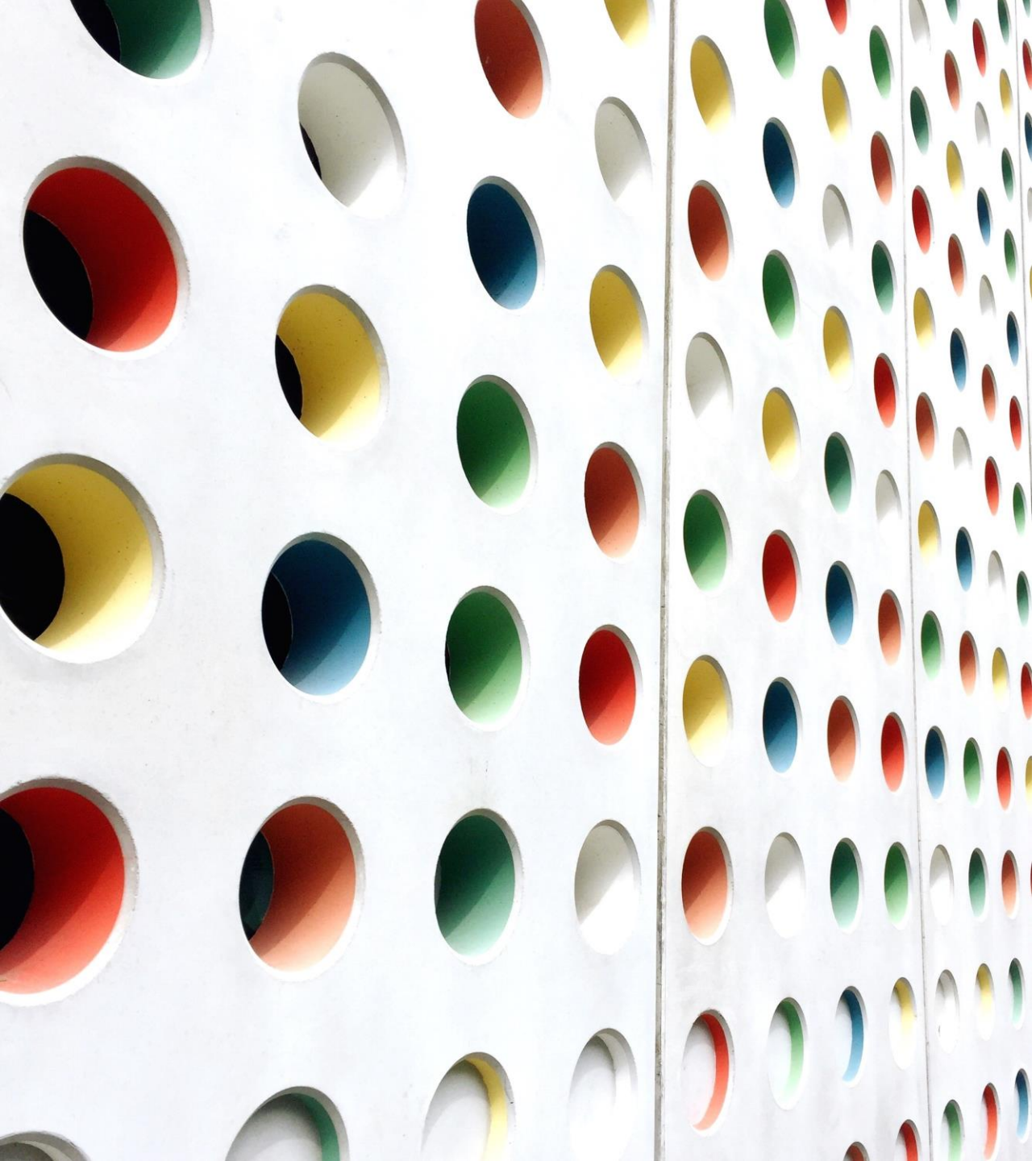
