



Systems Development

CMP-4013A

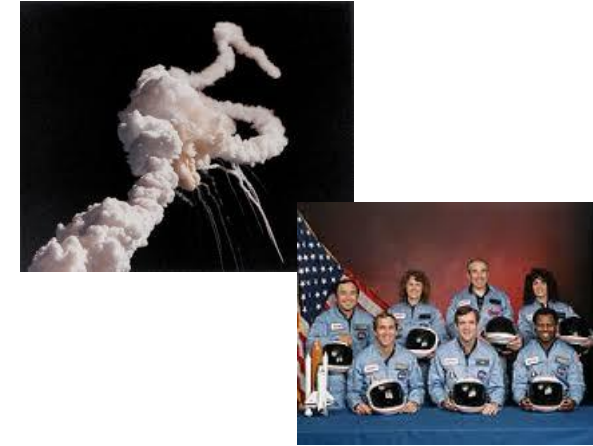
Lecture 3 Systems Development Approaches.

Overview

- Lab round up from last Monday
- Traditional-waterfall lifecycle
- The evolution of development approaches
- Agile principles and approaches

Week 3 Lab round up.

- Excellent Challenger discussions
- Very impressed with agile investigations
- Some very good presentations in a short period
- Useful progress on the SD family.



Personas?

Approaches to SD



Ad-hoc



Predictive



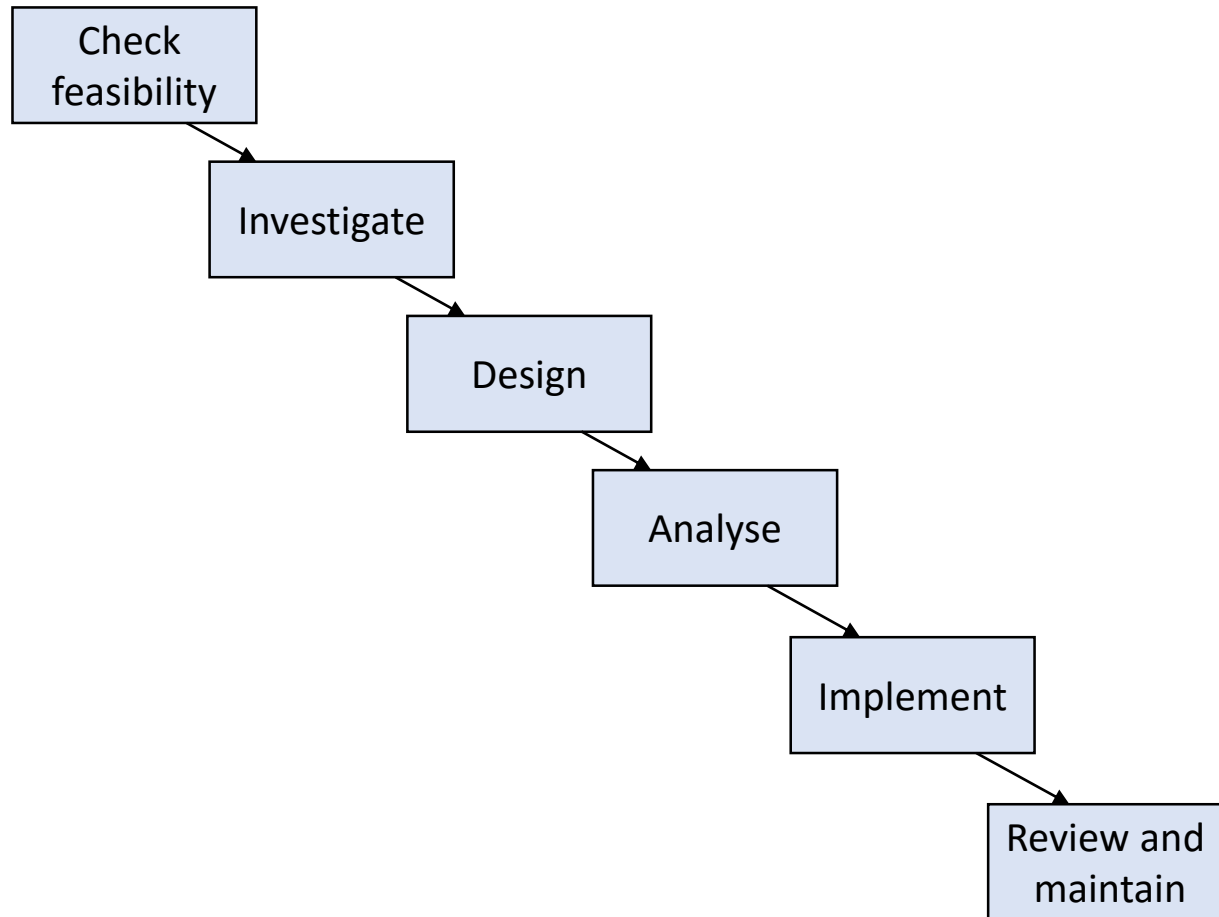
Adaptive

In the beginning...



Programmers ruled!

