

<p>Good Practices</p>	<p>TITLE of Good Practice/Experience</p> <p>Under “Good Practices”, please report proven approaches to solving interoperability challenges for healthcare providers. You may wish to consult the two provided in the Ann</p> <ul style="list-style-type: none"> Responses required
<p>Organization*</p>	<p>Municipal hospital. Approx 500 beds and 500 000 outpatient visits. EMR with different modules, PACS and non-clinical information systems are in place. EMR is integrated with nation-wide health information system. Vast majority of clinical processes, incl. nursing care, are digital.</p>
<p>Name of expert & Position in the Organization</p>	<p>Peeter Ross-Former CIO and director of R&D</p>
<p>What was the interoperability challenge for health care providers that you have addressed? (What & Why, Scope of interoperability project)*</p>	<p>3 main tasks: 1) Re-engineer hospital processes from analogue to digital 2) Development and implementation of EMR with different clinical and non-clinical modules, and PACS installation 3) Integrate hospital EMR with nation-wide health information system, incl. semantic interoperability and agreement about digital data exchange standards.</p>
<p>How was this challenge addressed?*</p>	<p>1) Hospital level re-engineering: a) Top management engagement to decide about the pace and sequence of hospital digitalization; b) Involvement of several clinical departments in planning and designing EMR modules; c) Establishment of EMR development team: hospital top management - clinical opinion leaders - hospitals and developers analysts - software developers - software company top management; d) training of digital and e-health literacy to whole hospital staff. 2) Hospital EMR and PACS development: a) Agreement about the digitalization strategy and main goals among top management and clinicians; b) digitalization road map starting from the "leader" departments and from the perspective of most wide benefits of usage for clinicians (e.g. radiology, lab, clinical activities and performance reporting) with the strong support to scale up in other departments; c) selection of IT partner for hospital IT development with the perspective of cooperation 5-10 years; d) allocation of resources for hard- and software acquisitions, and IT staff salaries; e) emphasis to integrate processes and modules of different clinical and non-clinical departments. 3. Integration with Nation-wide health information system (EHIS): a) Close cooperation with national e-health authority (foundation under the ministry of social affairs) to agree</p>

	<p>about the common goals (pace and sequence of integration and development of national e-health services, KPI-s, allocation of resources from both sides, etc.); b) updating EMR to be compatible with EHIS data and data exchange standards; c) conduction extensive training courses to hospital clinical staff to explain opportunities of the usage of EHIS and also about security and data privacy; d) full support of hospital top management for integration with EHIS, incl. explaining the importance of data exchange to clinicians. From the government side, the most important aspects of EHIS implementation: a) Clear governance of e-health services that will be implemented country wide, e.g. e-prescription, e-booking, e-consultation, PACS, EHR, patient portal, etc. Single responsible authority, top-down approach with as wide involvement of stakeholders as possible; b) Legal clarity – transparency of planned activities, equal rights and obligations for governmental and private healthcare institutions, adjustment legal regulations according to digital processes, incl. security and privacy; c) Use of established e-government, e.g. PKI, established on-line identification methods (ID-card, mobile-ID, smart-ID), secure data exchange environment, integration of different state registries; d) Agreement about access rights to digital medical documents; e) Standardization of medical data and data exchange protocols; f) training and e-health literacy of clinical staff of all healthcare organizations; g) appropriate financing from the insurance and/or state budget, and from EU funds.</p>	
	<p>duration of the project-120 months</p>	<p>Year completed-2018-01-01</p>
<p>What were the major enablers and pre-conditions?</p>	<p>1. Involvement of decision makers on different management levels starting from government agencies, hospital top management and clinical specialists ending with IT companies and patient societies. 2. Transparent strategy, including resource allocation. 3. Digitalization on grass-root level (hospitals, GP-s, out-patient clinics), including computer literacy. 4. Legal clarity and very strong emphasis to data security and privacy. 5. Agreement about and use of common terminologies, taxonomies and data exchange standards throughout the country, regions and healthcare institutions. 6. Very positive public attitude towards e-government and public e-services.</p>	
<p>What type of tender did you use?*</p>	<p>Direct Award of Contracts</p>	
	<p>Prior Consultation</p>	
	<p>Public Call</p>	<p>✓</p>
	<p>Invitation by Grant Agreement</p>	
	<p>Other:</p>	
<p>Comment</p>	<p>The current activity of eHAction to develop common framework for procurement of medical digital softwares and e-services was missing. Most of hospitals developed own bidding documents. This was time consuming and caused (still causing) problems with integration of new</p>	

