

# Chapter 11

## Summary and Conclusion

### 11.1 Summary of Work

History of any subject let us know the archived knowledge of the subject and its matter. Hence, at the beginning to know and understand the origin and its significance we have presented the history of software engineering in the chronological order of evolution and some modern trends in this field.

As this work is specifically focused on the Software Development Life Cycle (SDLC) Model, some of the existing and well known software development models with their origin, advantages, limitations and suitability from industrial perspectives are also presented.

We discussed the general methodologies used for software engineering research. Here, we have also mentioned and justified that our work is based on the applied research methodology where we undertook to solve some issues related to software crisis following a typical process model– named BRIDGE (62).

We have also explored the importance and contribution of Component Based Software Development (CBSD) as a tool to alleviate software crisis.

The different desired characteristics of any process model are also investigated, identified and presented.

Then, the BRIDGE life cycle process model is presented. Agile Software development philosophy is relatively young in this era. Some principles of agile is contradictory with the traditional development principles. Further, we have established that the agile philosophy may also be achieved following the BRIDGE process model.

Next, the different reasons attributing to software project failure are pointed out in this work with their remedial through BRIDGE process model .

The comparative analysis of the BRIDGE process model with some other existing models are made and presented.

A case study of the design and development of SRS BUILDER 1.0, a CASE tool following the BRIDGE process model is also presented.

We conclude by recommending the BRIDGE software development life cycle process model to be followed and practiced for any types of software development projects by different software development organizations to gain project success rate.

## 11.2 Concluding Remarks

An important initial step in addressing software problems is to treat the entire development process as a performable, controllable, measurable and improved process as a sequence of tasks that will produce the desired result. Any fully effective software process must consider the interrelationships of all the required tasks, tools and methods, skills, training and motivation of the people involved. At the same time, an ideal SDLC process implementation should be quicker, cost effective and easy to implement and follow. It should also be stakeholder and project team friendly. A process model should also address the top challenges experienced by project managers. These days, Component Based Software Development (CBSD) approach has been successful to provide significant contribution in alleviating the software crisis, but rarely any process model directly promotes this approach.

The primary objective behind developing BRIDGE process model was to consider the above issues and are addressed efficiently. It is shown that the philosophy of agile may also be achieved through the BRIDGE process model following the principle of traditional software development too. It is also observed that, many of the project failure reasons may be alleviated by following BRIDGE process model. This model have excellent adaptability, process tailoring support and also promotes the usage of CASE tools. The comparative study shows that the BRIDGE process model has several competitive advantages over the other existing well known process models. If the BRIDGE model is followed to any software development project, most of the software crisis may be overcome up to great extent delivering the fully functional system with better quality within time and budget achieving the true goal of any software project development.

It is concluded that the BRIDGE software development life cycle process model may be followed and practiced for any types of software development projects by different

software development organizations to gain project success rate.

### **11.3 Future Work**

A number of necessary or potentially fruitful further areas of research were identified whilst conducting the work described in this thesis. Progress in these areas would enhance the quality and productivity of software development while decreasing the total product cost.

In this work we have identified and enlisted the desired characteristics from any process model irrespective of their degree of importance. In future, we shall investigate the significance and importance of the individual characteristics of the SDLC process model and shall prioritize them accordingly towards developing process metric. Following such process metrics, one may choose the suitable process model for any project which shall provide optimal solution and address other common issues related to process models.

We are implementing several instances of sample projects following BRIDGE and different other models individually by different teams to perform practical experimental comparative analysis. During the experiment we shall refine the BRIDGE model if necessary to make this model the best suitable for the industry usage. In near future we would also like to validate the result of the theoretical comparative analysis by means of practical experimental statistical results by collaborating with some industries to implementation and follow up its performances in real project development.