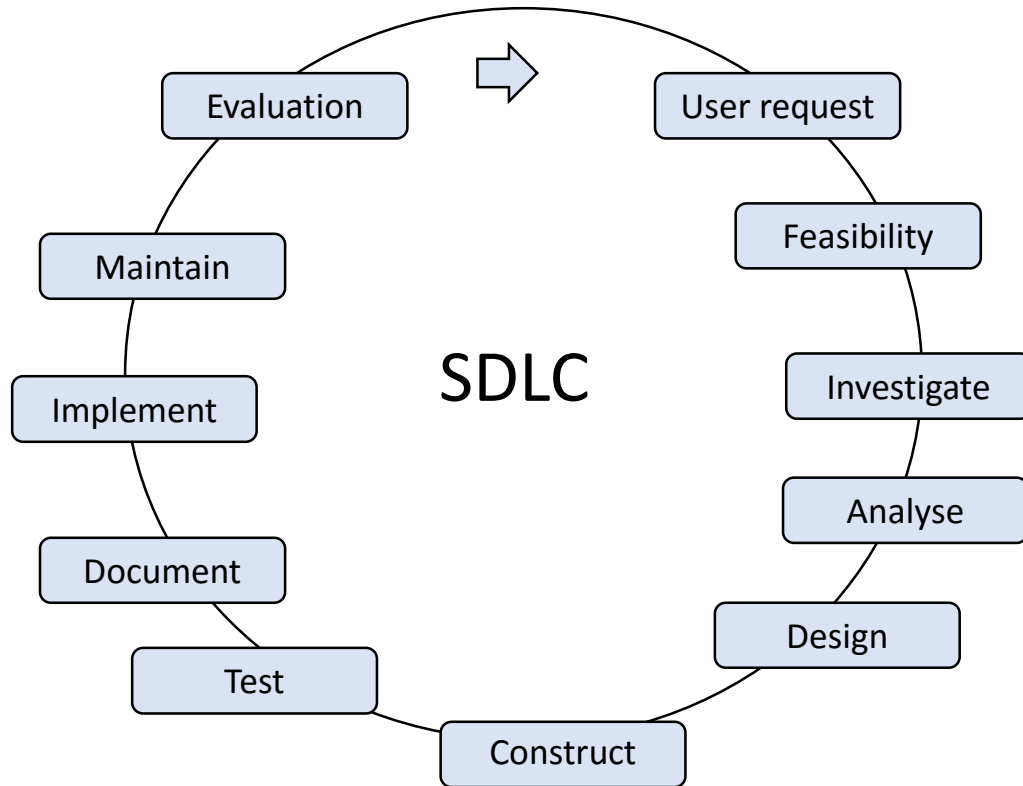
Traditional approach



- Linear
- Pre-specification
- Iteration discouraged
- Frozen requirements



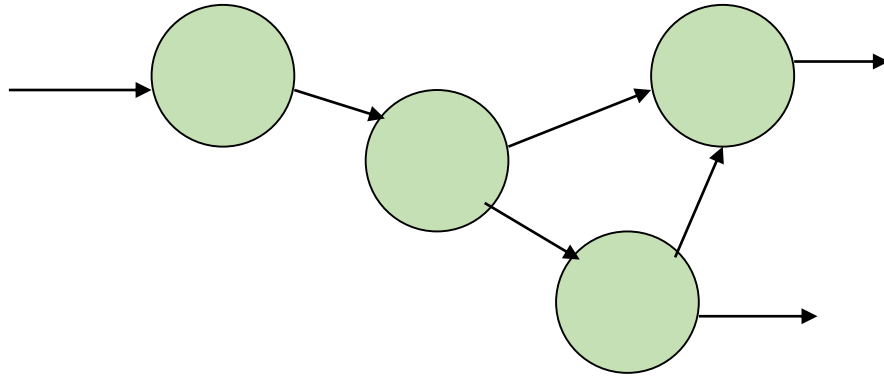
Also called Conventional or Waterfall



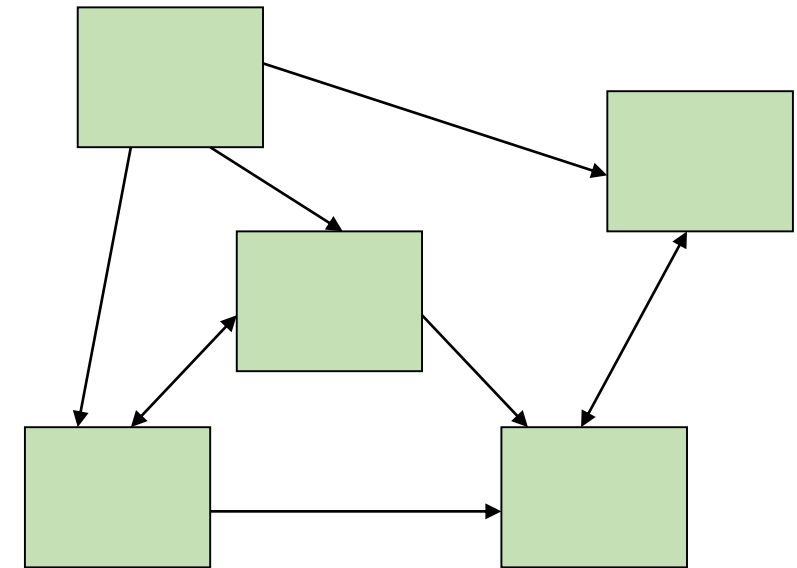
