PRELIMINARY MARKET SURVEY FOR PROCUREMENT OF OPENEHR-BASED HEALTH INFORMATION PLATFORM

ANNEX 2: VENDOR SURVEY GUIDE

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1 Introduction

This market survey is an inquiry into product availability, independent of the details of procurements we may make, that is to say, the 'product description', or the public roadmap for an emerging product rather than how the vendor intends to satisfy specific solution requirements within a future procurement.

This survey is open to respondents fitting any of the following profiles:

- **Original developer/supplier** of openEHR-based EHR platform-based solutions;
- **Integration-based solution supplier**: supplier of integrated form of openEHR-based EHR platform and related products from multiple orginal suppliers, with identifiable value-add (e.g. applications, tested integrations, etc);
- **Specialist application / component supplier**: vendor of specific applications or other specialist components that assumes the presence of an openEHR-based EHR platform, e.g. CDS product vendor or similar.

It is recognised that platform support for some openEHR and related features may be incomplete. However, future possible evolution of the elements of the platform will be a process as well, accommodating changes over time in a) our own intended architecture, b) your offerings as a vendor and c) the evolution of standards, including the openEHR specifications and clinical knowledge base. This evolution capability and/or future roadmap is also part of the survey.

The following sub-sections describe how to fill out the survey form, which is provided in Annex 3.

1.1 Survey Categories

The high-level approach taken for evaluating supplier product components is to consider the offerings in the following dimensions:

1. **Supplier details**: description of supplier;
2. **Functional description**: functions of the component, described in platform architectural terms
3. **Critical attributes**: designed capacity, performance, availability, and other quality factors of the product(s).
4. **Technology platform**: OS, DB, SSO etc supported by your current or future product
5. **Deployment history**: past / underway deployments of the products of current products
6. **Future**: vendor roadmap for future development of the product(s) or full construction
7. **Conformance and certification**: conformance claims made for the current or future products; certification, e.g. for performance.
8. **Licensing, pricing and Source Code Status**: scenarios, licensing model and source code typology.

Note that **vendor services will be assessed separately if needed.**

The following sections describe in further detail the survey items with corresponding headings

The vendor responses must be made using the 'CatSalut RFI – vendor survey form' shown in Annex 3.

2 Supplier Details

This section is used to provide details of the supplier, including the supplier profile, as described above, as well as a summary view of the major categories of functional coverage, i.e. the list shown below under Functional Description.

3 Functional description

This section of the survey is for describing the functionality of current and future offering and is in terms of platform components, following **Error! No s'ha trobat l'origen de la referència.**, i.e.

- Core platform (central blue box)
- Extended platform (light blue box)
- Related platform components
- Applications
- Application-building facilities
- Data integration facilities

For the openEHR-specified items, specific tables are provided to indicate conformance. For other items, responses may be made in free text in the subsequent subsections.

3.1 Survey Fields

3.1.1 Implementation maturity

In order to obtain a precise idea of the state of industry support, we would like you to indicate implementation maturity in all cases using the following classification:

- **(F) Fully implemented**: fully tested, currently being to the market;
- **(D) In development**: company is already working on component;
- **(R) On roadmap**: company is committed to implementing component;
- **(P) Plan to implement**: the company plans to implement the component but has not yet determined when;
- **(N) No plans to implement** the component.

For the D and R categories, please indicate intended completion date in form Qn-YEAR, e.g. Q3-2022 means 3rd quarter 2022.

3.1.2 openEHR or other Specification / Standard Version implemented

For components based on openEHR specifications or other standards or specifications, please indicate the specification version or release to be supported. For components following a proprietary architecture, please indicate ‘proprietary’.

3.1.3 Notes

Please use this field to indicate any other details about the component, as necessary.

4 Critical attributes

4.1 General

4.1.1 Localisation and internationalization

Capability of both the back-end platform, applications, tools and content models to operate, at

least, in the two languages of the locale (Catalan and Spanish) and, on an individual user basis, how language switching and configuration is performed.

4.2 Platform

This category relates to the designed capacity, performance, availability and other quality factors of the product(s), as follows.

4.2.1 Expected capacity limits

Capacity of the platform services is designated in terms of the following:

- Known or predicted supported **number of primary 'subject' entities**, i.e. patient records; demographic entities etc, for a stated average size of entity, e.g. EHR of 1000 Compositions;
    - In production system
    - In archived form
- Known or predicted supported **number of definitional entities**, primarily openEHR templates;
- **User load** with which acceptable performance and availability are not compromised; based on a reasonable assumption of operations, e.g. 80% read, 10% write, 10% query / report, as follows:
    - Average
    - Peak i.e. tested maximum
- Any limits on numbers of forms, applications, reports or other client-side entities or artefacts.

4.2.2 Expected Performance

Capability or prediction of platform reaction to requests and sustain transactions. Described in terms of the following:

- **User latency**, for standard application actions, e.g. time to login, time to locate patient based on id or name search; time to load typical summary form(s), e.g. medications, allergies etc;
- **Transaction rates**, for system-system interfaces, e.g. lab data import, described as average and peak sustainable to remain inside acceptable performance envelope.
- **Load balancing**: capability of the system to compartmentalise user load impact such that low priority use e.g. complex queries, reporting etc that may generate high system load does not compromise point of care latency, as measured by time to login, id-based access, name-based search etc.