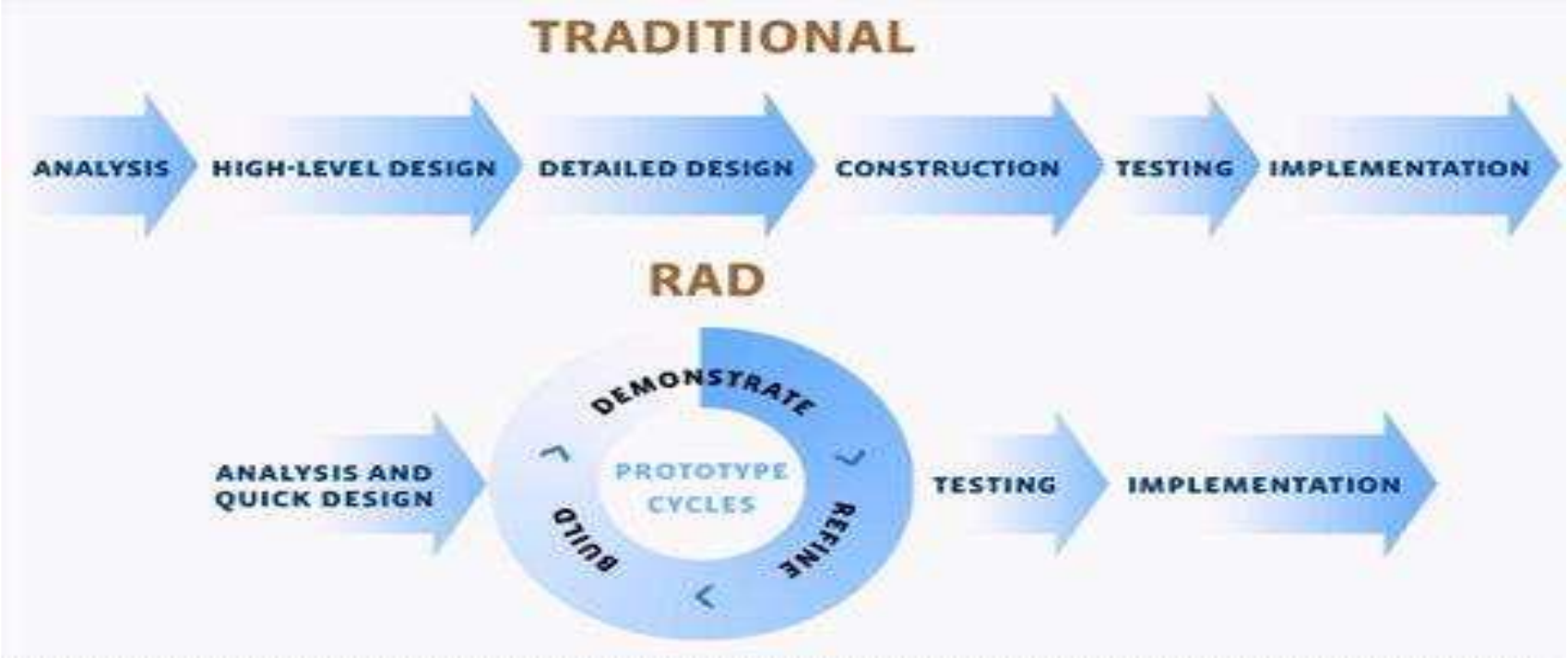


