

# Software Project Management and Cost Estimation Model

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**Abstract**— Software Cost Estimation is a forecast of the cost of the sources that will be expected to complete the majority of the work of the application project. Software has a terrible ubiquity about value assessment. Enormous software undertakings have kept up to have an exceptionally awesome consistency of routine overwhelms, value invades, incredible quality issues, and general retractions. Rather than it awful reputation, it is important that some extensive software assignments are finished on time, remain within their costs, and capacity proficiently when executed. As of now another making of use methodology and items is changing the way organizations develop application. The new methods – transformative, threat motivated and collaborative application processes; fourth creation distinctive languages and application generators; Commercial off the display (COTD) and reusing roused application methodologies; accelerate database integration approaches; application adulthood projects – lead to critical profit regarding enhanced application quality and reduced application cost, hazard and process duration. In this Paper, we proposed ACEM: Advanced cost estimation model to enhance the risk identification, cost control, asset and time management.

**Keywords**— Software Cost Estimation, Risk identification, Cost control, Resource Management, Time Management.

## I. INTRODUCTION

To understand the software, (and at last an understanding of software building) it is basic to assess the ordinary for software that make it one of a kind in connection to distinctive things that humans develop [7][3]. Exactly when gear is gathered the human creative methodology (analysis,

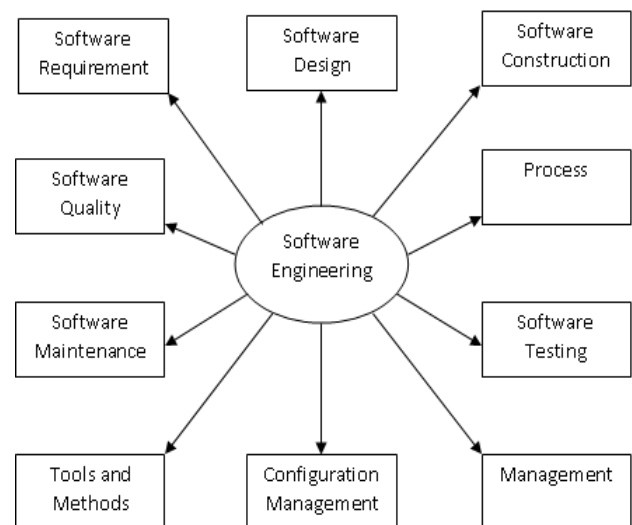


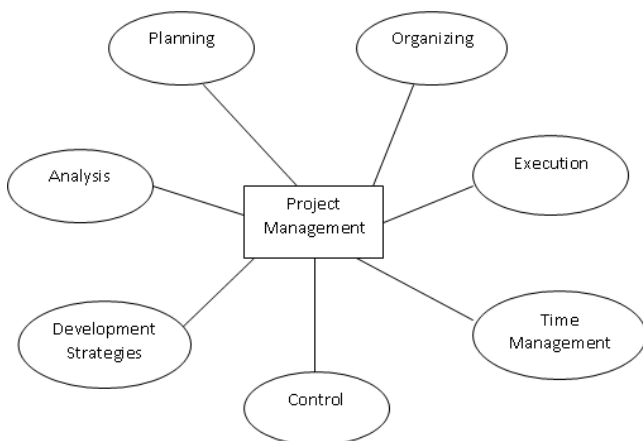
Fig. 1 Software architecture with processing of all components plan, and development) is in the long run deciphered into a physical structure. In case we build an alternate machine our beginning depictions formal framework drawings and bread sheets models advance into a physical thing (VLSI chips, circuit sheets, power supplies etc).

Writing computer programs is an authentic instead of a physical structure segment [6]. Writing computer programs is made or designed; it is not created in the traditional sense. But

a couple of similarities exist between software progression and equipment create the two activities are in an extensive manner different.