Improvement on no method, but...

- inflexible
- user dissatisfaction
- documentation problems
- application backlogs
- lack of participation
- missed targets

Structured Approach

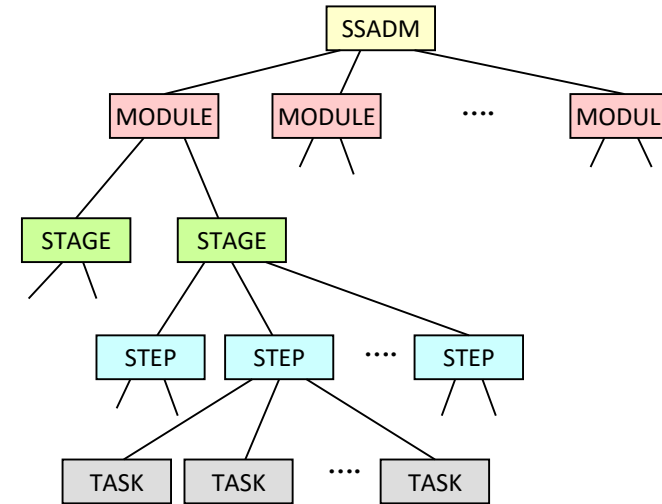
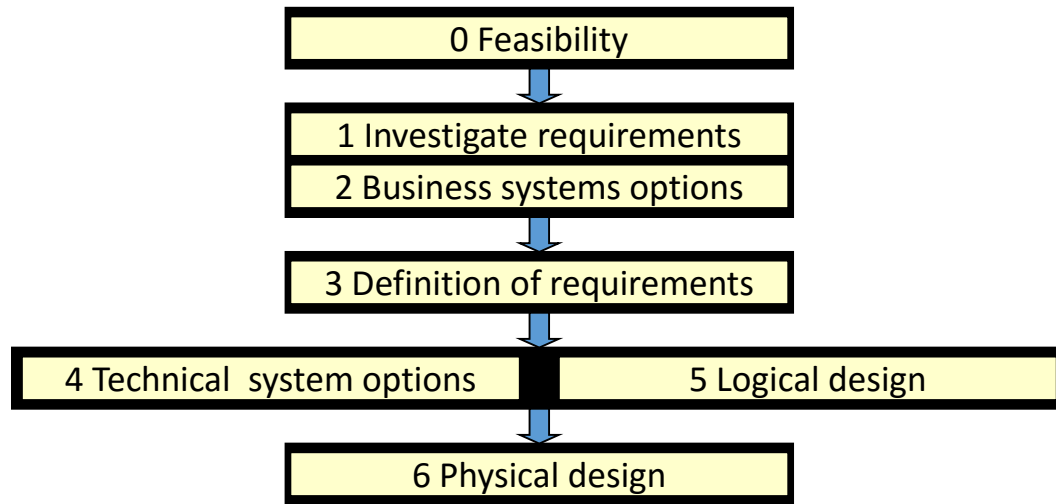