Rapid Application Model

MSE2

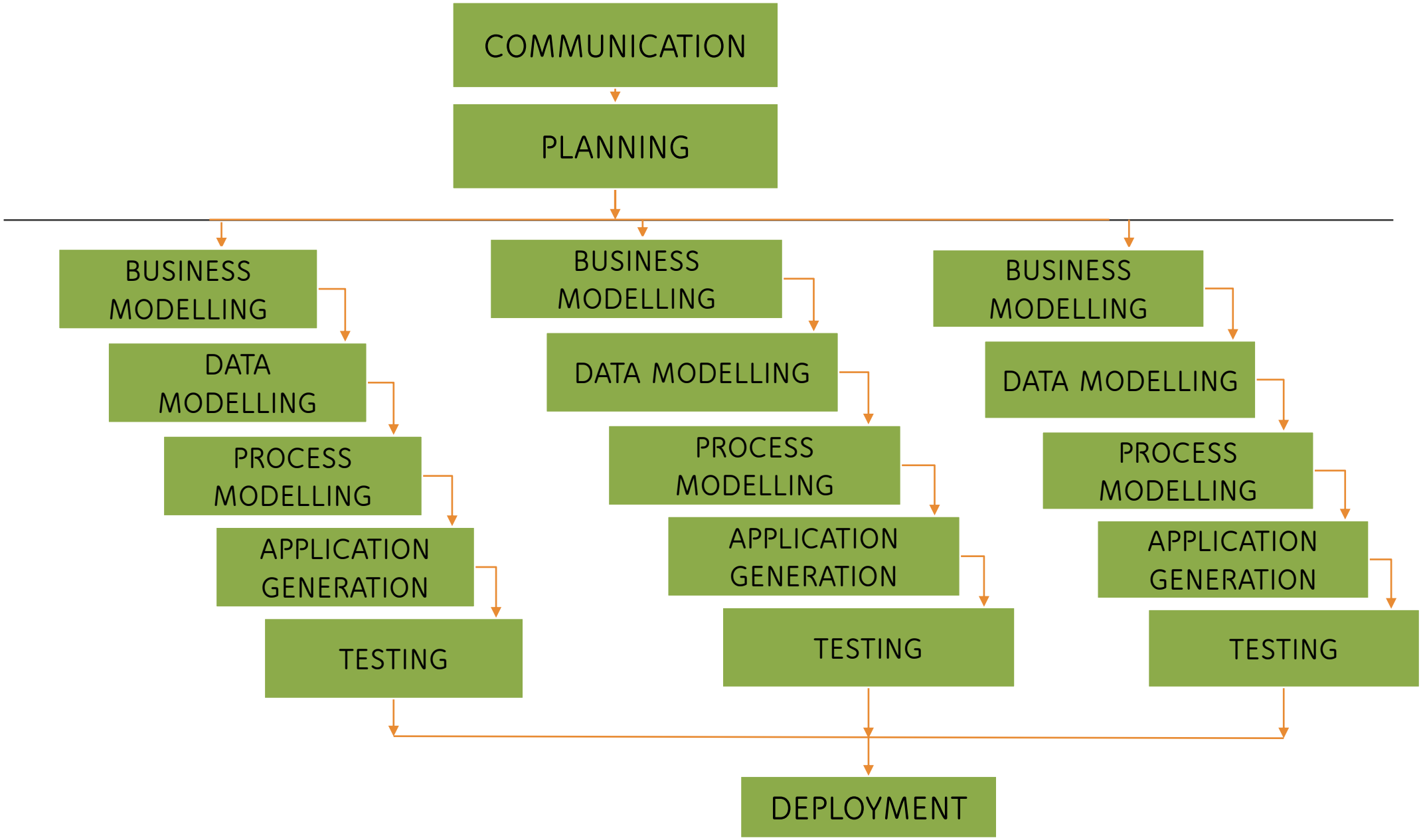
SOFTWARE ENGINEERING I

RAD


TRADITIONAL
ANALYSIS
HIGH-LEVEL DESIGN
DETAILED DESIGN
CONSTRUCTION
TESTING
IMPLEMENTATION
RAD
ANALYSIS AND QUICK DESIGN
DEMONSTRATE
REFINE
BUILD
PROTOTYPE CYCLES
TESTING
IMPLEMENTATION

RAD

- Rapid Application Development is a **lightweight approach** to development. Proposed as a solution to the waterfall model
- Rapid application development is a software development methodology that uses minimal planning in favor of rapid prototyping.
- A prototype is a working model that is functionally equivalent to a component of the product.
- In the RAD model, the functional modules are developed in parallel as prototypes and are integrated to make the complete product for faster product delivery.
- Since there is no detailed preplanning, it makes it easier to incorporate the changes within the development process.


