

Technical evaluation for APOTTI tender

Subject Method for awarding points based on 'change capacity' measured

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Introduction

SIG was asked by the APOTTI programme to evaluate various technical quality aspects of the software healthcare products that are presented in response to APOTTI's request for tender. A part of SIG's evaluation results – the change capacity of the vendors – will contribute for 5% to the overall APOTTI tender bid evaluation. Out of a total of 100 points, a maximum of 5 points will be awarded for the change capacity results based on SIG's evaluation.

This document explains the method for calculating the 'change capacity', based on SIG's standardised way of measuring maintainability of a software system. SIG's model to measure maintainability is based on the definitions provided by the ISO/IEC25010 standard for software product quality. In collaboration with TÜViT, SIG has created a model to measure maintainability in a standardised way. The software measurements are done in line with the ISO/IEC17025 procedures, for which SIG's software evaluation laboratory has received accreditation.

Industry average change rate

The basis of relevance for the calculation of the change capacity lies in the observation that software systems that are actively used need to see sufficient change. Software that cannot be changed fast enough will not see a sufficient amount of new features, or have bugs resolved at an acceptable rate to keep its end-users happy. Measurements done in SIG's software evaluation laboratory indicate that on average, systems change 15% per year.

To understand whether a vendor is able to meet an industry average amount of change for its software product, the 'change capacity' is calculated.

Change capacity

'Change capacity' is a percentage that expresses the amount of the system that can be changed on annual basis, given the volume, the maintainability and the size of the development team. The change capacity is calculated in a standardised way from following underlying parameters:

- The volume of system in man-years (MY) of rebuild equivalent;
- The maintainability rating of the system based on the SIG/TÜViT quality model for Maintainability and measured following the measurement method and tooling of SIG's ISO/IEC17025 accredited evaluation laboratory;
- The amount of developers (FTE) available to maintain the measured scope.

The volume of a system is measured as the production scope (all the source code used to build the application, where test code, generated code, inline comments and empty lines are excluded), which is translated to man-years (MY) of rebuild equivalent based on industry average productivity tables from SPR, an independent consultancy.

The maintainability rating is measured based on the agreed and validated measurement scope.

The amount of developers that work on system maintenance is a number that is provided by the vendor.

The individual measurement results have been validated with the vendor's technical staff before calculating the 'change capacity'.

Evaluation of the change capacity

The calculated change capacity is translated to a final score that will contribute towards the APOTTI evaluation process based on the following rules:

- A vendor that has a calculated change capacity of 25% or more will receive the full five points.
- A vendor that has a calculated change capacity of less than 25% will receive a relative lower amount of points. E.g. The vendor that has a change capacity of 15% will receive $15/25 * 5 = 3.0$ points. The vendor that has a change capacity of 22% will receive $22/25 * 5 = 4.4$ points.

References

- SIG Maintainability model – <https://www.sig.eu/en/about-sig/sig-research/sig-model-maintainability/> and pdf documents from this page
- Software Productivity Research (SPR) – <http://spr.com/>