	softwares and services.	
Cross Border Relevance (if any)*	Information exchange for cross border patient care	✓
	Information exchange for public health and secondary use	-
	Information exchange for the patient	
Which interoperability use cases have you addressed?*	Laboratory orders/results	✓
	Imaging orders/results	✓
	Medication Prescription/dispensation	✓
	Discharge letters	✓
	Patients summaries	✓
	Patient referrals	✓
	Teleconsultation (patient/doctor)	✓
	Telecollaboration (doctor/doctor)	✓
	Public health reporting(reportable diagnosis & key interventions)	✓
	Other: <i>e.g. Hospital Admissions/Bed Management at the regional level</i>	
	Other: <i>e.g. enter your UC name</i>	
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What interoperability standards and profiles have you used for each of the above use cases?*	Laboratory orders/results	LOINC, partly SNOMED-CT
	Imaging orders/results	HL7
	Medication Prescription/dispensation	HL7, ATC
	Patients summaries	HL7 CDA
	Patient referrals	HL7
	Teleconsultation (patient/doctor)	VPN
	Telecollaboration (doctor/doctor)	Through nation-wide health-information system
	Public health reporting	ICD-10, NCSP (Nordic Classification of Surgical Procedures)
	Other: <i>e.g. Hospital Admissions/Bed Management at the regional level</i>	
	Other: <i>e.g. enter your UC name</i>	
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How did your project define its interoperability specifications?*	They were created by the project based on our own selection of standards and profiles	
	We referenced/reused the national interoperability framework	✓
	We ask the main vendor to set these specifications	
	Other:	
What	Used a project mandated specific set of interoperability test tools before systems where interconnected?	✓

interoperability testing strategy have you employed?*	Reused an existing set of interoperability test tools that were customized before systems were interconnected?		
	Tested the point of care systems by connecting them to a lab version of central systems		
	Other:		
What were the main implementation challenges you encountered	Spent a lot of time to connect each point of care systems		
	When interoperability issues occurred, it was complex to decide which system is at fault		
	We had long discussions on which standards to select	✓	
	Comment	Starting from hospital EMR provider ending up with government agencies	
	Other: <i>e.g. enter your UC name</i>		
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Who were the perceived beneficiaries of your interoperability initiative?	Citizens/patients (e.g. improved care outcomes, improved citizen experience)		Directly
	Health Professionals(e.g. improved workflow, access to information, re-use of data in research)		Directly
	Hospital administration (e.g. reduction of waste, cost savings, improved monitoring)		Indirectly
	Financial and social factors (e.g. market competitiveness, more jobs)		Indirectly
	Health System (improved efficiency, quality and effectiveness, supporting learning systems)		Directly
Did you use the Refined European Interoperability Framework (ReEIF) 5 layer model to analyse its interoperability	I am not aware of ReEIF:NO		
Based on your experience, what can you recommend to others?	Small healthcare organizations (doctors, pharmacies, etc.	1. Improve digital and e-health literacy 2. Use out of shelf products 3. Use cloud services.	
	Large healthcare organizations	1. Involvement of all stakeholders 2. Approved strategy and implementation plan 3. Involvement of clinical	

		specialists in EMR development 4. Continuous training
	policy makers at EU level	Agreement about minimum set of standards for: 1) clinical terminology and coding; 2) data exchange. Proposal of the sequence of implementing pan-european e-health services (e-prescription, patient summary, etc.) Continuation of current EU level harmonizing activities and proposing new epSOS-like interoperability programs.
	Policy makers at Member State Level	Development and approval of e-health strategy which should be linked to health and healthcare strategy, and to e-government strategy. Transparency in financing Transparency of standards development