COMMUNICATION
PLANNING
BUSINESS MODELLING
DATA MODELLING
PROCESS MODELLING
APPLICATION GENERATION
TESTING
BUSINESS MODELLING
DATA MODELLING
PROCESS MODELLING
APPLICATION GENERATION
TESTING
BUSINESS MODELLING
DATA MODELLING
PROCESS MODELLING
APPLICATION GENERATION
TESTING
DEPLOYMENT

Communication

- Gathering all the requirements
- End-users and IT staff agree on business needs, project scope, constraints, and system requirements
- This phase ends when the team agree on the key issues and obtain management authorization to continue

Planning

- Involves breaking the s/w into modules
- Assign different modules to particular teams, each team has a leader
- User communication and involvement is required for good understanding

Business Modelling

- The information flow among business functions is defined by answering questions like
  - what data drives the business process?
  - what data is generated?
  - who generates it?
  - where does the information go?
  - who process it? so on.
- End-users and IT staff jointly develop the system processes, inputs, and outputs.
- This needs to be a continuous interactive process that allows End-users to understand, modify, and eventually approve a working model of the system that meets their needs.

Data Modelling

- The data collected from business modeling is refined into a set of data objects (entities) that are needed to support the business.
- The attributes (character of each entity) are identified
- and the relation between these data objects (entities) is defined.

Process Modelling

- The information object defined in the data modeling phase are transformed to achieve the data flow necessary to implement a business function.
- Processing descriptions are created for adding, modifying, deleting, or retrieving a data object.

Application Generation

Automated tools are used to facilitate construction of the software; CASE Tools and even 4th GL techniques.

***A computer-aided software engineering (CASE) tool is a software package that provides support for the design and implementation of information systems

Testing & Deployment

- Many of the programming components will have already been tested since RAD emphasis reuse. This reduces the overall testing time. But the new part must be tested, and all interfaces must be fully exercised.
- Install SW
- Acceptance testing
- Training of the users
- Compared with traditional methods, the entire process is compressed, and as a result, the new system is built, delivered, and placed in operation much sooner

Main features

1. Rapid prototype for quick initial view of the product from the customer
2. Powerful development tools e.g CASE tools- reduces development time
3. User involvement -> increases acceptability of the product

Advantages

- reduced development time compared to other models.
- The approach increases reusability of components
- Quick initial reviews occur
- It encourages customer feedback
- Integration from very beginning solves a lot of integration issues
- Requirement changes can be accommodated

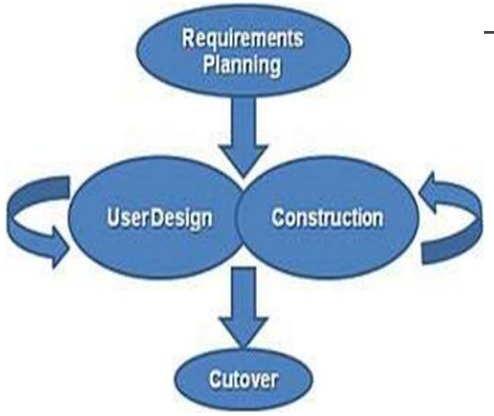
Disadvantages

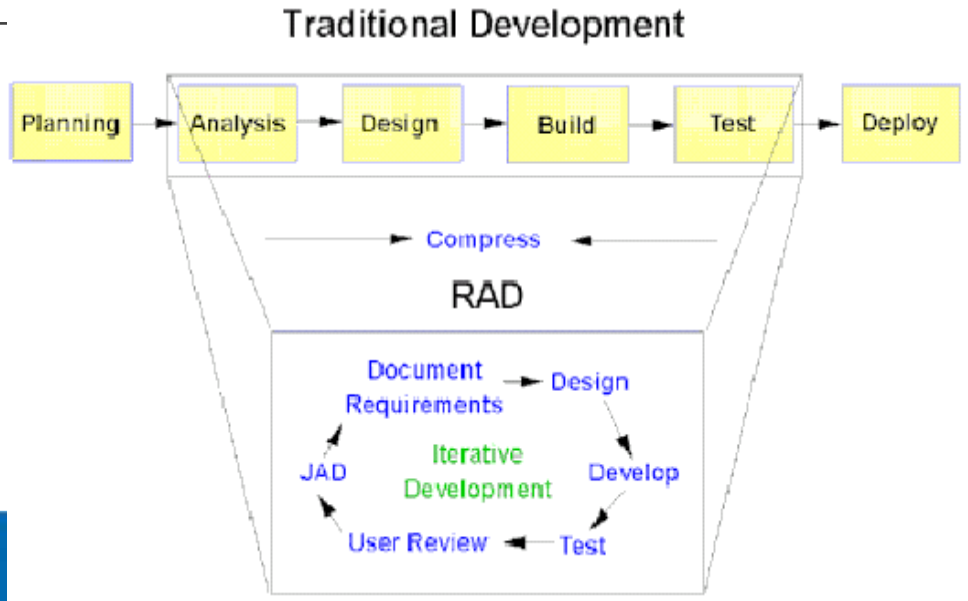
- Depends on strong team and individual performances for identifying business requirements.
- Only system that can be easily modularized can be built using RAD.
- Requires highly skilled developers/designers.
- High dependency on modelling skills.
- Inapplicable to cheaper projects as cost of modelling and automated code generation is very high i.e small projects