In both activities high caliber is proficient through incredible layout however the collecting stage for hardware can exhibit quality issues that are nonexistent (or adequately balanced) for software. Both activities depend on upon people however the relationship between people associated and work completed is completely differing. Being developed of software in software application methodology, consider four concepts in application development, they for the most part center after things successfully, Cost decrease for application development, time administration for application development, hazard space in software procedure advancement process execution with consistence process. In this paper we propose develop efficient and effective cost and other process development model ACEM, this application may work like COCOMO and COINCOMO and other recent software application development feature process [8][9]. The features behind this segments might be as follows: The challenges of the business focus are met by thing specialists in two courses: development of imaginative items and lessening item costs. Cost diminishment alone is not a substitute for advancement. Expense situated item development is systematical designing work, which requires an interdisciplinary approach, and needs to be proficient and compelling. The costs that are of eagerness here are those thought about by the things [5].

Effective danger ID is the initiating condition of the other risk organization activities, and hence supporting the threat recognizing evidence stage is especially valuable. Consider the meaning of the Plutt hazard administration is the methodology of other duty diagrams with continuous application process, which contains effective and powerful information fathoming in application preparing in late movement. Hazard administration is the methodology of lessening and minimizing the control of likelihood and negative/positive event of the application advancement in



software proficient courses of action with duty and different features in relative information precision [12][16]. Various affiliations have been faced with months of cost cutting and expecting to achieve more with less, setting further demands

on an adequately developed workforce. As the early shoots of advancement start showing up, affiliations may look to extending their benefit, broadening pros significantly further. Undertaking based association's comprehend the essentialness of passing on endeavors on time and to plan as their benefit and even survival depend on upon this. An essential issue in the productive transport of endeavors is powerful time administration. With the stipulations of cost cutting and diminished workforces and moreover the challenges of extending benefit, an affiliation's strategy to time organization needs to be more strategic [13][14].

The rest of this paper we portray as follows: In section II, depict existing methodologies for software application development may attain to important. Section III, depicts research approach in application development methods. Also in section IV, depict the developed strategy with detailed

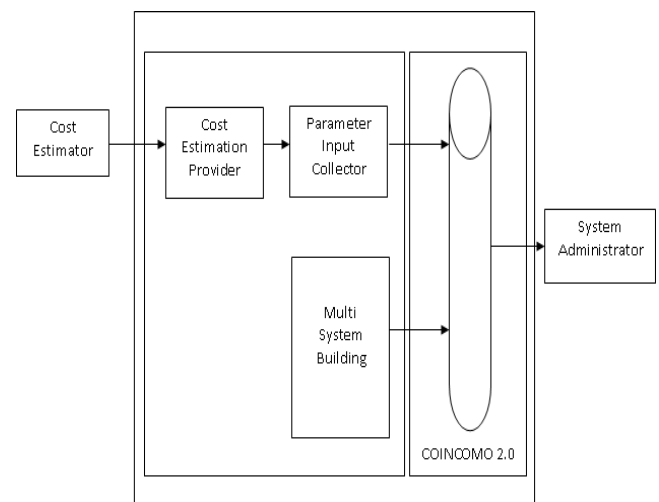


Fig. 3 Primary execution process on the COCOMO input and output feature processing.

II. BACKGROUND APPROACH

Numerous techniques were created for software development and efficiency with relative information terminology. COINCOMO is the procedure for effective representation of the multi platform software cost estimation tool which provides and estimates Inception, Elaboration, Construction and Transition Phases which incorporates multi software application assemble and packages of the project development [1]. These features are relatively development of cost estimation and commitment schemas which comprises relative and other feature processing in application development and software process.

COINCOMO 2.0 adaptation was utilized for developing applications as a part of constant handling and era programs which incorporate the whole useful expense model of software

development device. In development, COINCOMO must 1) sweeping all item change activities included in diverse, full win Software Development Spirals, every one conveying field-competent software; besides 2) suit the various (from differing affiliations), creates (on the other hand transports) and frameworks [14][17]. This apparatus will likewise bolster estimation of individual and numerous forms of single sub framework transforming application occasions. In the wake of doing these details adequately in the continuous application transforming last results will cover the comma differentiated qualities that displays and give ongoing results with preparing of occasions. For compelling assessment of the product application preparing occasions may attain to continuous software application development so the better framework is needed for powerful information representation.

