

## Associate Software Tester Early In Software Development Life Cycle

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**ABSTRACT:** *In the world, Different software development life cycles have been proposed. These have different motivations, strengths, and weakness. In traditional life cycle models, relationships between different phases of software development life cycle elements are not adequately represented and traced. In traditional life cycle models, one of the phases is related to the testing but used later. This Paper largely focuses on “early use of software testing in software development life cycle” (SDLC). Software testing is a necessity, and an unavoidable part of the software product development process. Like oxygen is necessary for the human beings, in the same way software testing is also essential for the betterment of product. But in practice if software testing activity do early in software development life cycle, then the tremendous change will occur, and end product is much better than the previous one.*

**Key Words:** *Software Development Life Cycle (SDLC), Software Testing (ST),*

**Introduction:** In the world, Different programming advancement life cycles have been proposed, Like Software development life cycle (SDLC), Iterative model, Rapid action development model, V- model, Refined V- model, Fish model, spiral model and many such models etc. These have different motivations, strengths, and weakness. But the traditional life cycle model is used as a reference model among all the stated models. In traditional life cycle models, different phases are there. To do successful work software companies need different people such as Analyst, Software Designer, Software Developer, Software Tester, Data entry operator, and maintenance personal etc.

This Paper largely focuses on “early use of software testing in software development life cycle” (SDLC). Software testing is a necessity, and an unavoidable part of the software product development process. Like oxygen is necessary for the human beings, in the same way software testing is also essential for the betterment of product. In many companies still the testing procedure is done at the end of project that is after all coding is done and software is going to installed at the user environment. But if the testing activity done early in software development life cycle, then the tremendous change will occur. If the testing procedure is not used properly then the product might be worse. And the company knows that Client can stand by something else for programming discharge, yet they could do without to work with surrendered programming. This paper is coordinated in the accompanying manner next centers around earlier work (Literature Review), All significant Findings, Implementation, Conclusion, Acknowledgment, lastly with the References.

**Literature Review:** Mark L. Gillenson, PhD, CCP, October 16, 2006 [1]. The University of Memphis Research Proposal. "Engaging Testers Earlier in the SDLC", have the accompanying perspectives: We accept that product improvement is ripe ground for the utilization of cross-useful groups, with analyzers being necessary individuals from those groups at all progressive phases. An extra commitment will be analyzers considering themselves to be partners in the nature of the completed applications by righteousness of their work all through the SDLC. This will prompt the further advancement of frameworks testing as a perceived and regarded specialty within data frameworks organizations. Finding and fixing these issues early (for example at the prerequisites or configuration stage) will decrease the general gamble and cost of the item [2], this paper focuses on the software inspection approach. Next Paper based on the measuring the software quality during life cycle software development, with the help of improving the ISO 9126 [3]. Author describes the importance of testing throughout software development [4] and further believes that product testability investigation can assume a critical part in measuring the probability that issues are not stowing away in the wake of testing brings about no disappointments for the ongoing variant. How software testing changes its nature in terms of working from organization to organization is stated in this paper. It is prudent to do the testing system from the underlying stages, as to the Software Development Life Cycle or SDLC to stay away from any complexities [5]. Testing continues to represent the single biggest expense related with the advancement of refined, programming escalated, military frameworks. Assuming the idea of testing starts right off the bat in the improvement interaction significant savings can be achieved [6]. The focus of

this paper is to present the first phase of development of decision models that could be used to determine the best uses of software testing resources. The ultimate model could be used to reduce overall costs while applying resources where they provide the greatest value throughout the systems development process[7].

**Findings:** Firstly consider different companies having their work in different domains all over in India including cities like Nagpur, Pune, Mumbai, Bangalore, Hyderabad etc. so that we can cover large disperse area, and the research should not be limited. In this case we considered 25 companies and based on the companies reply able to construct a table.

• **Current Status Of Considered Company**

Sr. No	No. of Companies	Testing Done	Early use of Software Tester in SDLC	Use of Software Tester in the Middle of SDLC	Lateral used of Software Tester in SDLC	No such Testing strategy is used	Remark
1.	09	YES	YES	-	-	-	Agile and Sprint testing is done mostly.
2.	01	YES	-	YES	-	-	Continuous Testing takes place
3.	09	YES	-	-	YES	-	After development testing comes in to play
4.	06	NO	-	-	-	YES	In PHP, SAP & also in dot net environment still testing not done

In our considered companies only 9 companies used software Tester early in the development process. One company uses software Tester in the middle (in this case continuous testing takes place). 9 companies used tester at the end of development, and most importantly 6 companies are still not using the testing strategy (these companies having domain such as PHP, SAP, and Dot Net Environment). To reach up to the depth we consider some major questions and depend on company reply try to understand the basic stated concept.

