



**HELSEPLATTFORMEN**  
for pasientens helsetjeneste

**Procurement of an  
EHR solution  
with adjacent systems and services**

**\*\*\***

**Invitation to Dialogue**

Appendix C0 Statement of Intent

**Case number: 2016/238**



## History

Version	Responsibility	Date	Comments/Changes
v1.0	Helseplattformen	02.02.17	Version v1.0 shared with the Contractors

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# 1 INTRODUCTION

This Appendix contains a description of the Customer's ambition and objectives for a new **electronic health record (EHR)** solution, and the context in which the EHR solution will be implemented and taken into use. The EHR procurement has been named **Helseplattformen**.

Overall, the Customer requires a unified solution for specialist and municipal health services, including GPs, in the Central Norway Health Region, with broad functionality to support clinical and administrative core processes, as well as increased standardisation and improved efficiency.

Helseplattformen has an important national role, as the programme may be a starting point for a common national EHR solution for all municipal health services in accordance with the ambition set out in the White paper One Citizen – One Health Record (*Én innbygger - én journal*), cf. *Chapter 3*. Helseplattformen is also important for, and must interact with, several ongoing and upcoming projects and initiatives in the health services of the Central Norway Health Region, e.g., the new hospital in Nordmøre og Romsdal (SNR), cf. *Chapter 7.3.1*.

The EHR solution will be in use for many years, and the Contractor is therefore expected to be a partner in the development of the regional health services in years to come. In this respect, the Contractor is committed to continually stay current with the technological development relevant for the Customer's provision of health services.

This Appendix provides the overall framework and foundation for the parties' cooperation towards the common goal of implementing the EHR solution in a way that enables professionals to provide health services across the chain of patient treatment in the Central Norway Health Region, irrespectively of how the various providers are organised from time to time.

The Contractor shall respond to this Appendix by completing *Annex 1*. By completing the response the Customer confirms that he has understood the goals, the regulatory, and the factual context of Helseplattformen. For a successful implementation and operation of the EHR solution it is essential that the parties have a common understanding of what is set out in this Appendix, and that any significant constraints and limitations are disclosed and taken into account by the parties.

Note that in general, all deliveries and pre-requisites or assumptions relevant for the implementation of the EHR solution, both related to the Contractor's Deliverables and the Customer Furnished Assets (CFA), cf. *Appendix C7*, shall be taken into account in the Contractor's Project and Progress Plan, cf. *T Appendix 3*.

Further requirements for the EHR solution are described in *T Appendix 1A* (General), *T Appendix 1B* (Functional), *T Appendix 1C* (Technical), *T Appendix 1D* (Training) and *V Appendix 1* (Maintenance).

## 2 AMBITION AND OBJECTIVES

### 2.1 HELSEPLATTFORMEN'S OVERALL AMBITION

The following main ambition has been defined:

*Helseplattformen shall improve the quality of patient care and safety, provide user-friendly systems and thus enable health professionals to better and more efficiently perform their tasks.*

With this ambition, Helseplattformen aims to improve patient care not only through high quality services, but also through involving patients in decisions related to their own treatment and care. Helseplattformen shall enable patients to get a better overview of their treatment plan, progress and outcome, and patients shall be empowered to take a more active part in their own treatment and care.

## 2.2 HELSEPLATTFORMEN'S OBJECTIVES

Helseplattformen's objectives define why the programme is being undertaken and what the programme is expected to achieve. Helseplattformen has defined eleven overall objectives (the numbering does not represent any prioritising):

1. Increased treatment quality and fewer patient injuries
2. Access to continuously updated clinical knowledge based on best practice
3. Provide the citizens of Central Norway with easy access to their own health record and a higher degree of influence on their own course of treatment
4. Increased interaction in and between the primary and specialist health care services
5. Improved data and information for use in research and innovation
6. Increased efficiency and better use of resources
7. Improved management information to be used in quality and continuous improvement work in daily operations
8. Reduced time spent on documentation and search for health information
9. Compliance with national standards and requirements
10. Based on services provided throughout generic pathways ensuring comprehensive assessments of functional abilities, the need for municipal health services shall be reduced
11. The citizens of Central Norway shall be enabled to live longer independently in their own homes

In addition to these overall objectives, Helseplattformen has, as further described in *Chapter 3*, agreed to enter into a close cooperation with national authorities.

Table 1 below further details each of the eleven objectives set out above.

Table 1 - Descriptions of the objectives of Helseplattformen

Objectives	Description
<b>1. Increased treatment quality and fewer patient injuries</b>	Helseplattformen must contain active <b>clinical decision support</b> . This means easy access to up-to-date and standardised treatment guidelines that support health professionals to be more capable of making the correct clinical choices and provide greater assurance that all relevant information about the patient is made available. This will ensure high quality care and reduce undesired variation in patient treatment and provision of health services in the Central Norway Health Region.

Objectives	Description
<b>2. Access to continuously updated clinical knowledge based on best practice</b>	Helseplattformen must provide opportunities for utilising and sharing clinical content (clinical guidelines, procedures and protocols, clinical pathways and treatment plans) with other national and international knowledge environments. This will provide health professionals with easy and efficient access to knowledge about clinical information and new knowledge will rapidly be distributed throughout all health services in the Central Norway Health Region.
<b>3. Provide the citizens of Central Norway with easy access to their own health record and a higher degree of influence on their own course of treatment</b>	Helseplattformen must provide citizens with the opportunity to verify, correct and complement their own health information through easy and secure access to their own health record. This will give citizens a better overview and more control over their own clinical pathway and ensure the individual citizen is capable of taking a more active part in their own treatment and care.
<b>4. Increased interaction in and between the primary and specialist health care services</b>	Helseplattformen shall support a more effective implementation of holistic and <i>standardised clinical pathways</i> and improve the monitoring of the pathways. The implementation of holistic and standardised clinical pathways where patient information is shared between the different levels of care will contribute to promote a coordinated and effective health service.
<b>5. Improved data and information for use in research and innovation</b>	Helseplattformen must record health information in a structured form and make data more suitable for use in research and clinical studies. This will improve working conditions for those involved in research as it will be possible to undertake more advanced searches, extraction and compilation of data covering both the specialist and municipal health services.
<b>6. Increased efficiency and better use of resources</b>	Helseplattformen shall provide access to an improved and broader data base and improved tools for planning and using resources across the health services. This will provide an opportunity to render the management information that follows the clinical pathways across different health services, and will provide the various institutions with access to each other's treatment plans. This includes how the patient is progressing through the clinical pathway, which will provide specialist and municipal health services with better opportunities to plan their daily operations and preparations to ensure that the treatment and care occur at the lowest effective level of care.
<b>7. Improved management information to be used in quality- and continuous improvement work in daily operations</b>	Helseplattformen will, by building on structured data, provide a significantly improved basis for measuring quality and outcomes. This will provide managers and specialities with access to improved and more relevant management information, for example through real-time monitoring of clinical pathways and work processes. This will provide a solid data base that can be

