



# Vendor instruction

## *Technical evaluation of Health Care Software Products for APOTTI, Finland*

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# 1 Introduction

## 1.1 Introduction APOTTI and tender process

The Finnish Hospital District of Helsinki and Uusimaa (HUS), the cities of Helsinki, Vantaa and Kauniainen and the municipality of Kirkkonummi are planning to procure a shared social welfare and health care client and patient data system. To prepare for the procurement, a program management organization named APOTTI has been setup with representatives from all participating stakeholders.

The aim of the system procurement process is to find the best supplier or consortium of suppliers that will supply a comprehensive and unified system and related system services. The system will consist of advanced social welfare and health care products currently available on the market that can be flexibly configured.

With the tender, the APOTTI program aims to procure a low-risk, high-quality and sustainable solution that meets both functional and non-functional requirements for its stakeholders.

To support the evaluation process and gain a deep technical understanding about the solutions presented, APOTTI has asked the Software Improvement Group (SIG), an independent and objective third party, to perform a technical evaluation of the solutions considered.

## 1.2 Introduction Software Improvement Group

### 1.2.1 Background

Since the late 1990's the Software Improvement Group has been committed to delivering management insight in IT systems in order to reduce cost, increase effectiveness and decrease delivery time of IT projects.

SIG started as a spin-off of the Dutch National Research Centre for Mathematics and Computer Science (CWI). Headquartered in Amsterdam, The Netherlands, SIG has grown over the years to a 90+ staff consulting organization with a presence in 7 countries and a dedicated, internationally recognized, research group.

SIG helps clients "Getting Software Right".

### 1.2.2 Independent, objective and impartial

In order to provide objective advice on IT landscapes or systems, and guide software development teams to successful delivery, SIG's independence, objectivity and impartiality is important to both our clients and us.

SIG does not have any formal partnership with consulting companies or software houses, nor does SIG build software for its clients. SIG has partnerships with other established authorities, such as the German certification authority TÜViT and universities worldwide.

## 2 Vendor instruction

### 2.1 Goals, focus and evaluation scope

#### 2.1.1 Goals and focus

APOTTI has asked SIG to provide technical insight in the vendor's health care products, focussing on the following ISO/IEC 25010-defined quality aspects:

- **Maintainability:** The degree of effectiveness and efficiency with which a product or system can be modified by the intended maintainers;
- **Reliability:** The degree to which a system, product or component performs specified functions under specified conditions for a specified period of time;
- **Performance efficiency:** Performance relative to the amount of resources used under stated conditions.

During the evaluation process, the health care products will be measured and investigated evaluated to understand the system from a technical perspective, their technical characteristics as well as the organisation developing and maintaining these systems. To this end, topics such as development process (including quality assurance), solution architecture, technologies used and the actual implementation are areas of investigation.

#### 2.1.2 Evaluation scope

To create a level playing field between the vendors, the scope of the evaluation will be limited to the core health care system/functionality. Social care and Dental care are not in scope of the evaluation.

The target for the assessment will consist of the software modules and components required to fulfil the following functionalities (as defined by APOTTI), regardless whether these components are of functional or technical nature.

1. Vuodeosasto ja vuodepaikkojen hallinta, Inpatient/ Ward Care and Ward Capacity Management
2. Vastaanotto toiminta, Ambulatory/Outpatient Care
3. Potilashallinto, Patient administration and Scheduling
4. Kansalaisen/potilaan sähköinen asiointi, Patient portal and e-Services over Internet Browser
5. Potilaan kotihoito/Home Care Resource planning
6. Leikkaussalin toiminnanohjaus, Operation room/Theater resource planning
7. Suljetun lääkekierron toteukseen vaadittavat komponentit / All functionality required for Closed Loop Medication
8. Seuraavat lääketieteen erikoisalajat ja toiminnallisuudet: Following Medical specialties and functional areas:
  - Kardiologia/Cardiology;
  - Anestesia / Anesthesia;
  - Teho-osasto / Intensive Care;
  - Synnytystoiminta / Obstetrics;
  - Syöpätautien erikoistoiminnallisuudet, Oncology.

If a software module provides other functionality in addition to the main functionality identified here, the entire module will be subject to analysis and included into assessment. The evaluation will include technical components (e.g. database solutions, integration components, etc.) that are maintained by the vendor.

Not in scope of the evaluation are parts of the solution that deliver functionality for:

- Social care;
- Dental care,

unless its components that are an undividable part of other components that deliver the functionality mentioned as 'in scope' of the evaluation.

## 2.2 Weight of the results in the overall evaluation process

The result of the SIG evaluation will contribute for max. 5% to the overall APOTTI tender evaluation.

If the vendor chooses to participate in the technical evaluation, a maximum 5% of the total points can be awarded. If the vendor chooses not to participate in the SIG evaluation, 5% of the total tender points will not be awarded.

The 5% of the points will be awarded based on a composite metric to approximate the vendor's annual 'change capacity', given the functional scope of the system. The metric is composed of:

- **Volume** – Total source code volume measured;
- **Maintainability** – Maintainability rating according to SIG's evaluation model used;
- **Number of developers** available to maintain the source code in scope.

Empirical research shows that the industry average amount of change for systems that are under active development lies around 15% per annum. A calculated value of 25% or more will achieve the full score for the vendor's 'change capacity'. A lower 'change capacity' will result in a lower score according to a linear model.