Que. A) **If the company agrees on using tester early then which new technique or strategy used. If no then also states your strategy.**

Ans: Company reply is stated in the following table

Sr. No	Number of Companies Considered	Views
1	06	Simple Strategy
2	03	Agile methodology
3	03	Not sure
4	01	No idea
5	02	No reply

Most of the companies (06) do their work in the simple basis i.e. finding the bugs as early as possible in the development process. Most companies (03) used the agile methodology to fulfill the requirements of user. Many companies (03) change their tactics as per the user requirements. (01) Company is having no idea about this since in the same company no testing method is used. (02) Companies not reveal the data.

Que. B) **what are the advantages of using software tester early in software development?**

Ans: Many advantages are observed if used software tester early in development process. Following advantages are mentioned based on the companies reply.

- 1) Not 100 percent but close to 100 percent bug free program as each unit is bug free from the beginning. Software will be more accurate with high performance.
- 2) If we did test early It prevent Risk factor like , time delivery , issue and bug Quickly identity, so it will not impact on later stage , and save time and cost

3) It did helpful to you at the time of closing requirement, ability to catch the client expectation and real time development.

4) 1) Help to meet deadline

2) Avoid client side issue

5) Regression testing is somewhat reduced.

6) It will be useful to avoid rework

7) Due to quick finding of problems maintenance phase might be reduced as well.

Besides the company reply following are some major advantages seen during the research.

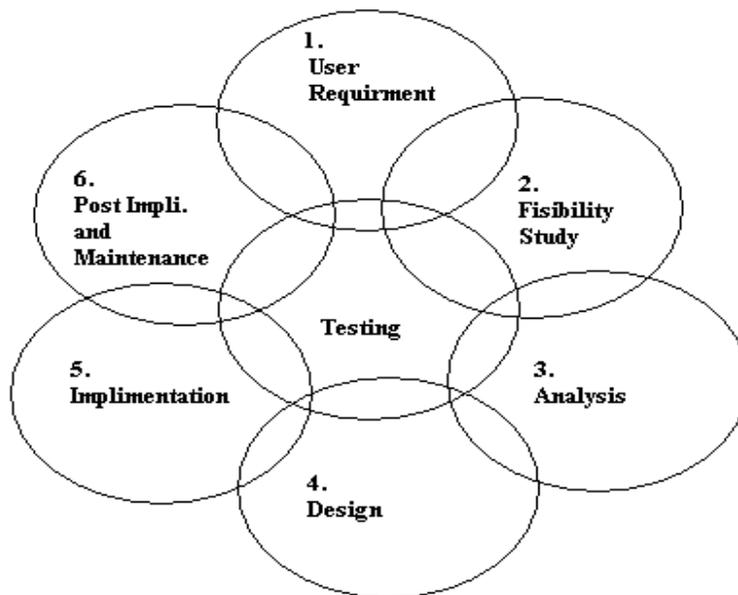
- Tester must know the user requirements.
- In the development phase tester should be able to see the code.
- Also suggest some innovative ideas in the development stage.
- The development team sees the tester as a trusting partner in the development process.
- Analyzer can without much of a stretch recognize absent and inadequate utilitarian prerequisite.
- Programming specialists and analysts have noticed (and estimated) that the previous deformities are found in the product life cycle the simpler and less expensive they are to fix.
- By utilizing thorough testing approach, programming analyzer can turn the negative gamble of significant business misfortune in to a positive upper hand. Tester has an ability to find the simplest solution first.

Que. C) **Is there any disadvantages of using tester early.**

Ans: Since every coin has a two phases, this strategy also not different from the same. At this point all the companies reveal the data and most importantly some suggestions also coming while considering the reply.

Sr. No	Companies Considered	Suggestion/ major Disadvantages
1.	15 companies	1) Product based companies used to prefer software testing early, but in service based companies cost & delivery matters. 2) Tester need to assign work for this in advanced & if project duration is so long, then there is no grantee that the same tester will be appointed on the same project. 3) If apply the above strategy then extra burden/pressure will be on the tester. It might affect the quality of the end product.

**Implementation:** Depending on the mentioned methodology, a new model is introduced, which totally based on the same concept of having the software tester used early in development life cycle. Following diagram shows the same.



**Fig. Testing involves in all stages of SDLC**

In the above diagram, the intention is to use software tester in every field, the reason is that after completion of every phase if testing is done, the amount of bug found can be easily sorted out and corrected as early as possible, and we can defiantly say that previous phased outcome is approximately bug free before going to the next phase. In the same way if testing involves in every phase, the bug found ratio considering final product going to be very less.

**Conclusion:** In traditional software development system, Software testing is considered late in the project. So that many bugs are involved in the project. And considering today's mentality "the customer can onetime manage with the late delivery of the software product but can't compromise with the quality of product". So by considering human tendency if used the new technique i.e. used software testers early in development process, it will definitely help to improve the quality of product and also able to reduced cost and time of the project as well. This not only help the customer in case of achieving the software in time with approximately less number of bugs but it will also makes feel happy for the software providers since they minimize the budget of the project and confident about fulfilling users requirements.

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