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Comparative Study of CBA and User in Waterfall Model for Cost Effective Software

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Abstract

The main aim of CBA and user is to show how the cost of software can be reduced so that the software can be developed in more quicker and easy way.CBA helps us to determine the precost of the software and user helps us to find out how the cost can be reducd by placing the user in different models of the software.The CBA role is important as it guides the development industry
How to find the estimate cost of the project and should they take up the project in desire cost which is decided.Therefore the major role of CBA is to decide ,should the project be taken in hand or not.The user role in waterfall model plays a vital role in reducing the cost of project in different perspective.The user helps to find the cost of the project from time point of view.It reduces the analysis cost which in turn reduces the time cost and more quick and easy way to collect the data.During the designing phase the user participates in the designing which again reduces the time cost.In testing phase the user helps the tester to suggest the look and feel view of the input and output screen.The implementation phase has a huge cost of training which can be reduced so that the user participation is necessary in different phases of waterfall model.

Introduction:

Cost Benefit Analysis (CBA) is an economic assessment tool. By quantifying all costs and benefits in monetary terms, and discounting, it is possible to determine the net benefits (or costs) of a proposal in today's dollars. These net benefits/costs can then be used to quantitatively rank alternative proposals:
between a given proposal and the status quo, orbetween competing proposals.

Decision-makers can be provided with a consistent basis for assessing proposals and can be better informed about the implications of using economic resources. CBA can also be used to test the effectiveness of a proposal after it has been implemented..

The waterfall model is a popular version of the systems development life cycle model for software engineering. Often considered the classic approach to the systems development life cycle, the waterfall model describes a development method that is linear and sequential. Waterfall development has distinct goals for each phase of development. Imagine a waterfall on the cliff of a steep mountain. Once the water has flowed over the edge of the cliff and has begun its journey down the side of the mountain, it cannot turn back. It is the same with waterfall development. Once a phase of development is completed, the development proceeds to the next phase and there is no turning back.

Structured Analysis :

It is the representation of the system in terms of data and the processes that act upon the data. The system development is organized into phases, with deliverables and milestones to measure progress. The Systems Development Life Cycle (SDLC) waterfall model typically consists of five phases. Iteration is possible among phases. Although structured analysis evolved many years ago, it remains a popular systems development method. Structured analysis is based on an overall plan, similar to a blueprint for constructing a building, so it is called a predictive approach.
Five step process:

Systems Planning: -This is probably the most important step since it is the start of the project and will include every detail. The systems planning phase usually begins with a formal request to the IT department, called systems request, which describes problems or desired changes in an information system or a business process. The purpose of this phase is to perform a preliminary investigation to evaluate an IT related business opportunity or problem. The preliminary examination is a critical step because the outcome will affect the entire development process. A key part of the preliminary investigation is a feasibility study that reviews anticipated costs and benefits and recommends a course of action based on operational, technical, economic, and time factors.

Systems Analysis:-The purpose of this phase is to build a logical model of the new system. The first step requirements modeling, where you investigate business processes and document what the new system must do to satisfy users. Requirements modeling continues the investigation that began during the systems planning phase. The deliverable for the systems analysis phase is the system requirements document. The system requirements document describes management and user requirements, costs and benefits, and outlines alternative development strategies.

Systems Design:- The purpose of this phase is to create a physical model that will satisfy all documented requirements for the system. At this stage, you design the user interface and identify necessary outputs, inputs, processes, internal and external controls, computer based and manual features to guarantee that the system will be reliable, accurate, maintainable, and secure. The deliverable for this phase is the system design specification, which presented to management and users for review and approval. Management and user involvement is critical to avoid any misunderstanding about what the new system will do, how it will do it, and what it will cost.

Systems Implementation:- The objective of this phase is to deliver a completely functioning and documented information system. During this stage, the new system is constructed. If the system was purchased as a package, systems analysts configure the software and perform any necessary modifications. At the conclusion of this phase, the system is ready to use. Final preparations include converting data to the new system's files, training users, and performing the actual transition to the new system. This phase also includes an assessment, called a systems evaluation, to determine whether the system operates properly and if costs and benefits are within expectations.

Systems Support and Security:- During this phase the IT staff maintains , enhances, and protects the system. Maintenance changes correct errors and adapt to changes in the environment, such as tax rates. Enhancements provide new features and benefits. The objective during this phase is to maximize return on the IT investment. A well-designed system must be secure, reliable, maintainable, and scalable. A scalable design can expand to meet new business requirements and volumes. Information systems development is always a work in progress. Business processes change rapidly, and most information systems need to be updated significantly or replaced after several years.

Evaluation Technique:-

The cost of the project can be reduced by the participation of user in different phases of the model. The below table shown indicates the involvement of user in different phases of proposed technique.

Participation of the User in the phases

Phases	**Existing technique**	**Proposed Technique (Participation of user)**
Preliminary investigation	User is Participation	As per the current role
Requirement Analysis	User not Participation	NIL
System design	User not Participation	NIL
System Coding	User not Participation	NIL
System testing	User not Participation	**User participation**
Implementation&Evaluation	User not Participation	**User participation**
Maintenance	User not Participation	**User participation**

Conclusion:

The cost of developing the website or any software can found easily with the waterfall model.The waterfall model helps to find the cost which will be encoured by the project in various phases.The cost per phase is sum up first and then calculated with real coast and finally the difference is calculated which shows the total cost needed for developing the software.It also helps to find out the area where the cost can be reduced (extra cost) which helps the team to develop a cost effective software.When the area is defined by the CBA for cost effectivness than the management can take necessary action to reduced the cost

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