Objectives	Description
	used for quality assurance, professional development and continuous improvement in the daily operations.
<b>8. Reduced time spent on documentation and search for health information</b>	Helseplattformen will build on the data registered once in the system and then re-use this data so that unnecessary manual tasks related to documentation and collection of health information can be automated. This will help to ensure that health professionals free up time previously spent entering data multiple times in different systems and quality registries, which can rather be used on more patient contact. In addition, this will provide health professionals and patients with better information and an overview of treatment and clinical pathways.
<b>9. Compliance with national standards and requirements</b>	Helseplattformen will build on the standards, codes and terminologies that are applicable nationally.
<b>10. Based on services provided throughout generic pathways ensuring comprehensive assessments of functional abilities, the need for municipal health services shall be reduced</b>	The new solution must support generic pathways that are based on the citizen's overall functional abilities. This may reduce the need for expensive treatment and stay in municipal and other public institutions, through early intervention. Preventative initiatives that promote self-management will be important to achieve this.
<b>11. The citizens of Central Norway shall be supported to live longer independently in their own homes</b>	The new solution shall contribute to the citizens staying longer in their own home as new technology will support the services and promote dialogue, coordination, information, insight and safeguarding of patients/representatives/health personnel in their everyday life and in the execution of services.

### 3 NATIONAL ROLE OF HELSEPLATTFORMEN

The Government has decided that the Helseplattformen programme will be completed as a pilot to achieve the national ambition set out in One Citizen – One Health Record, cf. <https://ehelse.no/strategi/n-innbygger-n-journal>, and a possible starting point for a common national EHR solution for municipal health services. Subsequent procurements of EHR solutions might thus, though acquired separate from and independent of Helseplattformen, build on experiences from Helseplattformen.

The cooperation with the national project will focus on verifying that requirement specifications are aligned with the national strategy and the long term objective of a common national EHR solution, in particular the need for a high level of interoperability between primary and specialist care units across the country.

A national programme under the leadership of the Norwegian Directorate of eHealth (NDE) has been established to interact with Helseplattformen and to prepare for a potential national EHR solution procurement process for the municipal health services. The NDE is represented in the programme steering committee of Helseplattformen.

## 4 SCOPE - FUNCTIONALITY WITHIN THE EHR SOLUTION

### 4.1 INTRODUCTION

The functional scope of the EHR solution, cf. *T Appendix 1B*, is aligned with the overall ambition and objectives for Helseplattformen, cf. *Chapter 2*. It is described in three dimensions:

- i. the actors that will use the EHR solution
- ii. the capabilities (areas) of the enterprise that the new EHR solution shall support
- iii. the ICT functionalities that the EHR solution must include to support these capabilities



Figure 1 - The relation between the three dimensions defining scope

The health services are provided by several actors, for example GPs and public hospitals. The actors have capabilities that enable them to offer health services. The capabilities need/demand ICT support for effective operation. The functional scope is expressed in all these dimensions and are further described in the subsequent chapters.

### 4.2 ACTORS

#### 4.2.1 The Actor Model

The NDE's Health and care **actor model**, published as an attachment to One Citizen – One Health Record<sup>1</sup>, has been used as a starting point and adapted in order to define the users of the new EHR solution.

<sup>1</sup> [https://ehelse.no/Documents/En%20innbygger%20-%20en%20journal/V3.1%20E-helsekapabiliteter\\_1.0.pdf](https://ehelse.no/Documents/En%20innbygger%20-%20en%20journal/V3.1%20E-helsekapabiliteter_1.0.pdf)

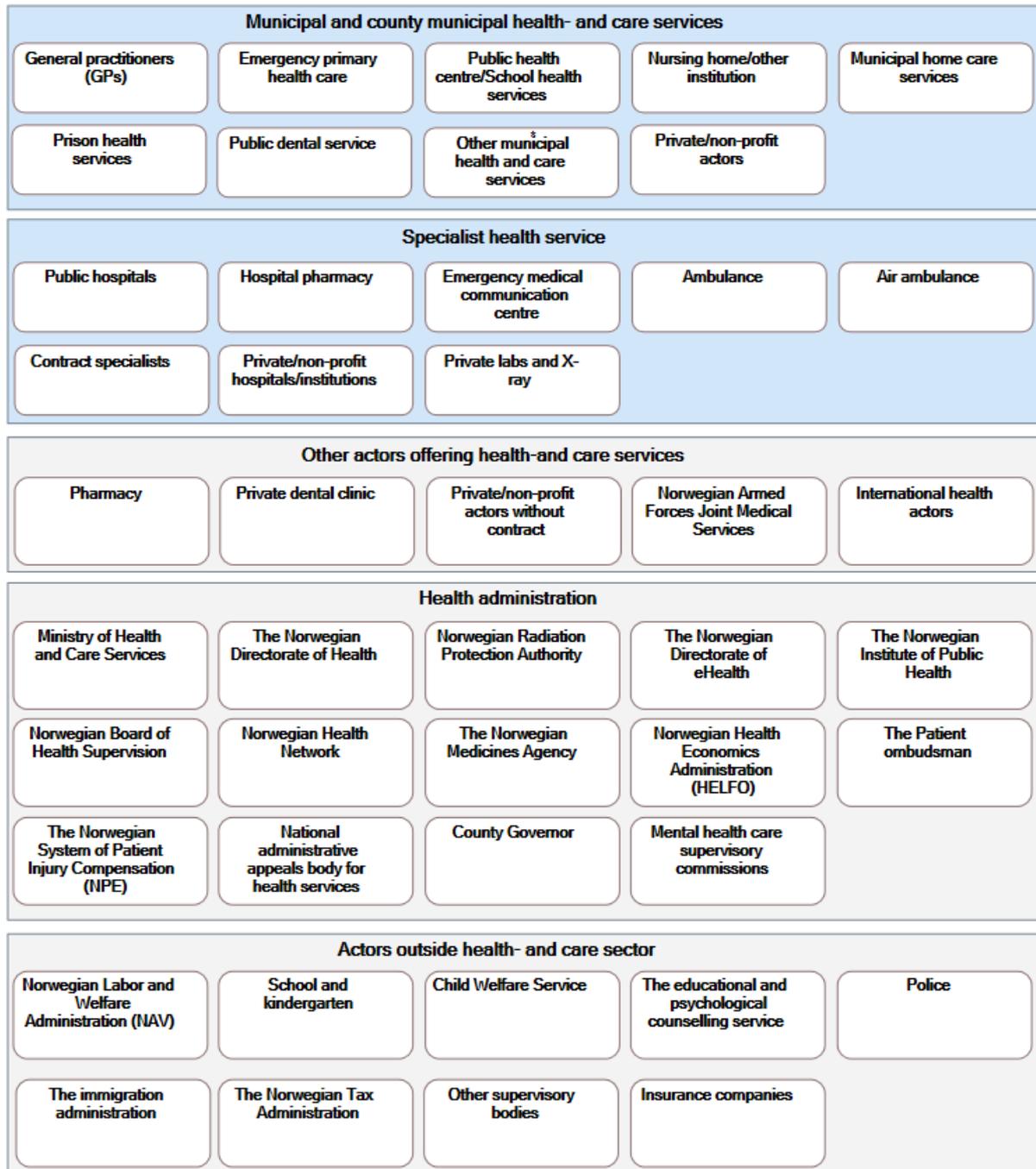


Figure 2 - The Health and care actor model

The actors that will use the EHR solution belong to the top two areas of the model (blue). The bottom three areas are actors outside the scope of Helseplattformen, and Helseplattformen will use the national collaboration framework to communicate with these actors. See *Annex 4* for a detailed description of the model.

