



Information Security in ELGA

Information Security in Healthcare Conference
Hochschule Luzern
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Speaker Introduction

- Name: Christian Stark
- Educational Background
 - HTL Innsbruck, Nachrichtentechnik und Elektronik, Ing.
 - Diplomstudium Wirtschaft & Management, Management Center Innsbruck, Mag.(FH)
 - Masterstudiengang Medizininformatik / Informationsmanagement, Universität für Gesundheitswissenschaften, Medizinische Informatik und Technik, Hall in Tirol, Mag.
 - Masterstudium „Recht im Gesundheitswesen“, Universität Innsbruck, currently working on Master Thesis
- Current Position
 - Project Manager, Clinical Information Systems Group, Tirol Kliniken GmbH
 - Project Manager for the implementation of ELGA-GNT (Tiroler ELGA Landesdomäne)
- Teaching at HTL, FH and University
 - Project Management
 - Medical Information Systems & eHealth



Contents

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- Introduction of Tirol Kliniken GmbH
- „Classical“ Electronic Reporting Communication
- ELGA Basics
- Information Security in ELGA
 - Technical Information Security
 - Organizational Information Security
 - Information Security under Patient Control



Tirol Kliniken GmbH Introduction





Some Impressions ...

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... from Innsbruck





Tirol Kliniken GmbH is ...

... a Management Holding owned 100% by the Federal State of Tirol

Tirol Kliniken manage 4 Hospital Sites in and around Innsbruck





Tirol Kliniken Key Figures

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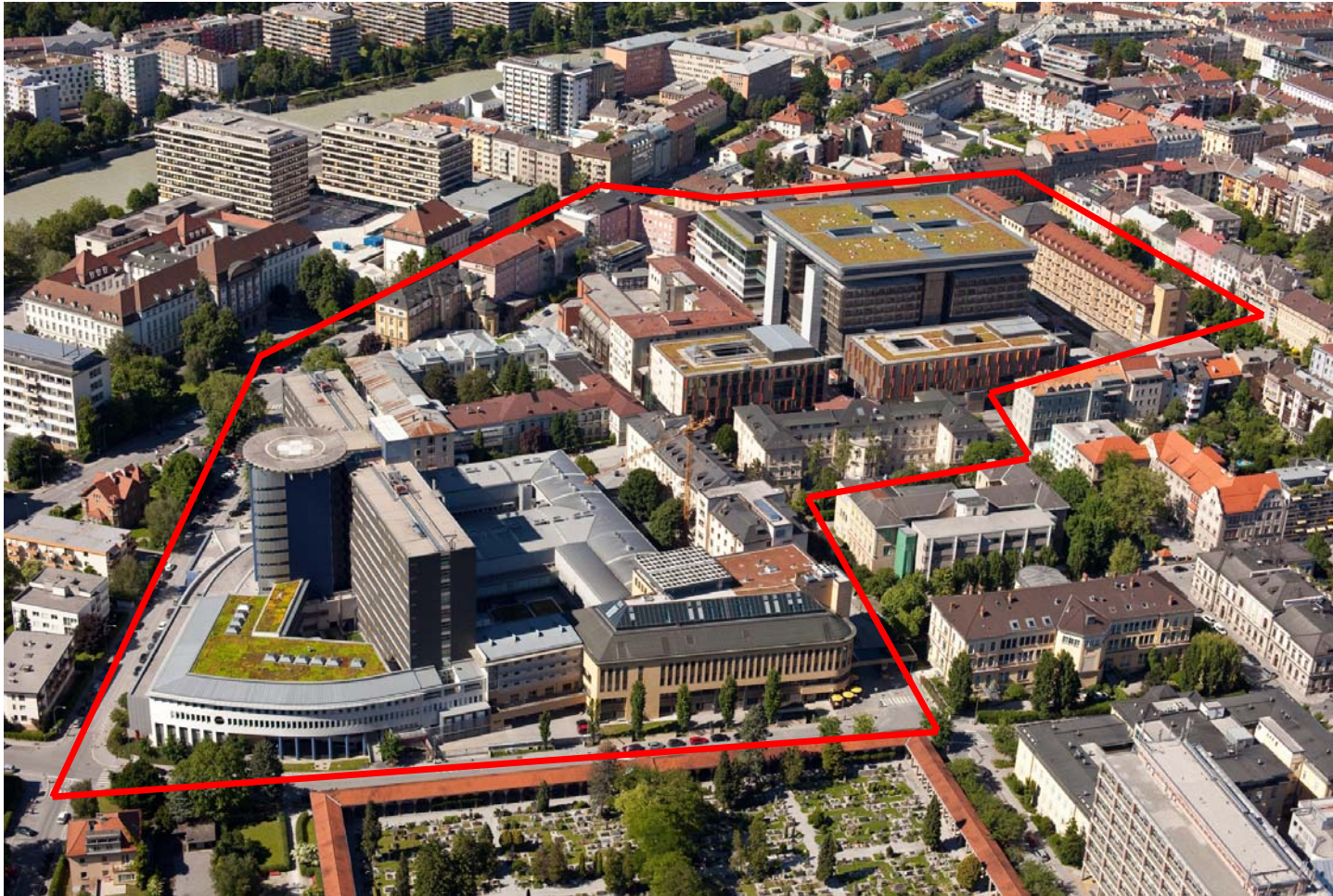
Number of Beds	2.461
Inpatients p.a.	119.000
Outpatient Visits p.a.	1.907.000
Staff	7.120 FTEs
Operating Budget p.a.	595 Mio €





