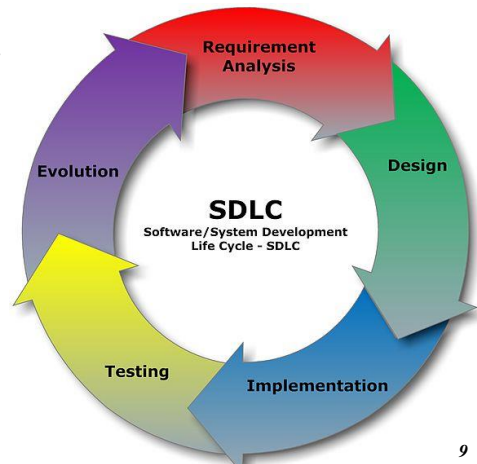
- The basis for most systems analysis and design methodologies is the system development life cycle or SDLC.
- It is sometimes called the waterfall method because the model visually suggests work cascading from step to step like a series of waterfalls.
- In reality, there is considerable feedback between the various steps or phases.

### ■ SDLC



## Information system development

- *Information system development Methodologies*
  - *Several models exist to streamline the development process.*
- *Sometimes a combination of the models may be more suitable*
  - *Waterfall model*
  - *Unified software development Process model*
  - *Spiral model*
  - *Agile development*
  - *Rapid application development*

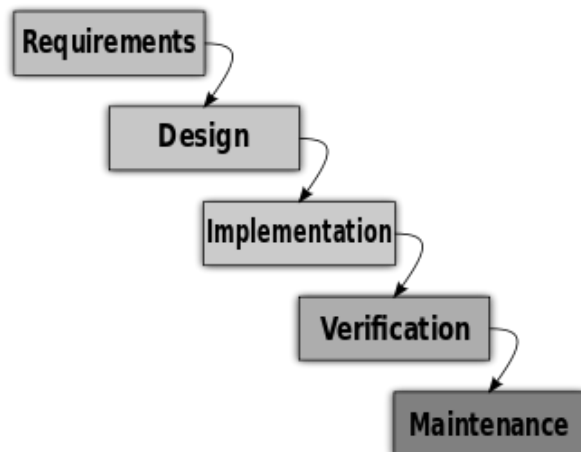


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## Information system development

- *Information system development Methodologies*
  - *Waterfall model*
    - *The waterfall model is a sequential design process*
      1. *Requirements specification*
      2. *Design*
      3. *Construction (implementation or coding)*
      4. *Integration*
      5. *Testing and debugging*
      6. *Installation*
      7. *Maintenance*



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## *Information system development*

- *Information system development Methodologies*
  - *Waterfall model*
    - *The waterfall model maintains that one should move to a phase only when its preceding phase is completed and perfected.*
    - *Time spent early on making sure requirements and design are correct saves much time and effort later*
    - *Waterfall model places emphasis on documentation (such as requirements documents and design documents) as well as source code.*
    - *Waterfall model for is a simple approach and is more disciplined.*

## *Information system development*

- *Information system development Methodologies*
  - *Waterfall model*
    - *Waterfall model is a bad idea in practice*
    - *It is impossible to finish a phase of a software product's lifecycle perfectly before moving to the next phases and learning from them*
    - *Many of the system's details only become known to us as we progress in the system's implementation.*
    - *Some of the things that we learn invalidate our design and we must backtrack*