#### 4.2.2 The Actors that will use the EHR solution

Figure 3 below lists the actors, and the colour codes are described in the legend of the figure.

<b>Use of EHR solution.</b> The actor shall use the EHR solution.	<b>No direct use.</b> The actor will not use the EHR solution. Interaction will be supported through the national collaboration framework.
<b>Integration.</b> The actor will not use the EHR solution. Interaction with the actor will be supported through close integration.	<b>To be considered.</b> The actor's use of the EHR solution will be considered. The choices to be considered are described as a minimum and maximum level.

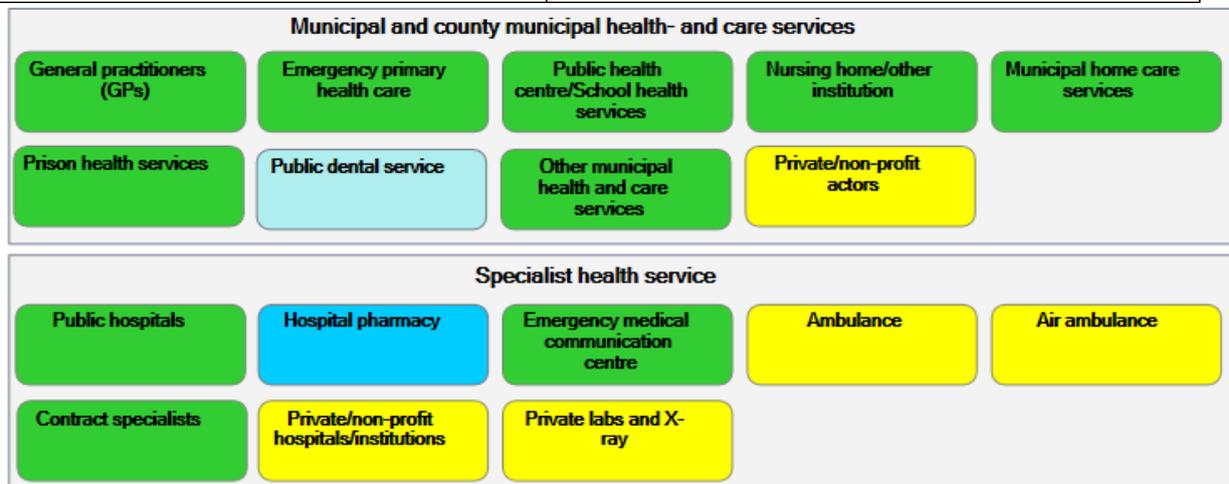


Figure 3 - The users of the EHR-solution included actors to be decided

This overview of actors is summarised in Table 2 below. The table explains in the column “Comment” that actors who are not offered/required to use the solution will be offered integration through the national collaboration framework.

Where integration is specified in the column “Use of solution”, this indicates closer collaboration between Helseplattformen and the relevant actor’s solution than the current national collaboration framework offers.

Table 2 - The different actors’ use of the solution

Actor	Use of solution	Comment
<b>Municipal and county municipal health and care services</b>		
<b>General practitioners (GPs)</b>	Yes	GPs will use the solution either subject to an agreement with the municipalities, or by entering a direct agreement with Helseplattformen. GPs without an agreement will continue to use the national collaboration framework.
Emergency primary health care	Yes	
<b>Public health centre/school health services</b>	Yes	
Nursing home/ other institution	Yes	
Municipal home care services	Yes	
Prison health services	Yes	

Actor	Use of solution	Comment
Public dental service	No	Interaction continues through the national collaboration framework.
Other municipal health and care services	Yes	Consists of many sub-areas, i.e., physiotherapy, chiropractor and occupational therapy services. Most of these will be included.
Private/non-profit actors	To be considered	<p>Either close integration or use of the EHR solution.</p> <p>Private/non-profit actors will use the solution/close integration subject to an agreement with the municipalities. As an illustration, today in the City of Trondheim all private nursing homes are obliged via an agreement with the City of Trondheim to use the municipality's EHR solution.</p> <p>Actors who are not offered/required to use the solution/close integration will continue to use the national collaboration framework.</p>
<b>Specialist health services</b>		
Public hospitals	Yes	
Hospital pharmacy	Integrated	Close integration with the EHR solution
<b><i>Emergency medical communication centre (EMCC)</i></b>	Yes	
Ambulance	To be considered	Either close integration or use of the EHR solution.
Air ambulance	To be considered	Either close integration or use of the EHR solution.
Contract specialist ("Avtalespesialist")	Yes	Contract specialists will use the solution subject to an agreement with the Central Norway Regional Health Authority (HMN). Actors who are not offered/required to use the solution will be offered integration through the national collaboration framework.
Private/non-profit hospitals/institutions	To be considered	<p>Either interaction through the national collaboration framework or use of the EHR solution.</p> <p>Private/non-profit hospitals/institutions will use the solution subject to an agreement with HMN.</p>

Actor	Use of solution	Comment
		Actors who are not offered/required to use the solution will be offered integration through the national collaboration framework.
Private labs and X-ray	To be considered	Either interaction through the national collaboration framework or close integration with the EHR solution.

Interactions with actors, e.g., public hospitals, municipalities and GPs, outside of the Central Norway Health Region will take place through the national collaboration framework.

## 4.3 ENTERPRISE CAPABILITIES

### 4.3.1 The Enterprise Capability Model

The NDE's **capability model**, published as an attachment to One Citizen – One Health Record<sup>2</sup>, which describes the *enterprise capabilities* that are necessary to provide health and care services to citizens, has been used as a starting point and adapted in order to define which areas (capabilities) of the health services the solution shall support.

The NDE's capability model describes the health services in four main areas:



Figure 4 - Main areas in the Enterprise capability model

These main areas are broken down further into enterprise capabilities such as Quality and patient safety, Assessment of health condition, Nursing, care and palliative care, Laboratory tests, Emergency and preparedness management and others. The model has in total 85 sub-capabilities on the lowest level. See *Annex 3* for a detailed description of the model and the 85 sub-capabilities.

