



LET'S CALCULATE MAINTENANCE COSTS WITH QUALITYGATE

CASE STUDY **FRONTENDART**

...so we can plan future
development costs

In this case study, we demonstrate how Qualysoft – a software development company present on the international market – determined the future development and maintenance costs of a software project using QualityGate.

Preamble

Qualysoft, a development company specialized in java-based custom software received a request from one of their clients, a big, international bank company. The bank requested Qualisoft to take over one of their core systems for maintenance and further development, because the original developer of the system went defunct due to economic reasons.

The development company had a lot of questions and doubts regarding the further development of an unknown system, mostly concerning the probable costs.

Goals

The bank expected an estimate on monthly maintenance costs. Calculating this value meant a serious challenge for Qualysoft, because they were totally unfamiliar with the system soon to be taken over.

Manual calculations

The estimates were first calculated by a team of development experts using manual source code analysis. The process took two weeks on the code consisting of 97 000 lines. Using their past experience, they agreed on an estimate of 2-2.5 times the resource requirements of their own system's maintenance costs.

Calculation made using QualityGate

In the meantime, the development company had a chance to try a source code quality analyzing and management system called QualityGate.

QualityGate not only calculates source code quality continuously, it also makes estimation on future development costs, so the development company found predicting the expected costs using this tool to be a great possibility.

Qualysoft's expectations towards QualityGate were the following:

- QualityGate should be able to calculate future maintenance costs
- The calculated maintenance costs should be justifiable.

The calculation algorithm

The development company had an experience-based calculation process to determine the average maintenance cost of their own systems.

The maintenance cost ratio between the two systems was presumed to be inversely proportional to the ratio of the system's source code qualities.

Summary of measurement results

Quality of source code calculated by QualityGate

	Source code quality
System to be taken over	2,65
Own source code	6,32

Calculated development costs

	Estimated development costs
Manual analysis by team of experts	~ 200-250%
QualityGate analysis result	238%

Seeing the results of the automated analysis, the team felt their estimate confirmed, so they were able to give their client a justified offer.

Conclusions

The team of experts calculating the manual estimate made the following remarks:

- Even the developers found the perfect compliance between the manual and automated estimates striking.
- Maintenance costs may decrease as the developers get to know the system and refactor it to comply with their quality standards. For continuous quality monitoring, QualityGate calculations should be taken into account.
- Justifying their estimation by a calculation made by a third party tool was important to Qualysoft.
- During the price discussion Qualiysoft could rely on the independent estimate to support their calculations.

Results

Achievements made with the help of QualityGate:

- Availability of an independent, authentic calculation method and its results.
- Manually calculated estimates could be backed up by the programmatic calculations of QualityGate.
- Source code quality based maintenance costs made the developer's offer credible and authentic towards the client.
- Calculating with the help of QualityGate drastically simplified the estimation process to Qualysoft.