## Information system development

### Information system development Methodologies

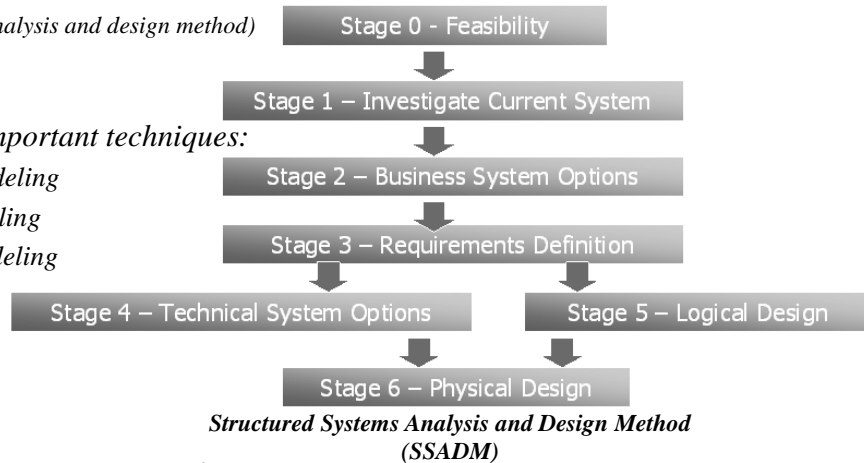
- SSADM

(Structured systems analysis and design method)

SSADM techniques

- The three most important techniques:

- Logical data modeling
- Data Flow Modeling
- Entity Event Modeling



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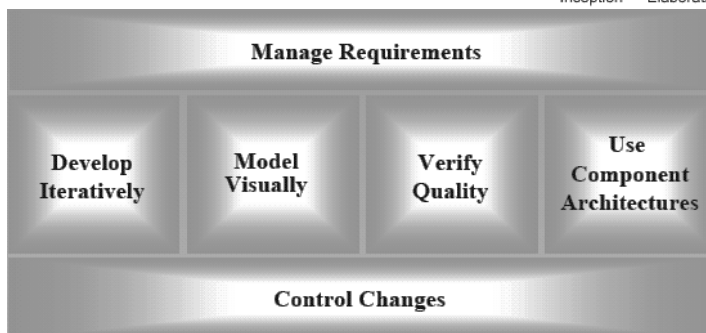
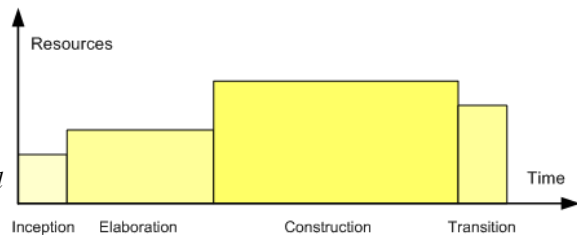
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## Information system development

### Information system development Methodologies

- USDP model

- The USDP is a popular iterative and incremental software development process framework.



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## Information system development

### Information system development Methodologies

- USDP model
  - Iterative and Incremental
  - Use Case Driven
  - Architecture Centric
  - Risk Focused



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## Information system development

### Information system development Methodologies

- RUP (Rational Unified Process) is a specific implementation of the USDP.
- RUP is based on a set of building blocks, or content elements, describing
  - what is to be produced,
  - the necessary skills required
  - and the step-by-step explanation describing how specific development goals are to be achieved.
- The main building blocks, or content elements, are the following:
  - Roles (who) – A Role defines a set of related skills, competencies and responsibilities.
  - Work Products (what) – A Work Product represents something resulting from a task, including all the documents and models produced while working through the process.
  - Tasks (how) – A Task describes a unit of work assigned to a Role that provides a meaningful result.