The capability model is independent of the current organisation of the health services and represents a fixed view of the health service. It is a representation of what the health services do.

Enterprise capabilities should not be mistaken for clinical specialities, processes or fields of practice. A clinical speciality or process may make use of several enterprise capabilities in order to provide the patients' with health services. For instance, a surgeon will need the capability Invasive treatment, but also Medication treatment, Assessment of health condition, Administration of health care and Knowledge management (including clinical decision support) in order to treat the patients.

<sup>2</sup> [https://ehelse.no/Documents/En%20innbygger%20-%20en%20journal/V3.1%20E-helsekapabiliteter\\_1.0.pdf](https://ehelse.no/Documents/En%20innbygger%20-%20en%20journal/V3.1%20E-helsekapabiliteter_1.0.pdf)

### 4.3.2 Enterprise Capabilities to be supported by the EHR solution

This Chapter outlines the enterprise capabilities to be supported by the new EHR solution.

A colour scheme is used to define how the EHR solution will support the enterprise capabilities with ICT functionality.

<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: red; margin-right: 5px;"></span> <b>No support.</b> The EHR solution is not expected to include any functionality to support the enterprise capability</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: green; margin-right: 5px;"></span> <b>Full support.</b> The EHR solution shall include all functionality to support the enterprise capability.</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: lightgreen; margin-right: 5px;"></span> <b>Partial support.</b> The EHR solution shall include some functionality to support the enterprise capability</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: cyan; margin-right: 5px;"></span> <b>Integration.</b> The enterprise capability will be supported through integration with external systems.</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: yellow; margin-right: 5px;"></span> <b>To be considered.</b> The level of ICT support (functionality) in the EHR solution for this capability, will be considered. The choices to be considered are described as a minimum and maximum level, cf. T Appendix 1B, Chapter 2.</li> <li><span style="display: inline-block; width: 15px; height: 15px; background: linear-gradient(to right, cyan, red); border: 1px solid black; margin-right: 5px;"></span> <b>Different support for municipalities (left) and hospitals (right).</b> When a figure consists of two colours, it implies different functionality support for municipalities (m) and hospitals (h). Look at the figure edges (not in the middle) for the correct colour</li> </ul>
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Figure 5 - The colour scheme illustrates which enterprise capabilities the new solution shall support

The capabilities highlighted yellow indicate that the Customer needs more information to be able to decide the level of ICT support. For each yellow capability, the level of ICT support is expressed at a minimum and maximum level, cf. T Appendix 1B, Chapter 2. The maximum will ensure high achievement of objectives and indicates the preferred level of ICT support.

The four main areas of the enterprise capability model are described in the subsequent chapters.

#### 4.3.2.1 Management and direction

This area includes capabilities necessary to make use of the political, technological, knowledge-related, financial and organisational opportunities in order to provide citizens with the best possible health services. Figure 6 illustrates which enterprise capabilities need to be supported with functionalities in the EHR solution.

<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: red; margin-right: 5px;"></span> <b>No support.</b> The EHR solution is not expected to include any functionality to support the enterprise capability</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: green; margin-right: 5px;"></span> <b>Full support.</b> The EHR solution shall include all functionality to support the enterprise capability.</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: lightgreen; margin-right: 5px;"></span> <b>Partial support.</b> The EHR solution shall include some functionality to support the enterprise capability</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: cyan; margin-right: 5px;"></span> <b>Integration.</b> The enterprise capability will be supported through integration with external systems.</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: yellow; margin-right: 5px;"></span> <b>To be considered.</b> The level of ICT support (functionality) in the EHR solution for this capability, will be considered. The choices to be considered are described as a minimum and maximum level, cf. T Appendix 1B, Chapter 2.</li> <li><span style="display: inline-block; width: 15px; height: 15px; background: linear-gradient(to right, cyan, red); border: 1px solid black; margin-right: 5px;"></span> <b>Different support for municipalities (left) and hospitals (right).</b> When a figure consists of two colours, it implies different functionality support for municipalities (m) and hospitals (h). Look at the figure edges (not in the middle) for the correct colour</li> </ul>
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Figure 6 - Management and direction enterprise capabilities to be supported by the new solution

### 4.3.2.2 Core Services

This area includes capabilities that are necessary in order to provide the health services that a citizen has the right and need for. Figure 7 illustrates which enterprise capabilities need to be supported with functionalities in the EHR solution.