Process Oriented Approaches



Data Oriented Approaches

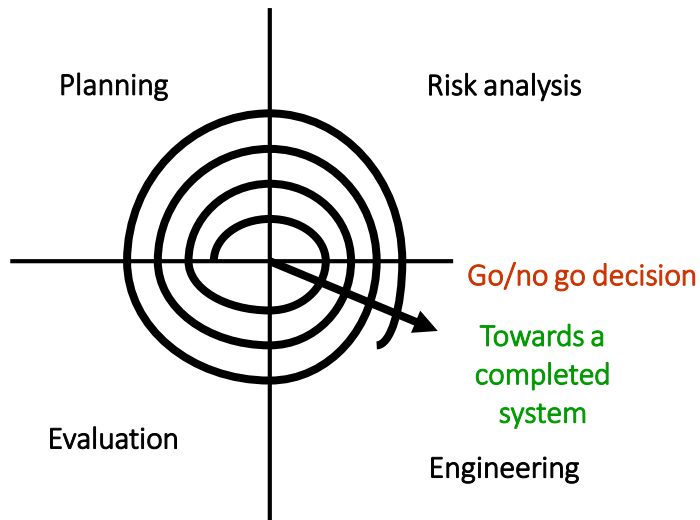
SSADM (Structured Systems Analysis and Design Method)



Functionality + Data + Events



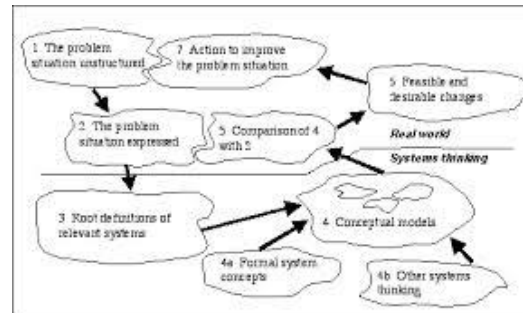
At the same time



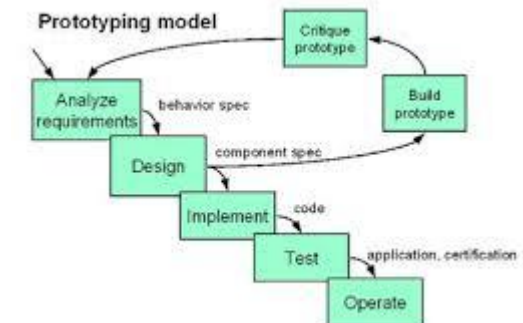
Spiral Model
(Barry Boehm)



Participative Approaches
ETHICS
(Enid Mumford)



Soft Systems
(Peter Checkland)



Prototyping
(lots of people)