University Medical Center Innsbruck

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Major IT Systems at Tirol Klinken

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- Clinical Information System – Cerner Millennium
- Patient Administration and ERP – SAP
- Intensive Care PDMS – GE Centricity Critical Care
- Multimedia Archive – Siemens syngo.share
- Surgery Documentation System - Carus MyMedis
- Radiology - PACS Agfa Impax and RIS GE Centricity



GE Healthcare

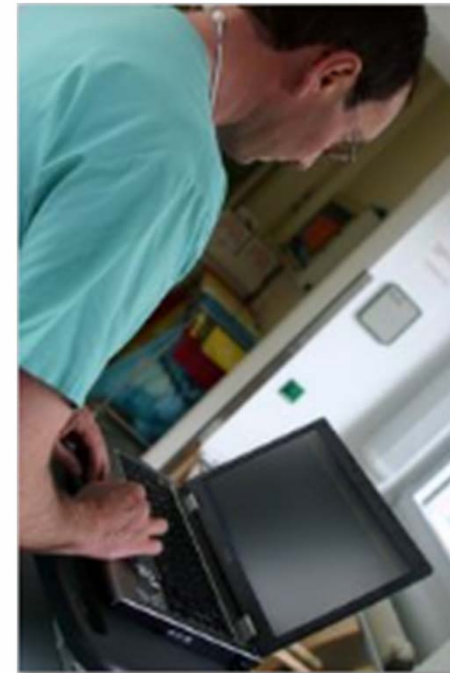




Tirol Kliniken IT-Strategy

Strategic IT Goals of Tirol Kliniken

- integrated comprehensive EMR
- consistent IT support for all major processes & process standardization
- IT support for QM and Research
- Cross institutional extramural electronic communication / eHealth + ELGA