4.2.3 Scalability

Capability or prediction, and approach of the platform, to scale out to significantly larger numbers of:

- Patients / citizens;
- Facilities / sites / clinics;
- Registered clinical users;
- Simultaneous online users;
- Content definitions, i.e. openEHR templates;

- Import transactions, e.g. lab messages;
- Reports and querying.

4.2.4 Availability

Aggregate (i.e. statistical) availability of system to users, including client systems. Normally defined in terms of '% uptime' for a given load characteristic.

Availability of the product is understood as distinct from availability relating to the target cloud infrastructure, which provides a virtualised deployment environment. Infrastructure-related service requirements (including 'mean time to x' type requirements) and related scenarios such as power outage, fire, natural disaster are therefore addressed by the infrastructure provider rather than product vendors.

The main threats to normal functioning of the vendor product are therefore:

- Security-related attacks such as DOS/DDOS;
- User and transaction loads significantly beyond specified 'normal peak' conditions;
- Software problems such as memory leaks, faulty interaction with the database.

4.2.5 Disaster Recovery

Description of installed system capability or future approach to recover from various kinds of disaster scenario, that may result from a disaster situation within the infrastructure, such as:

- **Loss of recent transactions** (e.g. due to DB corruption in infrastructure): describe how backups would be used to re-apply transactions;
- **Forced re-installation** of entire platform product (i.e. assume container state lost): describe how new installation would be provisioned from DB and other back-ups of primary data, configuration data, transaction logs etc.

4.2.6 Other Quality Factors

- Maintainability
- Extensibility

4.3 Applications and Tools

In this section, the vendor describes critical attributes of applications and tools they would provide with the current or future platform. These will be assessed during procurement based on the following quality criteria:

- Functional correctness
- Usability
- Intuitiveness

5 Technology platform

The solution should be deployed on a virtualised platform based on Openshift within a private cloud environment.

5.1 Deployment Platform

This section described the technology platform(s) onto which the vendor product may be deployed.

5.1.1 Back-end Platform

Describe:

- combinations of Operating System (OS), database (DB), application execution environment (e.g. JVM, .Net), are or will be supported;
- middleware technologies, e.g. service bus, API infrastructure, identify and access management services etc.;
- particular application servers, e.g. Tomcat, Apache, etc
- containerisation technologies supported, e.g. Docker, Kubernetes.

5.1.2 Applications

Describe:

- Supported client architecture, e.g. web-based, mobile, others;
- User device operating systems supported, e.g. Windows, Apple OSX, Linux, Android, IOS, other;
- User device form factors are or will be supported, e.g. laptop / desktop workstation (including multi-screen), tablet, smartphone, smartwatch, special devices, etc;
- Single Sign-On (SSO) solutions and standards are or will besupported;
- Web browser(s) and scripting languages are or will besupported.

5.2 Server / Network Architecture

This section is used to described the typical logical server architecture to be used for the product, e.g.:

- Application servers;
- DB servers;
- Security gateways, firewalls etc;
- Load balancing strategies;
- Hardware persistence solution, e.g. RAID 10 SAN etc.

Some description should be provided of how this is adjusted to effect scaling needs.

5.3 Multi-tenancy

This section is used to describe how the product is going to be deployed with respect to regional, institutional or other logical divisions that represent independent domains in the data and/or application environment. This should describe which components are going to be deployed as replicated instances, what is shared (e.g. reference data, MPI access, terminology etc) and how changes are going to be handled, e.g. if two institutions are merged.

5.4 Distribution and Federation

Capability to manage a distributed and/or federated instances of the CDR and other relevant components.

5.5 Software Development Platform

Describe software development technology/ies to be used in the platform, applications and tools.

5.6 Dependencies

Describe requirements the product could or will have above the infrastructure and technology platform, e.g. requires LDAP, a specific terminology service in the environment; etc.

6 Deployment history

Provide an indication of major customer deployments to date, and a description of what was deployed. This should include:

- Target setting, i.e. national, region, large hospital, small hospital, clinic, community, virtual (e.g. telehealth) etc;
- Indicative metrics, e.g. number of citizens under care, beds, inpatients etc;
- Major functions of the contracted solution, e.g. regional / institutional EHR, rare disease registry, electronic prescribing application etc.

This history inquiry is not only related to the platform elements as a whole. Experience on product to be integrated and expected elements/function development and integration roadmap should be presented.

7 Product and component development Roadmap

In this section, the vendor may provide a roadmap for future development of the product(s) likely to be relevant to this inquiry.

Ideally, approximate times will be provided.

Also, should be presented the proposed policy related to:

- Partnership
- Customer participation channels in new features planning

8 Conformance and certification

This section is used to document formal conformance claims the vendor makes or is going to make for the product; certification, e.g. for performance, and how these are or will be established.

9 Licensing, pricing and Source Code Status

Define the licensing type for the different modules presented (i.e.open, GPL,…) and the current or expected list price.