Lots of advantages

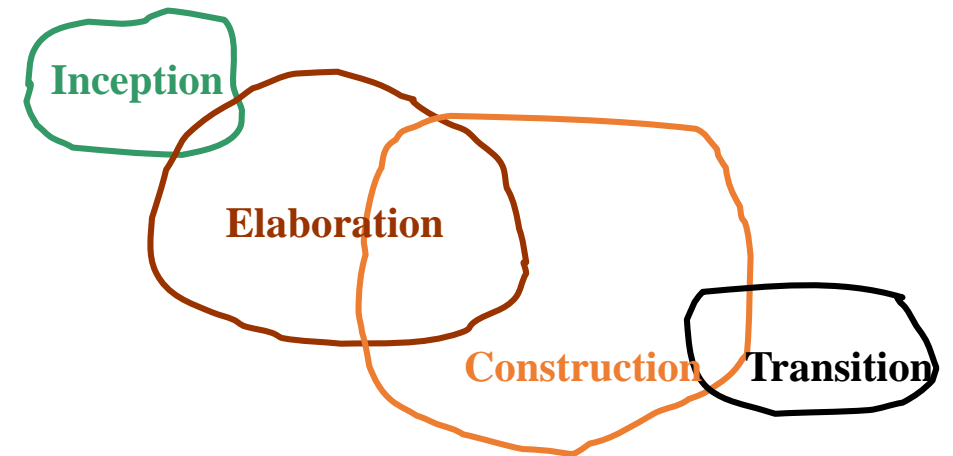
- Evolutionary
- Prototyping to reduce risk
- User involvement
- Better chance of success



But, how to convince people to use them?

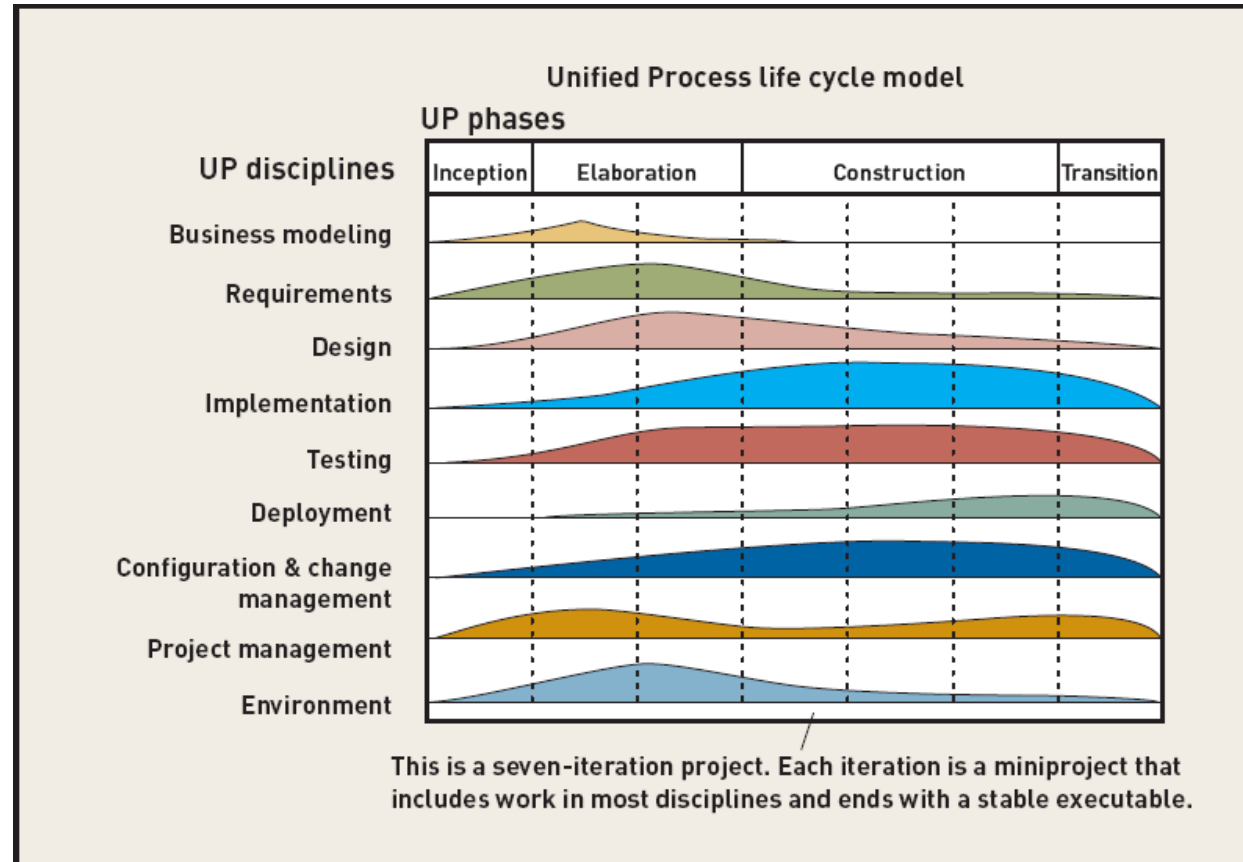
Object Oriented (OO)