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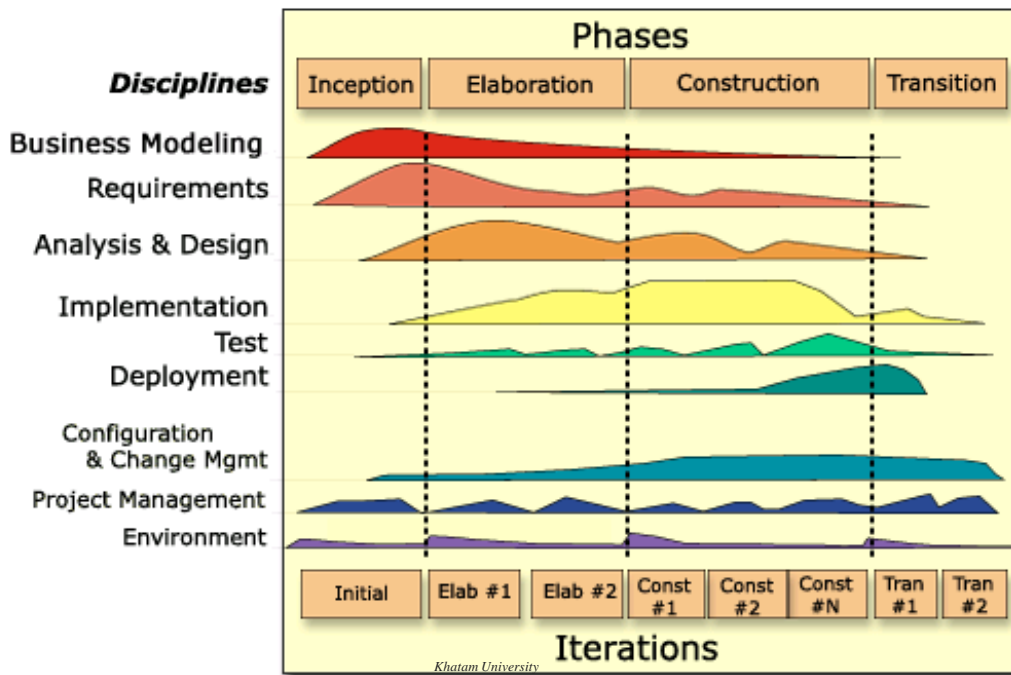


## Information system development

- *Information system development Methodologies*
  - *RUP (Rational Unified Process)*
  - *Within each iteration, the tasks are categorized into nine disciplines:*
  - *Six "engineering disciplines" Business Modeling*
    - *Requirements*
    - *Analysis and Design*
    - *Implementation*
    - *Test*
    - *Deployment*
  - *Three supporting disciplines*
    - *Configuration and Change Management*
    - *Project Management*
    - *Environment*

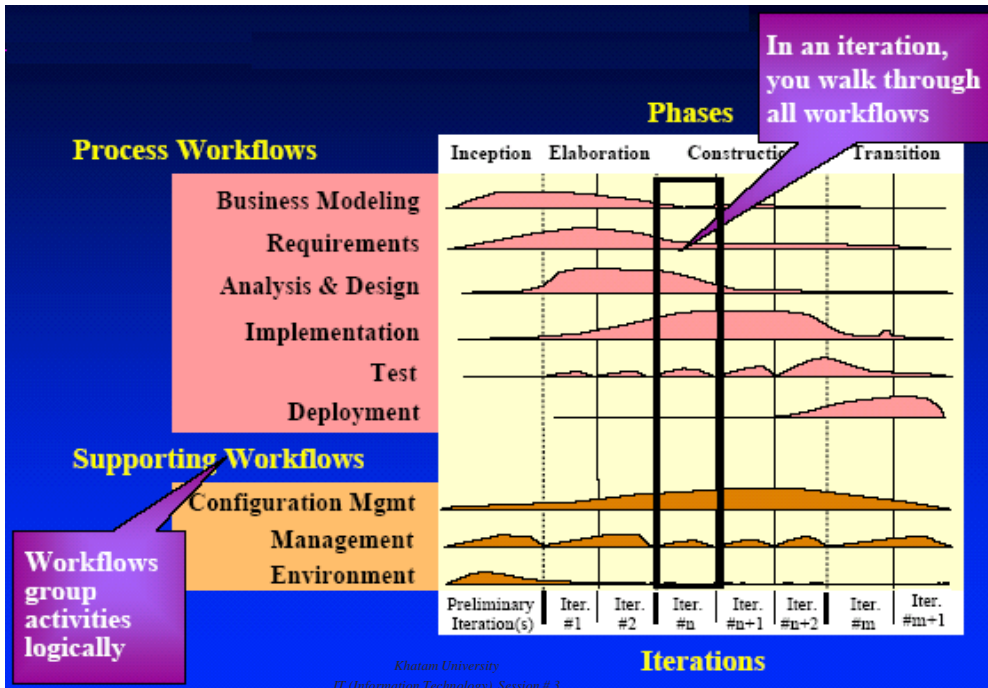
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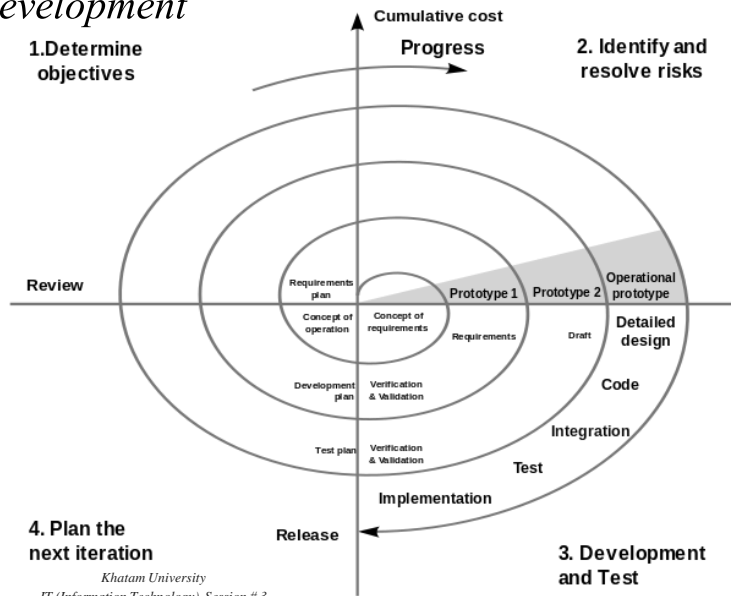
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## Information system development