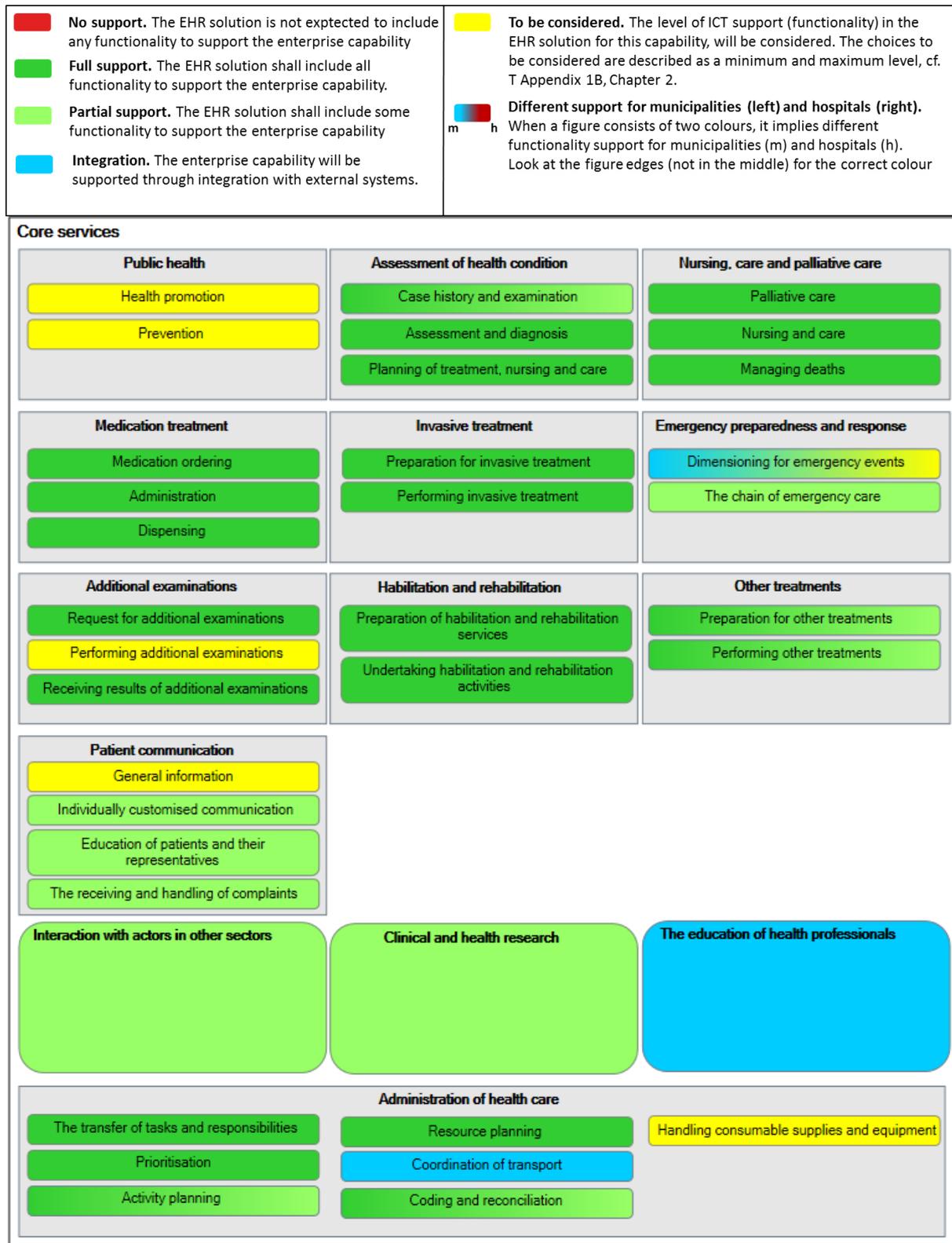


Figure 7 - Core services enterprise capabilities to be supported by the EHR solution

### 4.3.2.3 Clinical Support Services

This area contains the capabilities that directly enable, and therefore are closely linked to the core services. Figure 8 illustrates which enterprise capabilities need to be supported with functionalities in the solution.

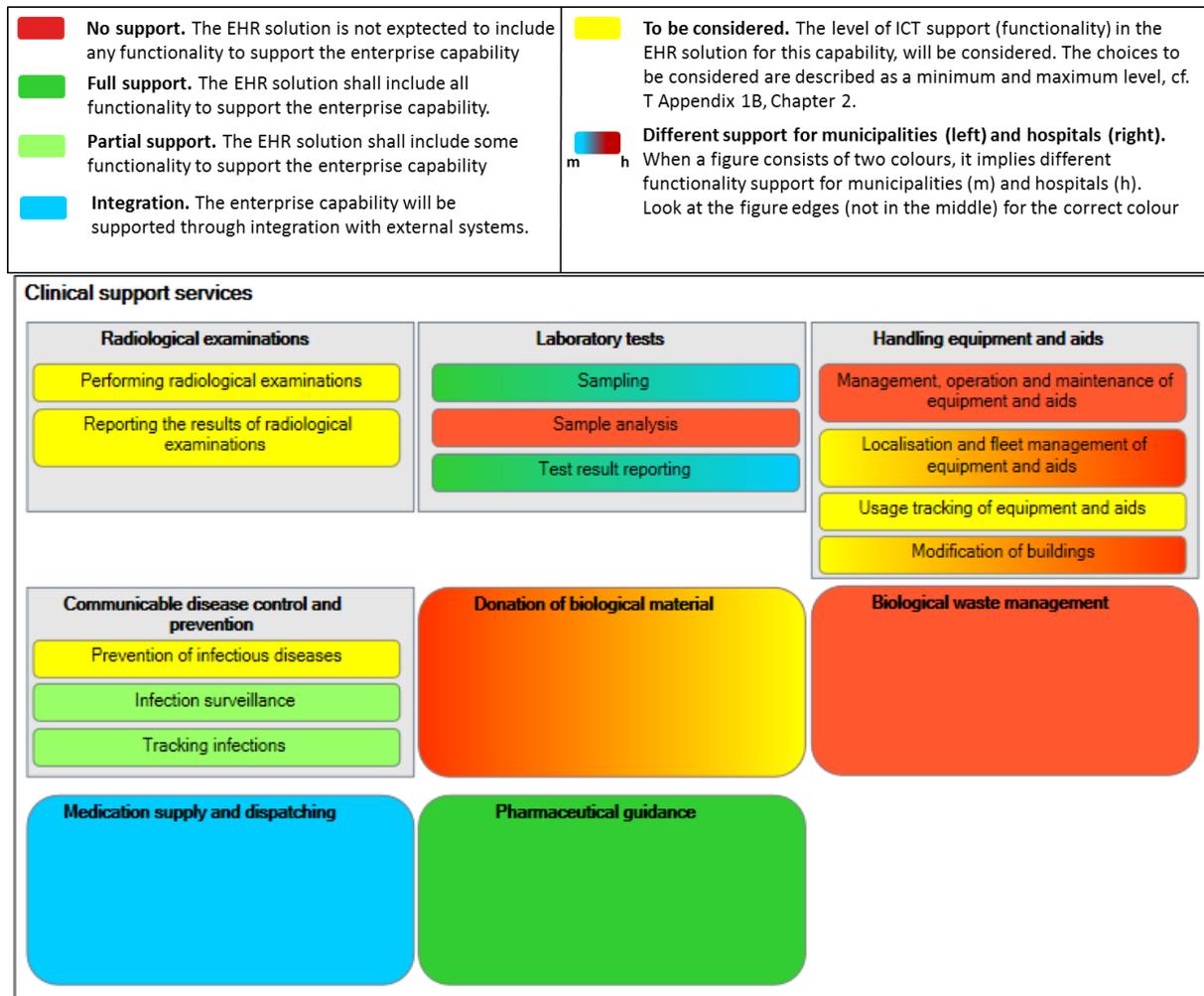


Figure 8 - Clinical support services enterprise capabilities to be supported by the new solution<sup>3</sup>

### 4.3.2.4 Facilitation

The enterprise capabilities within this area support the core services and ensure stable and well-functioning daily operations. Figure 9 illustrates which enterprise capabilities need to be supported with functionalities in the solution.