III. ADVANCED APPROACH

In this section we describe effective and efficient cost estimation process in software application development with pertinent features utilizing information sets display as a part of the item advancement. In this paper we propose to create ACEM (Advanced Cost Estimation Model) for getting to administrations of the product application development, furthermore we consider information preparing in item advancement in software applications. Utilizing ACEM we present to create cost estimation and control, Time administration in software application transforming occasions, and we likewise consider risks show in software application advancement.

Our strategy to risk ID, presented in the resulting regions, is depicted by the copying idiosyncrasies: Unequivocal exhibiting of software methodology to control the degree of peril ID, Utilizing threat cases to recognize potential risk variables [12][18]. Appraisals have a blended pack of suggestions and levels of accuracy depending upon the association in which they are made. Taking after an individual or bunch's execution is vital in ensuring they are passing on what was organized and to a pleasing level. Execution data amassed through your electronic timesheets could be used to review solitary presentations and surety that perfect staffing costs are kept up through effective resource masterminding. Execution data aggregated through your electronic timesheets could be used to review solitary displays and surety that perfect staffing costs are kept up through fruitful resource masterminding.

IV. PERFORMANCE EVALUATION

In this segment we present to create ACEM application edge work for application development, in this casing work every feature put an alternate part in software application advancement, we process singular application development [10]. The advancement will transform as follows:

Improving Project Cost Estimation:

The methodology of estimation procedure of the application development may accomplish sufficient and relative item discharge to different sides show in the features determination process. This area comprises taking after ventures for debasing cost progressively software application development.

A. Preliminary versus Final Estimates; Project Budget versus Project Estimate

Evaluations have a mixture of implications and levels of precision relying upon the connection in which they are created.

- a. Preliminary evaluations focused around layout extent of work and on unrefined general unit costs e.g. normal rates for every kilometre of motorway. Such gauges are "Ball Park" no one but and can't be depended on. Correctness level +/- half.
- b. Somewhat more faultless assessments focused around preparatory studies. Exactness level +/-

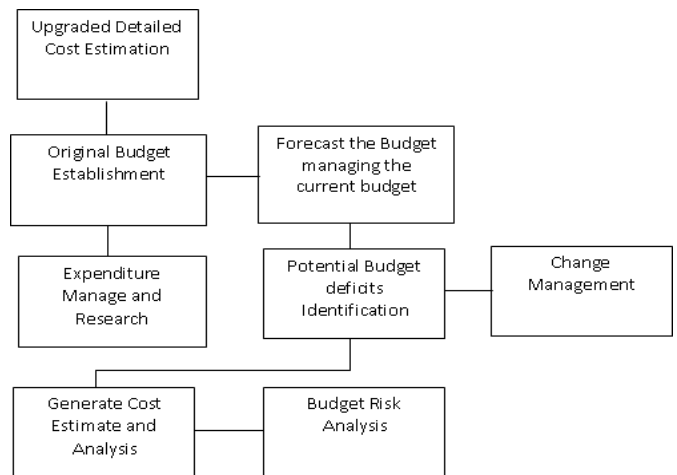


Fig. 4 The development strategy of cost estimation and control in 40%

- c. Estimates focused around definite reviews and broad site examinations. Exactness level +/- 30%
- d. Estimates based a definite extent of works and on delicate costs got. Exactness level +/- 15%
- e. Estimates focused around the most exceptional data accessible amid the course of development. Exactness level +/- 7.5%.

There are numerous cases of foundation ventures where early cost assessments were constrained in nature and did not

contain all last cost components e.g. VAT, expert charges, administration and authoritative charges, gear, furniture and installations, statutory charges and so forth.

### B. Improving Project Cost Control

Where commitments in regards to either cost estimation or endeavour cost control are apportioned or not unmistakably characterized there is more unmistakable potential for disorder, errors and cost invades [15][16]. It is indispensable that the Project Manager is doled out the vital force and resources. This may incorporate force with recommendations for different adjacent forces and associations.

