Abstract

This paper presents a survey where some quality requirements that commonly affect software architecture have been prioritized with respect to cost and lead-time impact when developing software platforms and when using them. Software platforms are the basis for a product-line, i.e. a collection of functionality that a number of products is based on. The survey has been carried out in two large software developing organizations using 34 senior participants. The prioritization was carried out using the Incomplete Pairwise Comparison method (IPC). The analysis shows that there are large differences between the importance of the quality requirements studied. The differences between the views of different stakeholders are also analysed and it is found to be less than the difference between the quality requirements. Yet this is identified as a potential source of negative impact on product development cost and lead-time, and rules of thumb for reducing the impact are given.

1. Introduction

Time to market for new products is an important business driver for many organizations [5, 12, 23, 24, 25]. Sometimes, the market can be an all-or-almost-nothing market, and there can be a clear benefit from being first to market, i.e. having the first-mover advantage [20]. For example, in [2] an organization stated that being only one week late to market could make a product introduction fail completely, and another organization stated that being just three months ahead of its closest competitor allowed it to become world market leader.

A commonly used technique to compress product development lead-time is to develop a software platform, and then make minor changes in order to release a product that is perceived as “new” [27]. Thus a software platform has an impact on the cost, the development lead-time and the overall quality of several generations of products.