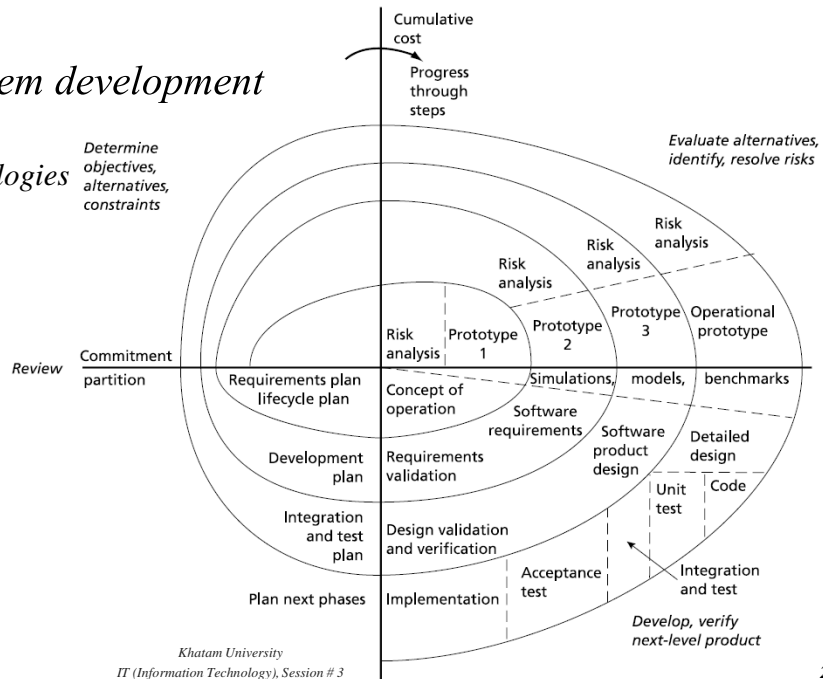
- Information system development Methodologies
  - Spiral model
    - The spiral model combines elements of both design and prototyping-in-stage.
    - Spiral model combines advantages of top-down and bottom-up concepts.