Utilization of complete systematized endeavour organization structures will promise the smooth running of concurrence with minimum shocks for Client and foreman and a more noticeable believability that the endeavour will be passed on time and to plan. It is fundamental that any inquiries which rise appropriately are dead set quickly to stay far from the peril of deferrals and further cost extension. Mollification can potentially give a determination to the inquiry qualified to both social affairs, snappier and less extravagant than intercession as there are no honest to goodness agents/costs included.

### C. Risk Identification

To accept our methodology observationally, we have completed a trial [8][9]. The examination incorporated one of the threats recognizing verification plans open straightforwardly, particularly Steve McConnell's 'Done List of Schedule Risks'. The rule eventual outcomes of the examination were procured from steps 3 and 5, however each phase is as follow:

*Step 1:* In this step we explicitly portrayed a kind of covered model of the progression procedure suggested by McConnell's peril parts. We have delineated the model the extent that our meta-model. Because of space impediments we can't exhibit this model here. Rather, in Table 1 we give the rundown of its complexity experiment brought some fascinating comes about that might be accounted for independently.

Table 1 Statistics of the process model extracted from the McConnell's checklist

Model Element	Count	Remarks
Role	15	2 levels of details
Activity	25	4 levels of details
Artifact	20	4 levels of details
Practice	31	For 11 activities

*Step 2:* In step 2, applying our threat outlines, we renamed

the perils adequately display in the plan. This step may appear purposeless as it uses the data removed from the very agenda to remake it back.

*Step 3:* In this step we recognized some additional timetable threats rejected in McConnell's plan. In this step we centered just on the methodology model recognized in Step 1 without amplifying it by any new territories that would suggest new classes of dangers All the perils perceived in this step were by then show the entire time model used inexplicitly by McConnell yet were ignored in his motivation.

*Step 4:* In this step, we added some sample new components to McConnell's procedure model. Those expansions were pushed by RUP. We included new practices, contrivances and capacities to authoritatively portrayed activities, trinkets and parts and moreover to as of late exhibited model segments.

*Step 5:* In this step we perceived some timetable threat parts concerning new regions of the item wander. It merits indicating that the new peril components did not differentiate in purpose of enthusiasm from the ones formally reported by Steve McConnell.

Finally, we can indicate a rundown of 17 proposed practices for the "Undertaking" activity expelled from Steve McConnell's plan as an extra result of the examination. The practices join, for occasion:

1. Avoid excessive timetable weight,
2. Acquire assistance from end customers,
3. Maintain incredible associations amidst designers and organization,
4. Resolve conflicts between associates,
5. Adhere to software methodologies and standards,

We then described a complete arrangement of peril unmistakable evidence cases that mirror the flights from the recommendations included in the delineation of RUP. Those threat cases can then be associated with a concrete software change show that is imparted in the RUP terms to perceive potential risks that are inherent in this model.

### D. Time Management

A late study by Aberdeen Group2 demonstrates the top 'venture particular' weights for undertaking based associations are:

- Keeping the amount of endeavours sensible
- Utilizing resources cunningly

The ability to regulate endeavour booking and equality resource workload are both fundamental parts to improving undertaking profit [17][18]. To vanquish these issues, those affiliations that are arranged as best-in-class are utilizing the

going with undertaking level organization instruments: Venture execution is needy in the wake of getting the balance right, which is immensely supported through vital time organization and made intense through the use of huge business level assignment organization mechanical assemblies.

Key time organization can pass on various benefits from upgrading your rate of productive errand movement, keeping up high competency levels, improving staff soul, decreasing operational costs and growing advantages.

## V. CONCLUSION

As consider the development of the above courses of action we characterize taking after things viably. In this paper we propose to create ACEM (Advanced Cost Estimation Model) for accessing services of the software application development, furthermore we consider information processing in product development in software applications. Utilizing ACEM we present to create cost estimation and control, Time administration in software application transforming occasions, and we additionally consider risks show in software application development. In section IV we depict individual module application process which supports excellent and efficient processing management operational events in software product development features. Our test results show productive and commutative information results for application development.

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