<sup>3</sup> ICT support for Radiological examinations including parts of the sub capability Performing radiological examinations, is included in the Option for Radiology Information System, cf. T Appendix 1B, Chapter 6

<p><b>No support.</b> The EHR solution is not expected to include any functionality to support the enterprise capability</p> <p><b>Full support.</b> The EHR solution shall include all functionality to support the enterprise capability.</p> <p><b>Partial support.</b> The EHR solution shall include some functionality to support the enterprise capability</p> <p><b>Integration.</b> The enterprise capability will be supported through integration with external systems.</p>	<p><b>To be considered.</b> The level of ICT support (functionality) in the EHR solution for this capability, will be considered. The choices to be considered are described as a minimum and maximum level, cf. T Appendix 1B, Chapter 2.</p> <p><b>Different support for municipalities (left) and hospitals (right).</b> When a figure consists of two colours, it implies different functionality support for municipalities (m) and hospitals (h). Look at the figure edges (not in the middle) for the correct colour</p>
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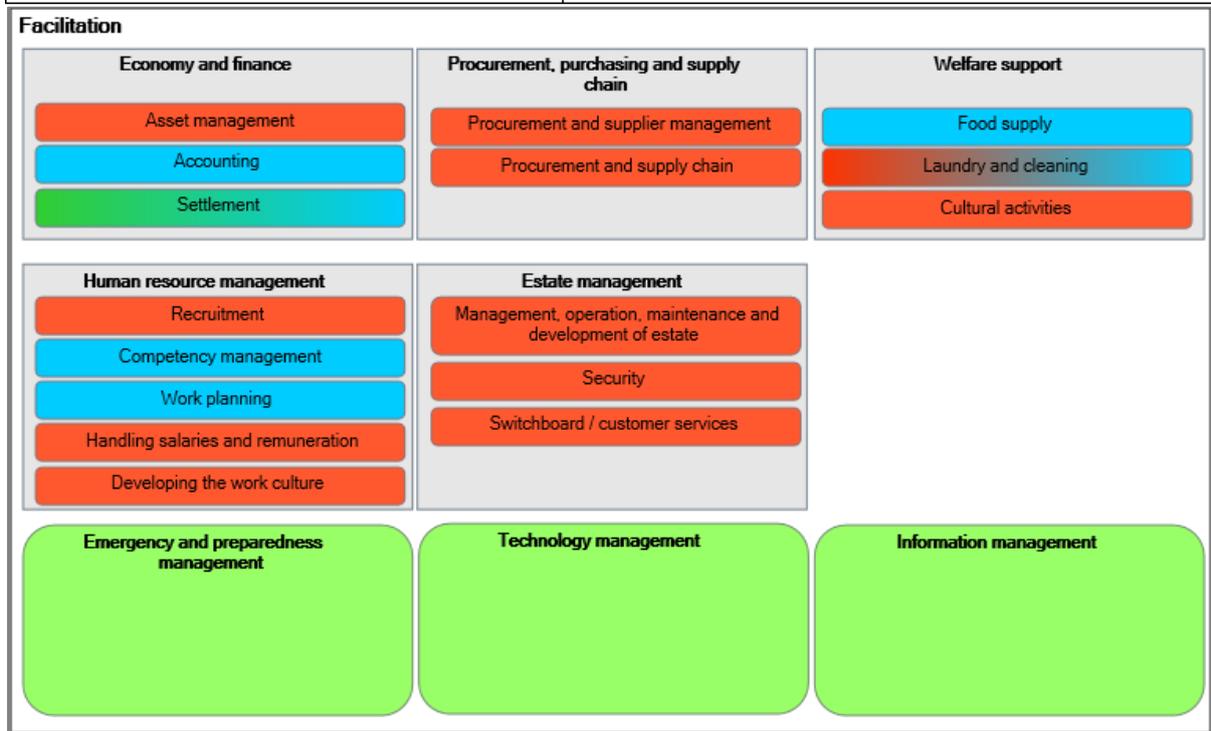


Figure 9 - Facilitation enterprise capabilities to be supported by the new solution<sup>4</sup>

## 4.4 FUNCTIONALITY

### 4.4.1 The HL7 EHR-S Functional Model

The HL7 EHR System Functional Model has been used as a basis to define the ICT functionalities that the EHR solution must include to support the enterprise capabilities.

The HL7 EHR System Functional Model provides a reference list of functions that may be present in an Electronic Health Record System (EHR-S). The function list is described from a user perspective with the intent to enable consistent expression of system functionality.

The EHR-S Functional Model is composed of a list of functions, known as the Function List, which is divided into seven sections as outlined in Figure 10. Note that the figure is an exact copy of the “Function List Sections” figure in the HL7 EHR-S Functional Model, and that the colours have no relation to the colour scheme used to define the users and the enterprise capabilities the EHR solution shall support, see *Chapters 4.2 and 4.3*.

<sup>4</sup> ICT support for Technology management is defined in *T Appendix 1C*.

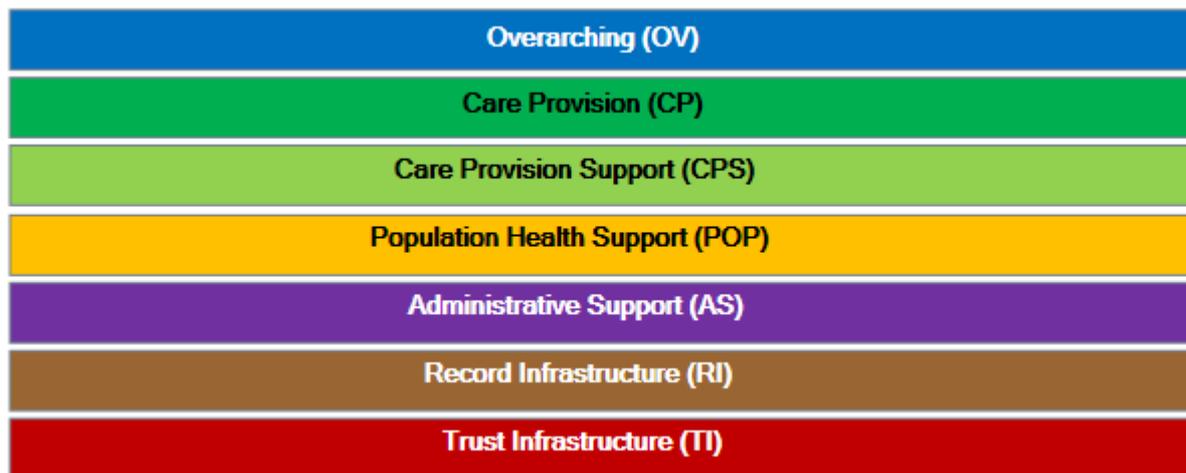


Figure 10 - Function list sections

Short description of the sections in the model, cf. EHR-S FM standard<sup>5</sup>:

- **Overarching (OV)**  
The Overarching section contains conformance criteria that apply to all EHR Systems and consequently must be included in all EHR-S FM compliant profiles.
- **Care provision (CP)**  
Provides direct care to a specific patient and enables hands-on delivery of health services.
- **Care provision support (CPS)**  
Supports the provision of care to a specific patient to enable hands-on delivery of health services. This section is in general organised in alignment with the Care provision section.
- **Population health support (POP)**  
Supports the prevention and control of disease among a group of people (as opposed to the direct care of a single patient). Supports input to systems that perform medical research, promote public health, and improve the quality of care at a multi-patient level.
- **Administrative support (AS)**  
Supports the management of the clinical practice, to assist with the administrative and financial operations.
- **Record infrastructure (RI)**  
Foundational to managing record lifecycle (origination, attestation, amendment, access/use, translation, transmittal/disclosure, receipt, de-identification, archive etc.) and record lifespan (persistence, indelibility, continuity, audit, encryption). RI functions are core and foundational to all other functions of the model (CP, CPS, POP, AS).
- **Trust infrastructure (TI)**  
Foundational to system operations, security, efficiency and data integrity assurance, safeguards for privacy and confidentiality, and interoperability with other systems. TI functions are core and foundational to all other functions of the model.

