Evolutionary Process Model

Evolutionary process model resembles the iterative enhancement model. The same phases are defined for the waterfall model occurs here in a cyclical fashion. This model differs from the iterative enhancement model in the sense that this does not require a useful product at the end of each cycle. In evolutionary development, requirements are implemented by category rather than by priority.

For example, in a simple database application, one cycle might implement the graphical user Interface (GUI), another file manipulation, another queries and another updates. All four cycles must complete before there is a working product available. GUI allows the users to interact with the system, file manipulation allow the data to be saved and retrieved, queries allow user to get out of the system, and updates allows users to put data into the system.

Benefits of Evolutionary Process Model

Use of EVO brings a significant reduction in risk for software projects.

EVO can reduce costs by providing a structured, disciplined avenue for experimentation.

EVO allows the marketing department access to early deliveries, facilitating the development of documentation and demonstration.

Better fit the product to user needs and market requirements.

Manage project risk with the definition of early cycle content.

Uncover key issues early and focus attention appropriately.

Increase the opportunity to hit market windows.

Accelerate sales cycles with early customer exposure.

Increase management visibility of project progress.

Increase product team productivity and motivations.

Characteristics of the Evolutionary Model

There are so many characteristics of using the evolutionary model in our project. These characteristics are as follows.

- We can develop the evolutionary model with the help of an iterative waterfall model of development.
- There are three types of evolutionary models. These are the Iterative model, Incremental model and Spiral model.

- Many primary needs and architectural planning must be done
- to implement the evolutionary model.
- When the new product version is released, it includes the new functionality and some changes in the existing product, which are also released with the latest version.
- This model also permits the developer to change the requirement, and the developer can divide the process into different manageable work modules.
- The development team also have to respond to customer feedback throughout the development process by frequently altering the product, strategy, or process.

Advantages of the Evolutionary Model

There are so many benefits of using the evolutionary model. These benefits are as follows.

- In the evolutionary model, the user can test partially developed software before the release of the final product in the market.
- In this model, we can test the core module, which reduces the chances of errors in the final product.
- We can use this module only for large products.
- We can use this model to develop a software product with some unique features. We can modify these specific features based on customer feedback and many factors throughout development.
- With the help of this evolutionary model, we can get to know the client's requirements during the delivery of different versions of the software.
- After completion of each cycle, the user can access the product.
- Using an evolutionary model removes the requirement to allocate significant resources simultaneously for system development.

Disadvantages of the Evolutionary Model

There are also many disadvantages to using this model. These are as follows.

- It is difficult to divide the problem into functionality units that the user accepts. After receiving the user, this problem should be incrementally implemented, and after that, it should be delivered.
- There will be a chance of being late in the delivery of the final product. There will be a chance that the market can go down due to different customer changes during development.
- In this module, the chances of risk factors are high. There is always a need to report customers continuously.

Comparison of the Evolutionary Model with Other Models

1. Evolutionary Model vs Incremental Model

Evolutionary	Incremental
The requirement of this evolutionary model is not a requirement. The development can be changed according to the development process.	The requirements for this incremental model are precise and based on the development team.
In this evolutionary model, the initial step is understanding the customer's requirements. Also, it involves the development of the core modules and functionality. After completing all the phases, they have to deliver the product to the customer for feedback.	In this incremental model, each module is defined with multiple iterations. We can also add new functionality during the development of the product. After completing all the steps, we have to release the deliverable product.
The activities of the complete cycle are repeated for each new product version.	Each module is developed, tested, and released at various intervals.
In this model, the development time is unknown for the developer. Also, the developer can not track the progress of the software product.	In this model, the development time is known to the developer. Also, the developer can track the progress of the software product.

2. Evolutionary Model vs Iterative Model

Evolutionary Model	Iterative Model
In this model, different modules are released in incremental order before releasing the final product.	It follows the process of the sequential development process. After completion of the development of the software product, it releases the final product.
There will be a chance of delivery of actual product be late.	In this model, the product will be delivered within the time.
In this module, the integration of the module will be complex.	This model makes it much easier to understand and implement the product.
We can use this module only for large products.	It is the most commonly used module in the software industry.

3. Evolutionary Model vs Classical Waterfall Model

Evolutionary Model	Classical Waterfall Model
In this model, we can deal with the different versions of the software.	In this model, we can deal with things according to the things mentioned in the testing manual.
In this model, integration is going to be complicated.	In this model, it is going to be simple to use, understand and implement.
This model accepts customer feedback during the development of the project.	In this model, there is no need for customer feedback.
In this model, we can detect the error in the core module of the project.	In this phase, we can detect the error in every development step.
If we need to add any new functionality, we have to release the latest product, and the existing functionalities may be updated.	After the completion of the development of the final product, we can not add any update to it.

4. Evolutionary Model vs Spiral Model

Evolutionary Model	Spiral Model
In this model, we can develop the software incrementally with the help of different modules.	In this model, all the modules are divided into many loops, further divided into four quadrants.
We can use this module only for large products.	We can use this model to develop technically difficult software products vulnerable to different threats.
In this model, Every version can fully function the mentioned functionalities.	In this module, each model contains a set of activities that the software performs.