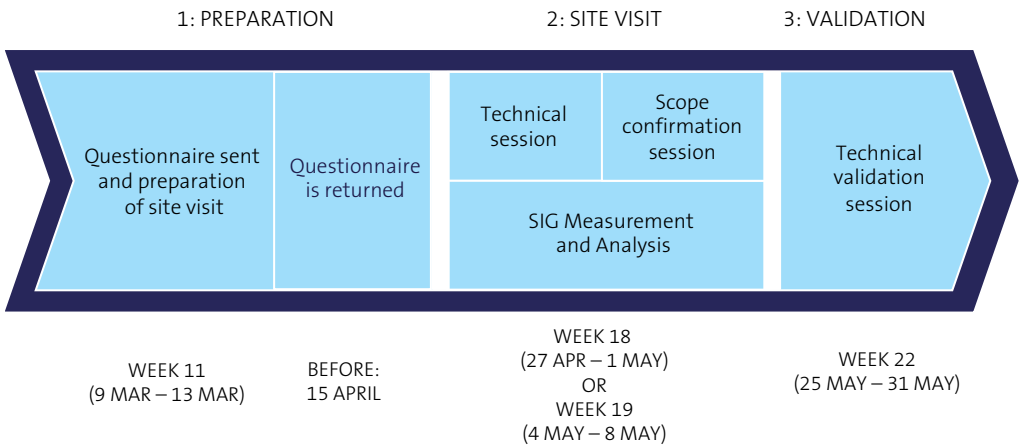
Apart from this numeric result, the evaluation will bring other technical insights to the APOTTI program, which will be part of the discussion with and reporting to the APOTTI program.

Exactly the same evaluation process and evaluation models will be used for both vendors.

## 2.3 Process and timeline

The evaluation will follow a proven process, starting with a vendor questionnaire, followed by a four-day site visit to the vendor's location in the US and will conclude with a validation session to discuss/confirm SIG's observations and measurement results. The validation session will take the form of a conference call.

The planning for the evaluation is as follows.



With the vendor’s input and confirmation, SIG would like to finalize the planning as soon as possible. The vendors are kindly asked to contact SIG as soon as possible to confirm participation and arrange formalities (e.g. NDA) and practicalities (e.g. visiting dates, logistics) needed.

The vendors can indicate their preference for the week of the site visit (week 18 or week 19), but the planning needs to be made taking various aspects into account, so no guarantees can be given.

2.4 Questionnaire

The questionnaire to prepare for the site visit is presented as an appendix to this document.

The answers to the questionnaire shall be provided before 15 April, so SIG has the time to prepare for the site visit based on vendor’s answers.

2.5 Source code preparation for the site visit

To ensure an efficient process, the vendors are kindly asked to prepare the source code corresponding to the scope mentioned on a memory stick of portable hard drive, so it is ready before the first day of the site visit.

The vendor is asked to prepare three source code snapshots:

- 1 Jan 2015;
- 1 Jan 2014;
- 1 Jan 2013.

The most recent snapshot will be used for the Maintainability measurement. The earlier snapshots will be used to measure code changes / churn.

2.6 Description of the site visit and sessions

The following table describes the meetings where the vendor is expected to participate, as well as the goals for the meetings. Since during the meetings, various topics to be discussed in the open before any conclusions are drawn, the client will not participate in these discussions.

MEETING/ASPECT	VENDOR	SIG
Questionnaire	The vendor will answer SIG's questions.	Based on the answers provided, SIG will prepare for the site visit.
Technical session 2-3 hours (on-site, first day of the site visit)	The vendor will explain the solution's architecture, source code and related artifacts and comment on their answers to the questionnaire.  Attending should be a lead architect and lead developer.	To gain an insight into the different aspects of the architecture and development of the system, in order to help and guide the technical analysis.
SIG analysis and fact-finding (on-site)	Vendor should be available for questions, but no presence is needed all time.	SIG will work autonomously, based on the input provided.
Scope confirmation session (on-site, last day of the site visit)	Vendor will confirm the scope of the measurements. Wrap-up of the site visit.	SIG will present the scope of the measurements. Wrap-up of the site visit.
Validation session (2-3 hours, conf. call)	SIG will present its findings and measurement results to the vendor via a conference call, to arrive at a common understanding of the factual situation of the system.  Attending should be a lead architect and lead developer.	To validate findings with the vendor based on measurements.

The SIG team that will visit the headquarters will consist of three consultants.

A detailed planning of the site visit will be aligned with the vendors after participation has been confirmed.

## 2.7 Security, confidentiality and NDA

The vendor and SIG will put a NDA in place, to ensure confidentiality throughout the entire evaluation process. All documents and material that will be provided by the vendor to SIG as part of the evaluation will be treated as confidential. If the vendor will share information with SIG that cannot be shared confidentially with the APOTTI team, this information should be marked accordingly.

To maximize efficiency, SIG proposes to use the NDA that was put in place during the previous on-site evaluation between SIG and the vendor as a template for the NDA for the APOTTI evaluation. Details of the NDA and the site visit will be discussed between SIG and the vendor bi-laterally.

In the case that no agreement can be made between SIG and vendor on the terms and conditions of the NDA and/or site visit, the APOTTI program will be involved to mediate. As an ultimate consequence, vendor has the ability to not participate in the technical evaluation, waiving the 5% of the tender result points that can be achieved.

## 2.8 Point of contact

Point of contact on SIG's side is:

**Mark Hissink Muller**, Delivery lead SIG Nordic

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mobile: +45 28 602 101 (Mark is based in København, DK, CET)

The vendors are kindly asked to schedule a brief call with Mark Hissink Muller as soon as possible, to align, for SIG to answer any questions and to start making formal and practical arrangements.