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## Information system development

- Information system development Methodologies
  - Spiral model



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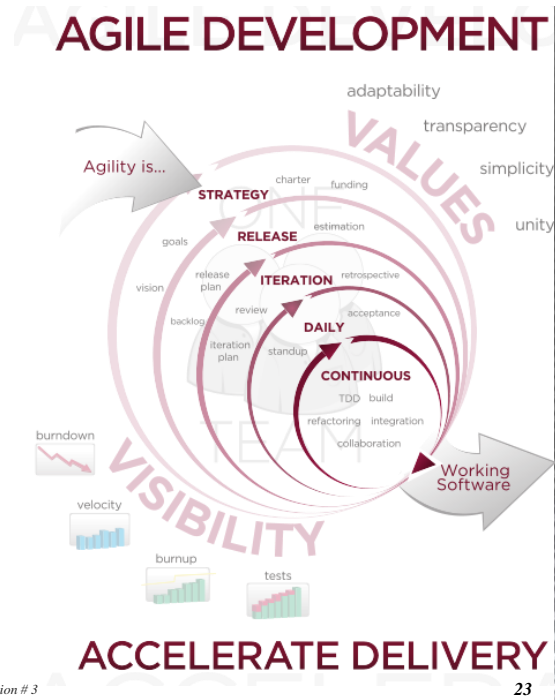
## Information system development

- Information system development Methodologies
  - Spiral model
    - The spiral model combines the idea of iterative development with the systematic, controlled aspects of the waterfall model.
    - The spiral model is based on continuous refinement of key products for requirements definition and analysis, system and software design, and implementation (the code).
    - Documents are produced when they are required, and the content reflects the information necessary at that point in the process.
    - Spiral model forces early user involvement in the system development effort.

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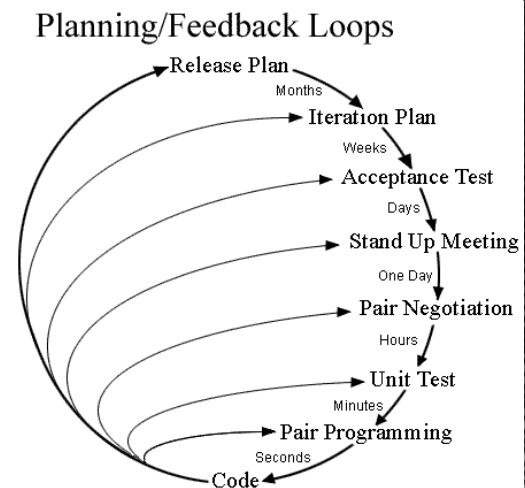
## Information system development

- Information system development Methodologies
  - Agile software development
    - Agile software development is a group of software development methods based on iterative and incremental development, where requirements and solutions evolve through collaboration between self-organizing, cross-functional teams.
    - It promotes adaptive planning, evolutionary development and delivery, a time-boxed iterative approach.



## Information system development

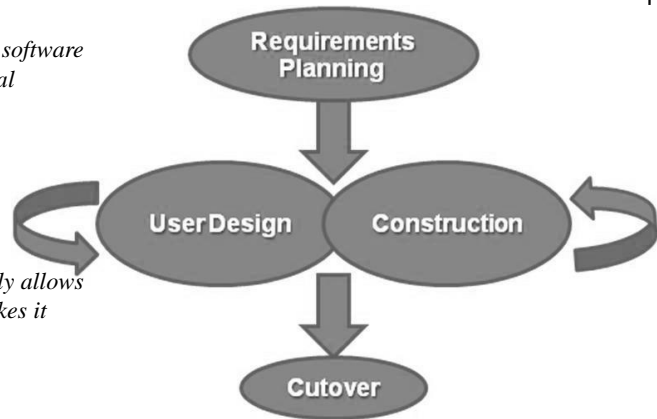
- Information system development Methodologies
  - Agile software development methods
    - Agile Unified Process (AUP)
    - Crystal Clear
    - Crystal Methods
    - Dynamic Systems Development Method (DSDM)
    - Extreme Programming (XP)
    - Feature Driven Development (FDD)
    - Lean software development



## Information system development

### Information system development Methodologies

- Rapid Application development
  - Rapid application development (RAD) is a software development methodology that uses minimal planning in favor of rapid prototyping.



**Rapid Application Development (RAD)**

## Information system development

### Information system development Methodologies

- Rapid Application development
  - Requirements Planning phase
  - User design phase
  - Construction phase
  - Cutover phase