

RAC #1

Managing the Development of Large Software Systems

In the article, “Managing the Development of Large Software Systems” by Dr. Winston Royce discusses software development on a larger scale. This paper was published on August of 1970 in Proceedings IEEE WESCON and was motivated by software package development for spacecraft mission planning, commanding and post-flight analysis. Royce illustrates that there are two main steps, analysis and coding in regards to developing the actual software. Royce defines the term analysis as a very simple implementation concept which is required if the effort is sufficiently small. The role of the program designer then would be to construct analyst of the storage, timing, and operational constraints so that the two can work together equally to deliver a well balanced product. Here both the designer and the analyst bring important tasks to the table and their efforts are both equally recognized.

Royce also calls for extensive documentation because management of software is simply impossible without a very high degree of documentation. Royce mentions how important documentation is in the entire article. He says it is important because “an acceptable written description forces the designer to take an unequivocal position and provide tangible evidence of completion”. The designer is then able to have a verbal and written record and is able to see a proper set of what is to be done. This shows that the quality of the documentation is equally important because if the documentation is bad the design ends up turning bad as said in the article. Respectively, if the documentation does not yet exist there is as yet no design. Good documentation allows for the design later to be updated easily.

From my understanding, Royce feels that the Waterfall Method can be unsuccessful. He is uncertain about this method but understands that the concept is good. The implementation of the method can be risky and lead to failure. He mentions that the design leads to everything being violated and can be disruptive. This indicates how the Waterfall method may lead to excess of time and costs. The author also doesn't completely lean towards the agile approach either. The agile approach gives more freedom to the developers and doesn't waste as much resources. The term analysis is defined in this article as a very conception that is necessary if the effort is small. Customers pay for analysis because developers have to use creativity to produce.

Royce mentions that Preliminary Design should precede in order to determine the proper structure of the design itself.

The article “Apollo 11: The computers that put man on the moon”, was very helpful in understanding Royce’s paper. Apollo’s article gave me an insight how large software are developed and managed. For example, with the pocket calculator and seeing the functions. This allows users to follow the analysis steps.