

Business process quality measurement using advances in static code analysis

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Business process is a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer[1]. Since it has direct effect on the customer, it is really important to have an up-to-date knowledge about its weak and strong points. Using flow charts like Event-driven process chain (EPC) is a widespread solution for modeling, analyzing, and redesigning business processes. EPC is commonly used because models described with it are flexible, easy to manage and understand. More precisely it is an ordered graph of events and functions with various connectors (AND, OR, XOR) that allow alternative and parallel execution of processes. In this paper we focus on the quality of an EPC and then on the extension of this property to the entire process group hierarchy.

Several other papers[2] showed that the results of software quality measurement can be adopted to the problem of measuring the quality of business processes because an EPC is actually a simple program, which can be characterized with static code metrics like McCabe's cyclomatic complexity. With our contributions the problems of measuring the quality of business processes and software systems became even more similar.

- If a task behind a function is managed by a software system, it is a reasonable assumption that the quality or test coverage of this software has a serious effect on the function and the EPC itself. First we approximated the execution probability of each function and then we used these values as weights for aggregating the quality values of the employed software systems to the EPC level.
- In software quality measurement very often a quality model uses code metrics as predictors. Then we aggregate these predictors to higher level characteristics by comparing them with a benchmark. We also created a quality model for business processes based on the ISO/IEC 25010 quality standard. As predictors we used simple metrics calculated to the EPC and the previously aggregated quality metrics from the functions.
- Since we did not stop at the level of the EPC, and extended the measurement to the entire business process hierarchy we have quality information about the whole business configuration. The calculation was started from the most atomic elements, but the interpretation of the results is done from top to down. Meaning that besides measuring quality of business configuration the approach also provides the explanation.

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References

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