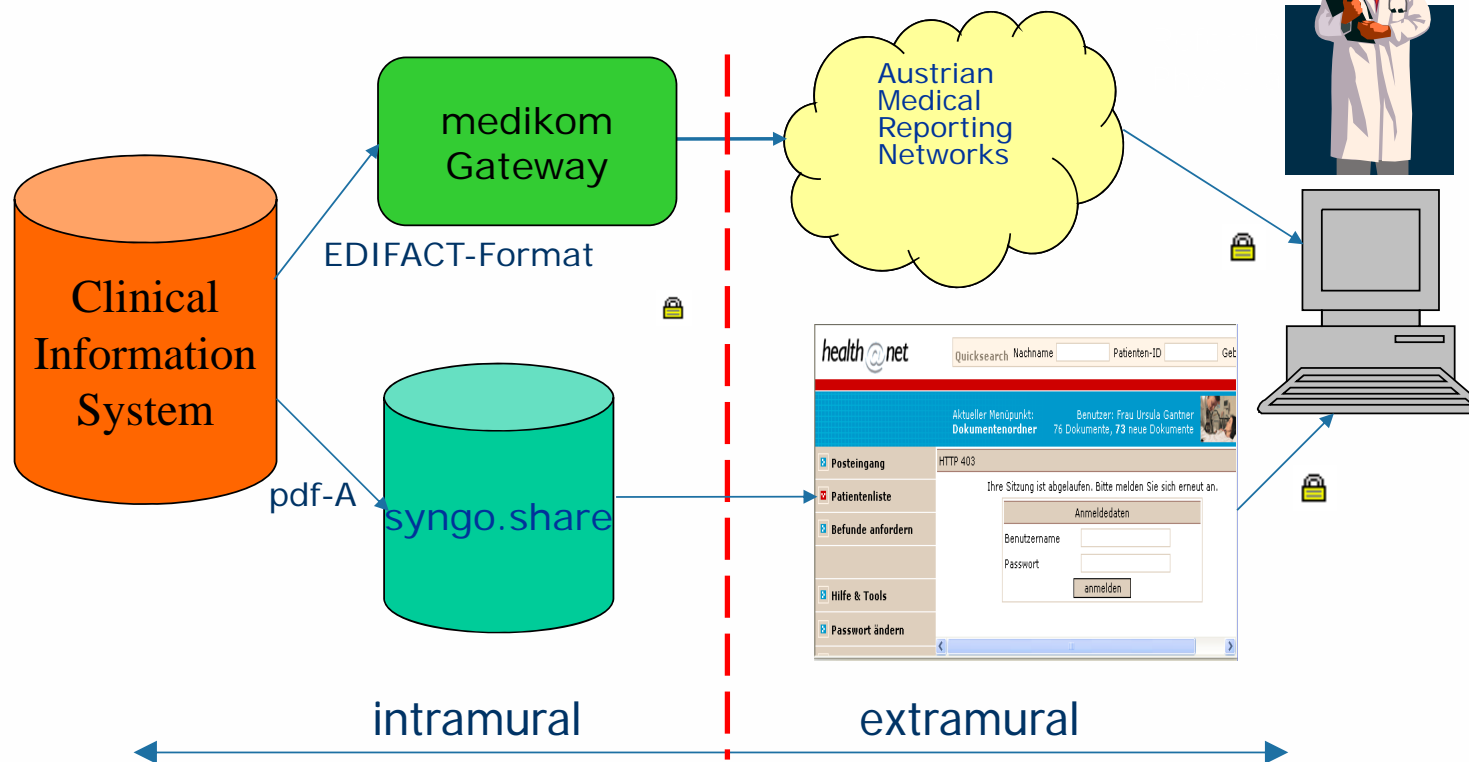
“Classic” Electronic Medical Reporting Channels in Austria



„Classic“ Channels for Extramural Electronic Communication

Since 2003 Tirol Kliniken have been supporting two extramural electronic communication channels:

- Austrian Medical Networks (DaMe, Medicom, ...)
- Push-Portal **health@net**





<https://www.healthnet.or.at> Tirol Kliniken Push Portal

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health@net

Herzlich willkommen bei health@net!
Das Webportal zur Verwaltung von Arztbriefen und Befundberichten steht allen registrierten Ärzten zur Verfügung. Sind Sie noch nicht registriert? [Klicken Sie hier.](#)

Welcome to health@net!
This is an english introduction to health@net with the purpose of informing non-german-speaking people.