In addition, the Customer has extended the model where needed, e.g., to clarify the Customer's needs or specify requirements specific to the Norwegian health service or this procurement. This

<sup>5</sup> Appendix C5 HL7 EHR-S FM

includes functions that are necessary to support some municipal health services, where the municipal health services/GPs need functionality that exceeds the needs of the specialist health services. For example, the municipal health service requires additional functionality within the Administration of health care capability in order to deliver support for instance the use of force, coercion and involuntary admission to municipal institutions.

The extensions are structured similar to the EHR-S FM, and are expressed in two ways:

- As additional conformance criteria to an existing EHR-S FM function
- As additional functions placed in the most suitable section of the model and associated requirements structured as conformance criteria

For the entire HL7 EHR-S Functional Model, see *Appendix C5*. A disclaimer for how the Customer has used the model is included in *Appendix C5, Chapter 1*.

#### **4.4.2 Functionality in the EHR solution**

The scope of Helseplattformen covers the majority of the HL7 EHR-S Functional Model, however the Customer has not included all the functions and conformance criteria. The model is extended with several additional conformance criteria to some of the existing functions and several additional functions with associated conformance criteria. Due to the ambitious scope, the project has chosen not to create a subset of the Functional Model, and therefore not created a profile of the standard.

Most of the requirements in *T Appendix 1B* and *1C* refer to the functions and conformance criteria in the extended HL7 EHR-S FM. In *T Appendix 1B*, the requirements are also related to which enterprise capabilities and/or Helseplattformen's defined areas of particular focus they support.

In addition, user scenarios have been developed to enable the Customer to gain an overview of how the solution will support their processes. These have been developed to put the functions and conformance criteria in the HL7 EHR-S Functional Model, as well as the Customer's extended requirements, into a context.

### **4.5 THE RELATION BETWEEN ENTERPRISE CAPABILITIES AND THE FUNCTIONAL MODEL**

The functionality required to ensure that the enterprise capabilities are sufficiently supported by the EHR solution is defined by referring to functions and conformance criteria in the HL7 EHR-S Functional Model, Release 2<sup>6</sup>.

An enterprise capability needs one or several ICT functionalities in the EHR solution to be sufficiently supported. In addition, a specific EHR solution functionality may support several enterprise capabilities. See Figure 11 and Figure 12 below for an illustration of this relation.

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<sup>6</sup> *Annex C5* (cf. [http://www.hl7.org/implement/standards/product\\_brief.cfm?product\\_id=269](http://www.hl7.org/implement/standards/product_brief.cfm?product_id=269))



Figure 11- An enterprise capability is supported by several ICT functionalities expressed as EHR-FM functions

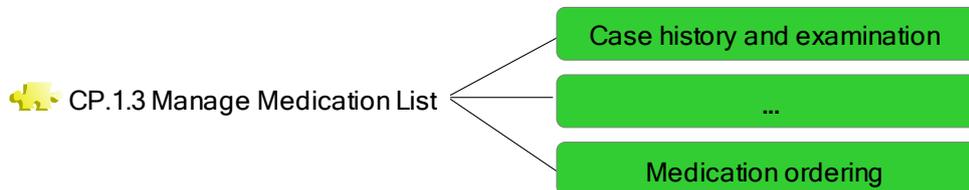


Figure 12 - An ICT functionality supports one or several enterprise capabilities

## 5 TECHNICAL SOLUTION

To achieve the goals of Helseplattformen the information supporting the actors, capabilities and functionality described above should be stored in a shared, structured information store. The information store should maintain a common health record for the patient that all actors and the patient can share. The EHR solution will be a core solution in the application landscape in the health sector in the Central Norway Health Region. This means that the Customer will emphasise the ability to integrate with local and national systems and medical technology based on open international standards.

The speed of technology development in the ICT and medical area means that the EHR solution needs to be flexible and robust in terms of future changes in the way health services are delivered. The solution should also be flexible to enable utilisation of the EHR solution and flexible in the terms of how the EHR solution will adapt to new technology.

For further details and requirements about the technical solution see *T Appendix 1C*.

## 6 THE CUSTOMER'S FURNISHED ASSETS (CFA)

As part of the Delivery of the EHR solution the parties will depend on or be allowed/required to use systems, equipment, services, personnel and property provided by other entities than the Contractor. These items are further described in *Appendix C7*. The Contractor shall in *Appendix C7 - Annex 1* identify which items are included in its offered solution. The CFA utilised by the Contractor shall be taken into account in the delivery plan, cf. *T Appendix 3*, and *T Appendix 6 and V Appendix 7* in terms of price.

## 7 IMPLEMENTATION

### 7.1 GENERAL

The Customer's goal is a successful EHR implementation that contributes to the overall ambition and objectives of Helseplattformen.

It is recognised that the daily operation of the health services can be affected during implementation. It is however a prerequisite that the Customer during implementation shall continuously provide health services in the region without negative effects on patient treatment. Ongoing patient treatment shall hereunder continue to have all necessary information available. Also, the interaction between the actors involved in patient treatment must not be adversely affected by the implementation.

The Contractor is expected to be a partner contributing to a successful implementation process.

The EHR delivery and implementation has two main parts: i) The Helseplattformen Main Project, referred to as “HMP” (which has a fixed start-up date) and ii) the Options that during the Term of the Delivery Contract is called for by the Individual Customers (which have unknown start up dates).

Similarly the Contractor shall acknowledge and take into account that the EHR delivery will be a joint effort between the Contractor and the Customer, however with clear divisions of responsibilities, and hence that all the Customer’s required activities (as set out in cf. *Appendix C7*) shall be taken into account in the progress and project plan.

The detailed framework and principles regarding time schedule and the project and progress plan are defined in the Delivery Contract, cf. *Delivery Contract, Chapter 2*, the project and progress plan, cf. *T Appendix 3* and testing and approval, cf. *T Appendix 4*.

Furthermore the Customer has defined some overall assumptions and guidelines that are described in cf. *T Appendix 3*:

- HMP should be completed no later than 5 years after the Effective date.
- The EHR delivery should be completed no later than 7 years after HMP Final Delivery Date, assuming that the last Customer Option is exercised no later than 5 years after HMP Final delivery date.
- The Contractor should as a default assume that St. Olavs Hospital HF will be a part of the first Partial delivery.
- The Contractor should as a default assume that the EHR solution shall be implemented when opening the new hospital in Nordmøre og Romsdal (SNR). The Contractors will during the dialogue phase be kept informed and be given the opportunity to coordinate the EHR Delivery with the SNR project.