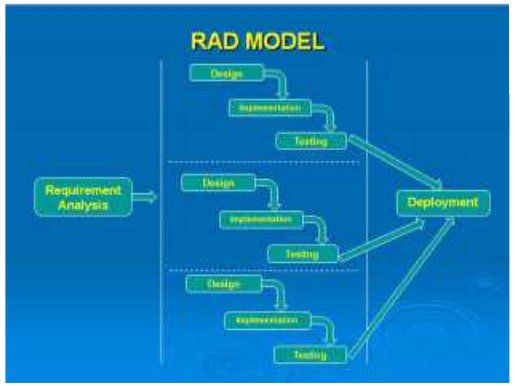
When to Use RAD?

- there’s high availability of designers for modelling
- Reasonably well known requirements
- User involved throughout the life cycle
- Project can be time boxed
- Functionality can be delivered in increments
- budget is high enough to afford the cost along with the cost of automated code generating tools.
- resources with high business knowledge are available and there is a need to produce the system in a short span of time (2-3 months).

Other versions of the model







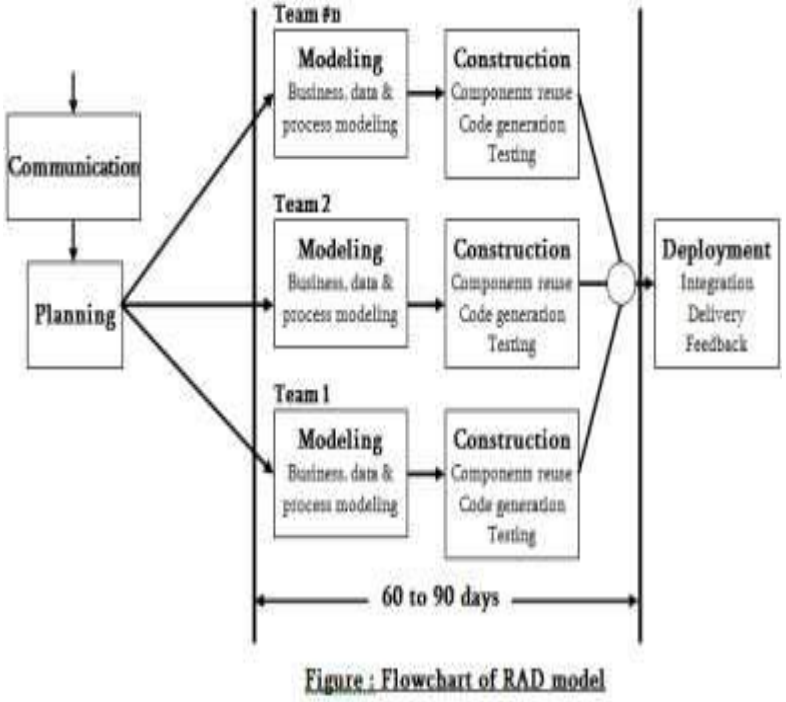


Figure : Flowchart of RAD model