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Analysis of Legacy System Migration Results

☒ Bachelor thesis

Context

In almost every large company, business information systems (BIS) map business-critical processes. Billions are invested in their individual creation and further development every year and many systems are developed and maintained over decades. Due to technological change and increasingly difficult maintenance, it may become necessary to migrate the functionality of a system or part of it to a new technological platform. These are major projects that need to be carefully planned and their costs/benefits documented. An important factor here is the size of the system in the old and new technology: size estimates allow to plan the effort and time required for the migration of different components as well as future maintenance costs.

Data from literature, e.g. for Avg. SLoC / Function Point, generally suggest a reduction in code lines when migrating to newer technologies, e.g. from COBOL to Java. In addition, functionality that is no longer required or callable can be removed. Concrete project experience however shows that this does not always hold and that the reduction in size can turn out very differently, for instance due to verbose design patterns in newer technologies.

itestra has performed several large migration projects where the requirement was to provide the same functionality as the legacy system, even with cent-wise identical results. For achieving this goal and not missing any corner case, the legacy code was thoroughly read and also marked during the migration process. This data forms a valuable asset for scientific analysis.

Scope of the thesis

The goal of this thesis is to analyze data from migration projects at itestra as well as the available literature and extract findings that may help for the planning of future projects. For 2-3 projects, migration code markers will be statistically evaluated, e.g. with regard to the proportion of unused code that was identified during the migration and the size of individual components (for instance data access, business rules, interfaces) before/after the migration.

As an optional addition, the process and tooling of performing such a migration with code markers may be evaluated and improved, e.g. through a combination of dependency analysis and migration status.

Company profile

This work is offered in cooperation with itestra GmbH (www.itestra.de). itestra GmbH is an innovative, independent and internationally active software service provider in the field of business-critical processes, systems and applications. The portfolio includes the analysis of business processes, the design and realization of efficient solutions in projects as well as the strategic management of existing software systems.

Advisors

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