- Sees the world as objects that interact
- Uses lots of modelling techniques
- Enables reuse
- More adaptive approach



Unified Process

Unified Process lifecycle



Agile arrives...

- 2001 Summit of 17 professional developers
- Came up with the Agile Manifesto
- And its supporting principles



(Skiing in Utah)

The Agile Manifesto

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

More value > less value

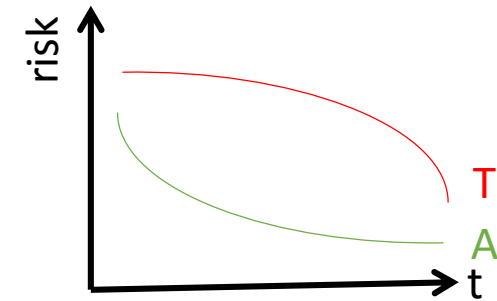
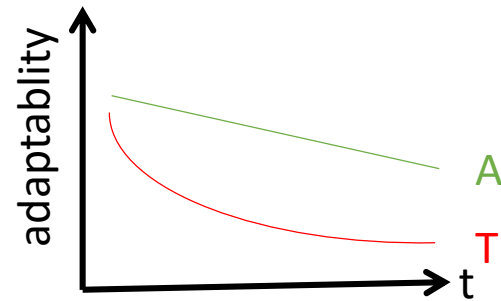
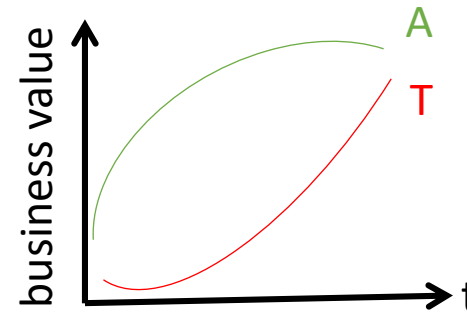
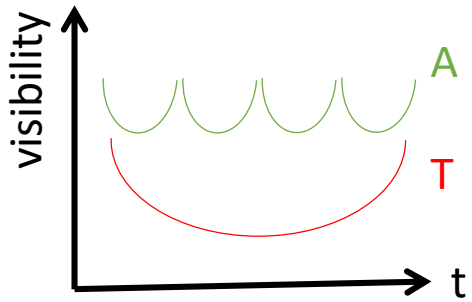


