RAD & Time Boxing

RAD Model:

It is a team based technique that speeds up information system development and produces a functioning information system.

Timeboxing Model :

In Timeboxing model, development is done iteratively as in the iterative enhancement model.

RAD

- Rapid application development is a software development methodology that uses minimal planning in favour 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.

- RAD projects follow iterative and incremental model and have small teams comprising of developers, domain experts, customer representatives and other IT resources working progressively on their component or prototype.

- The most important aspect for this model to be successful is to make sure that the prototypes developed are reusable.

RAD Model Design

RAD model distributes the analysis, design, build and test phases into a series of short, iterative development cycles.

Following are the various phases of the RAD Model –

- **Business Modelling**

The business model for the product under development is designed in terms of flow of information and the distribution of information between various business channels.

A complete business analysis is performed to find the vital information for business, how it can be obtained, how and when is the information processed and what are the factors driving successful flow of information.

RAD Model

- **Data Modelling**
  - The information gathered in the Business Modelling phase is reviewed and analysed to form sets of data objects vital for the business.
  - The attributes of all data sets is identified and defined.
  - The relation between these data objects are established and defined in detail in relevance to the business model.

- **Process Modelling**
  - The data object sets defined in the Data Modelling phase are converted to establish the business information flow needed to achieve specific business objectives as per the business model.
  - The process model for any changes or enhancements to the data object sets is defined in this phase.
  - Process descriptions for adding, deleting, retrieving or modifying a data object are given.

RAD Model Design

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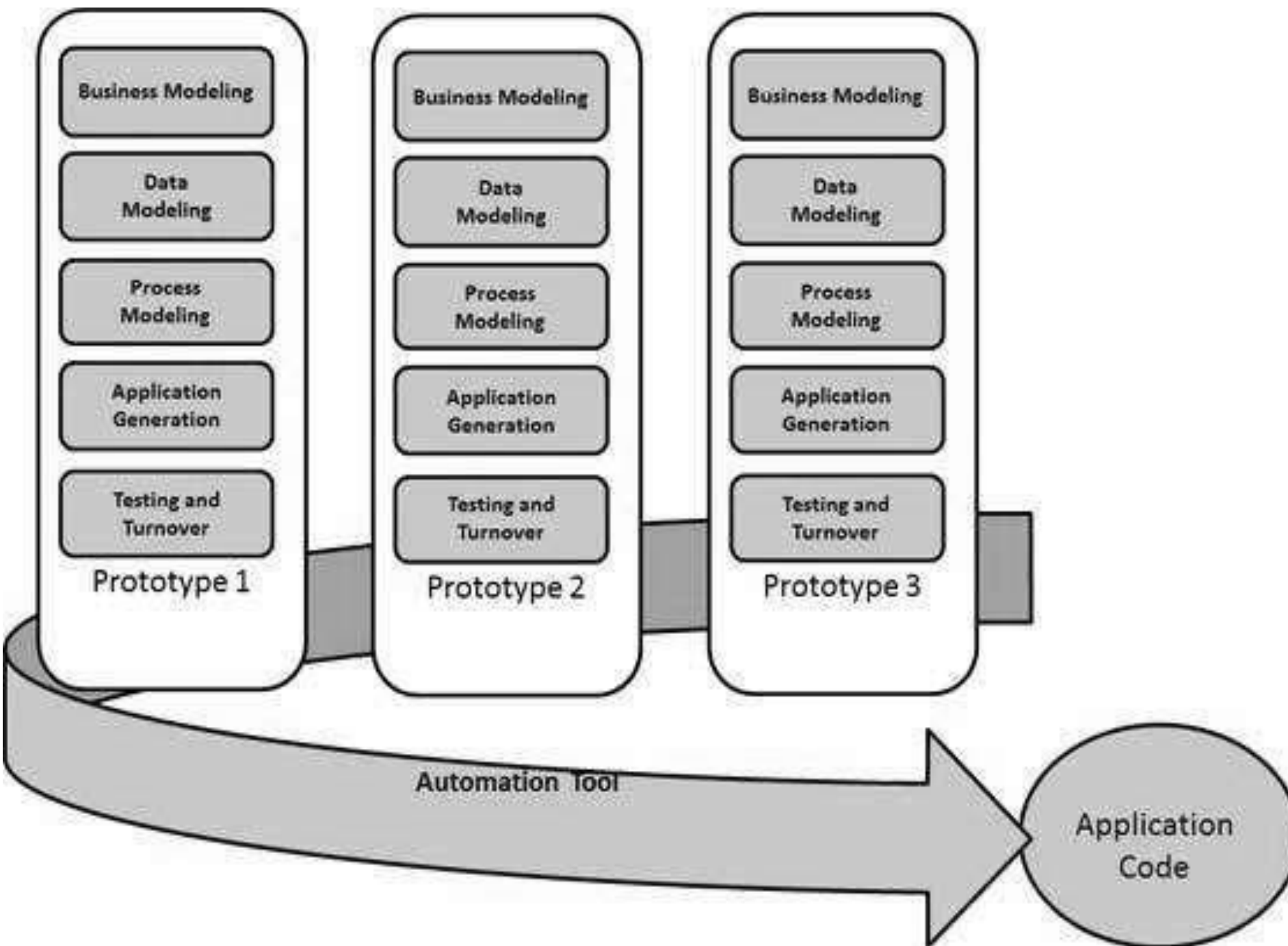- **Application Generation**

  The actual system is built and coding is done by using automation tools to convert process and data models into actual prototypes.

- **Testing and Turnover**

  The overall testing time is reduced in the RAD model as the prototypes are independently tested during every iteration.

  However, the data flow and the interfaces between all the components need to be thoroughly tested with complete test coverage.

  Since most of the programming components have already been tested, it reduces the risk of any major issues.

Prototype 1	Prototype 2	Prototype 3
Business Modeling	Business Modeling	Business Modeling
Data Modeling	Data Modeling	Data Modeling
Process Modeling	Process Modeling	Process Modeling
Application Generation	Application Generation	Application Generation
Testing and Turnover	Testing and Turnover	Testing and Turnover

Automation Tool

Application Code

Time Boxing Model

- In time boxing model, development is done iteratively as in the iterative enhancement model.

- However, in time boxing model, each iteration is done in a timebox of fixed duration.

- The functionality to be developed is adjusted to fit the duration of the timebox.

- Moreover, each timebox is divided into a sequence of fixed stages where each stage performs a clearly defined task (analysis, implementation, and deploy) that can be done independently.

- This model also requires that the time duration of each stage is approximately equal so that pipelining concept is employed to have the reduction in development time and product releases.

Time Boxing Model

- There is a dedicated team for each stage so that the work can be done in pipelining. Thus, stages should be chosen in such a way that each stage perform some logical unit of work that becomes the input for next stage.

- In addition to the advantages of iterative model, time boxing model has some other advantages too. Various advantages and disadvantages associated with timeboxing model are listed in Table.

Time Boxing Model

- **Advantages**

1. Speeds up the development process and shortens the delivery time
2. Well suited to develop projects with a number of features in short time period

- **Disadvantages**

1. Project management becomes more complex.
2. Not suited to projects in which entire development work cannot be divided into multiple iterations of almost, equal duration

Time Boxing Model