## **7.2 EXISTING APPLICATIONS THAT WILL BE REPLACED**

Depending on what functionality is included in the final scope, as will be defined upon the conclusion of the dialogue phase, several of the existing applications will be replaced by the new EHR solution. For the complete list of existing applications, see *Appendix C1, Annex 1*. The list may be extended during the dialogue phase and defined upon the conclusion.

## **7.3 REGIONAL PROJECTS OF SPECIAL INTEREST AND RELEVANCE**

The implementation of a new EHR solution will be a complex process that needs to mitigate and take into account different dependencies. Examples of this may include different ongoing and upcoming projects and initiatives in the health services of the Central Norway Health Region. In

this Chapter one regional project of special interest and relevant is presented, namely the New hospital in Nordmøre og Romsdal (SNR). Descriptions of additional relevant national and regional reforms and projects are included in *Appendix C0, Annex 1*.

### 7.3.1 New hospital in Nordmøre og Romsdal

The project for a hospital in Nordmøre og Romsdal (SNR) involves the planning and building of a new shared acute hospital for Nordmøre og Romsdal comprising of an acute hospital at Hjelset outside Molde and a decentralised medical centre (DMS) in Kristiansund. The planning and construction of a new hospital in Nordmøre og Romsdal is taking place alongside many of the large ICT development programmes in the Central Norway Health Region, such as Helseplattformen and the new laboratory system, as well as several national programmes. These development programmes aim to achieve ICT solutions that support organisational development in the health sector with improved efficiency in terms of provision and delivery of health services, with improved quality of patient treatment and a sustainable health sector. This involves both centralisation and decentralisation in the provision and delivery of specialist health services, made possible by ICT support.

The new hospital is in a unique position in terms of this development, as it can fully utilise the range of opportunities provided by new ICT solutions. The development of ICT in SNR will therefore be planned and implemented in close collaboration with the main ICT programmes and projects nationally and in the Central Norway Health Region. SNR is the first hospital that is being planned and built based on *Samhandlingsreformen* and ICT technology will help to ensure more coordinated and integrated health services within and between providers. The project is about implementing organisational development within the specialist health service that is closely integrated with municipal health services, has decentralised outpatient services and effectively enables follow-up of patients in their own homes.

The Helseplattformen programme shall be integrated in the planning of the new hospital in terms of which ICT solutions shall be implemented particularly within hospital technology and solutions that support the work processes.

## 8 REGULATORY ENVIRONMENT

Many laws, regulations and legal requirements (including mandatory standards), have an impact and/or a potential impact on the Customer's procurement and operation of a new EHR solution. An overview of the regulatory environment in Norway with respect to in particular health law and data protection requirements is provided in *Appendix C6*. The Contractor bears the risk that the EHR solution complies with the regulatory requirements as at Effective Date, whereas the Customer bears the economic risk of the changes thereafter.

## 9 BENEFITS REALISATION

Helseplattformen shall provide benefits for the citizens, the health professionals and the health organisations in the Central Norway Health Region. Helseplattformen represents a significant investment, and therefore realisation of benefits is both expected and necessary in order to ensure a sustainable health service.

Helseplattformen defines a benefit as the measurable improvement resulting from an outcome of change, which is perceived as an advantage by one or more stakeholders.

Helseplattformen’s ambition and objectives describe the future desired situation in terms of what the programme is expected to achieve. The benefits identified so far, presume that these objectives are achieved.

Figure 13 shows some preliminary identified benefits sorted by three categories. Identified benefits include benefits related to clinical outcomes, process efficiency and cost reduction. Implementation of the EHR solution should support the opportunity for realising benefits already from the first Delivery of the EHR solution going live.

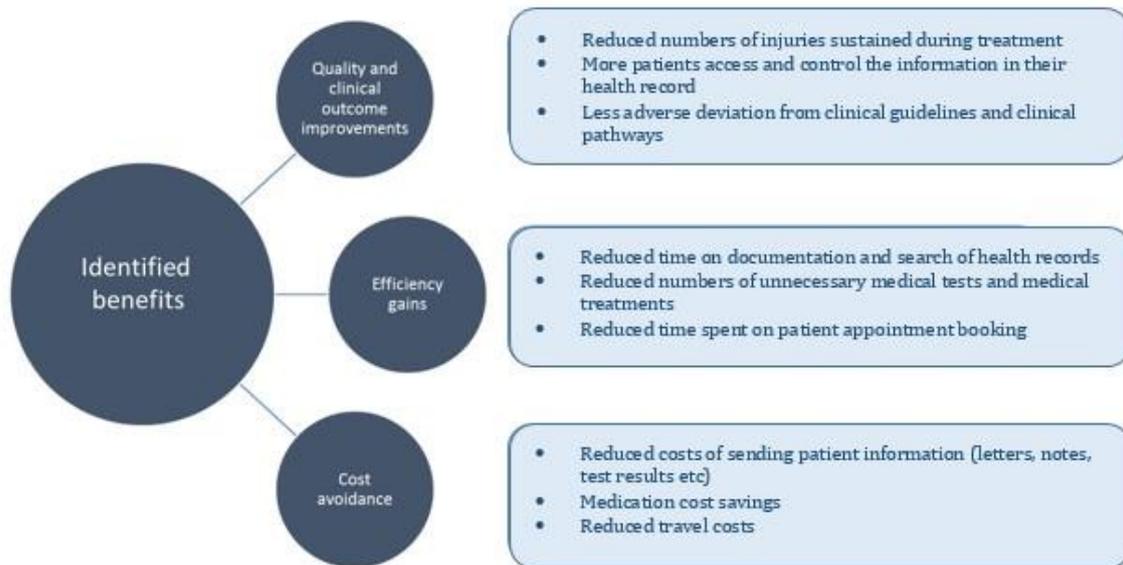


Figure 13 - Identified benefits by category

During the dialogue phase the Customer will seek to get a better understanding of how the recommended EHR solution will underpin the identified benefits and how the Contractor can contribute to benefit realisation based on their capabilities and previous experience.

As a partner, the Contractor is expected to be both a solution provider and change and business development partner. Extensive knowledge and experience in benefit realisation within the health sector is expected of the Contractor.

## 10 SUPPORT AND MAINTENANCE PRINCIPLES

The offered solution shall be maintained and supported in a way that contributes to achieving the overall ambition and objectives of Helseplattformen, see *Chapter 2*. In addition to this, the Contractor is expected to maintain and support the EHR solution in a way that enables the Customer to attain the following key goals and principles:

- A professionally good maintenance of the EHR solution
- A cost effective maintenance service
- A stable, skilled, and reliable maintenance provider



- Excellent governance and use of resources during the use and further development of the EHR solution
- The Contractor will be a partner for further development of the EHR solution over time