Supporting principles

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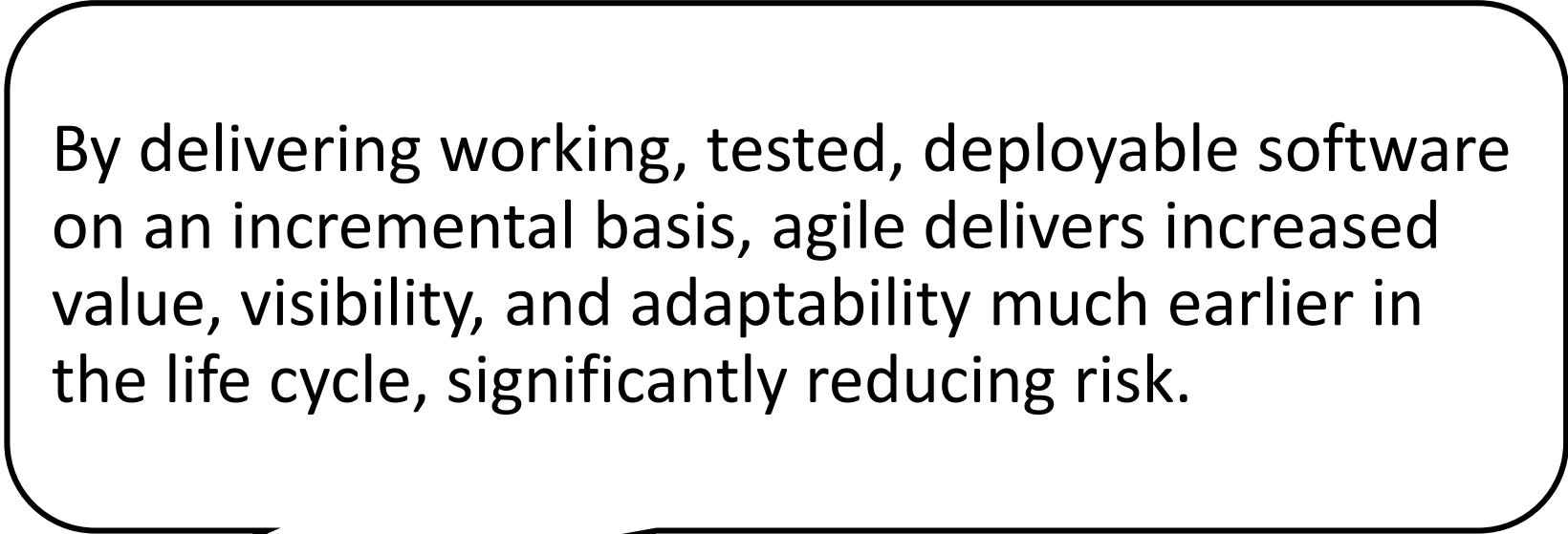
- Satisfy the customer through early and continuous delivery
- Welcome changing requirements
- Deliver working software frequently
- Work together daily
- Support and trust motivated individuals
- Communicate face to face
- Measure progress by working software
- Sustainable development
- Quality work and good design enhances agility
- Simplicity is essential
- Best work comes from self-organising teams
- Reflection and improvement

Agile effects...(in pictures)



Agile
Traditional

Agile effects...(in words)

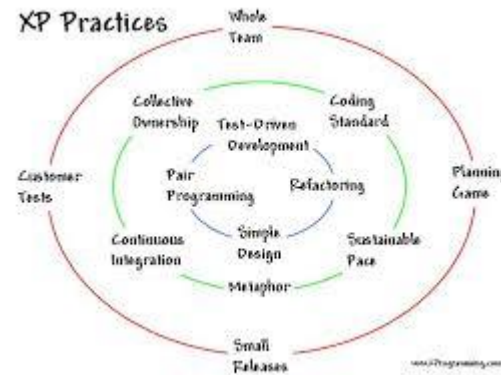


By delivering working, tested, deployable software on an incremental basis, agile delivers increased value, visibility, and adaptability much earlier in the life cycle, significantly reducing risk.

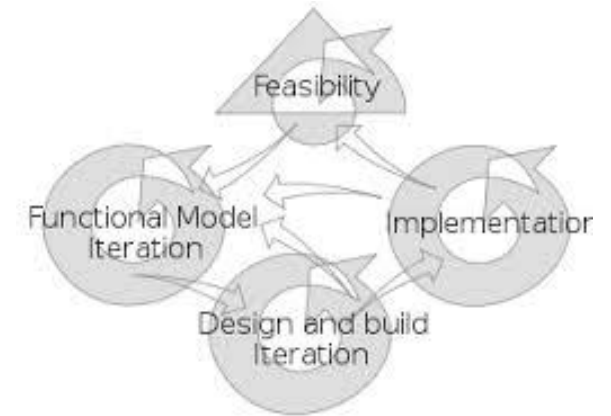
Widely used Agile methods



SCRUM



XP



DSDM

Summary

- Traditional approaches are usually predictive
- Evolution of adaptive methods
- Agile Manifesto and Supporting Principles
- Many approaches claim to be agile



Steve Butler, Ash Brooks and Phill Betts

Agile Development

11.00 today in £72