Anmeldung
Das Portal zur Verwaltung von **Arztbriefen** und **Befundberichten**
[Klicken Sie hier und lesen Sie mehr darüber](#)

BENUTZERNAME:
PASSWORT:

Haben Sie Ihre Zugangsdaten vergessen? [Klicken Sie hier.](#)

health@net ist ein Service der **TILAN** [Impressum](#)

Patienten-ID Geburtsdatum

Thomas Schabetsberger
nte, 10 neue Dokumente

Dokumente	Produzent	Verfügbar bis	Datum
SCHÄDEL	RAAA	21.03.2004 (26 Tage)	21.01.2004
Congelatio	C1GA	20.04.2004 (56 Tage)	20.02.2004
Congelatio	C1GA	20.04.2004 (56 Tage)	20.02.2004
Congelatio	C1GA	20.04.2004 (56 Tage)	20.02.2004
Congelatio	C1GA	20.04.2004 (56 Tage)	20.02.2004
THORAX	RAAA	13.03.2004 (18 Tage)	14.01.2004
MEKAR Ergometrie	MEKA	03.04.2004 (39 Tage)	07.01.2004
MEKAR EKG	MEKA	03.04.2004 (39 Tage)	07.01.2004
MEKAR EKG	MEKA	03.04.2004 (39 Tage)	07.01.2004
MEKAR Ergometrie	MEKA	03.04.2004 (39 Tage)	07.01.2004
BAKTERIOLOGIE	ZZHY	13.03.2004 (18 Tage)	14.01.2004
Head^HeadSpi	RARA	13.03.2004 (18 Tage)	14.01.2004
MEKAR EKG	MEKA	20.04.2004 (56 Tage)	19.02.2004
-	RAAA	21.03.2004 (26 Tage)	28.07.1999
-	UNSPEC	22.04.2004 (59 Tage)	13.01.2004
MEKAR EKG	MEKA	13.03.2004 (18 Tage)	14.01.2004



ELGA Basics



was kann elga?

ELGA erleichtert Ihnen in Zukunft den Umgang mit Ihren Gesundheitsdaten. Mit ELGA können Sie und Ihre behandelnde Ärztin oder Ihr behandelnder Arzt zeit- und ortsunabhängig auf Ihre Befunde zugreifen – sicher und unkompliziert. Ziel ist die Unterstützung der medizinischen Behandlung und Betreuung durch einen besseren Informationsfluss, vor allem dann, wenn mehrere Gesundheitseinrichtungen zusammenarbeiten.

mehr infos zu elga.



Für Fragen steht Ihnen die ELGA-Serviceline unter der Telefonnummer **050 124 4411** werktags von Montag bis Freitag von 07.00 – 19.00 Uhr zur Verfügung.

Meine elektronische
Gesundheitsakte.
Meine Entscheidung!



mehr wissen hilft.



Informationen zur elektronischen
Gesundheitsakte ELGA

Meine elektronische
Gesundheitsakte.
Meine Entscheidung!





eHealth Definitions

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- **Iakovidis** EU Directorate General for Information Society and Media

e-Health means

- Internet-based applications
- Involvement of citizens / Empowerment



- **Health Information Management and Systems Society (HIMSS)**

eHealth is “ ... the application of the Internet and other related technologies in the healthcare industry to improve the access, efficiency, effectiveness, and quality of clinical and business processes utilized by healthcare organizations, practitioners, patients, and consumers to improve the health status of patients”.

- **Eysenbach**

sees e-Health as “... an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies.

In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology”.



EU eHealth Strategy

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eHealth is a major topic for EU's Digital Agenda

- EU eHealth Action Plan of 2004
 - ◇ covered everything from electronic prescriptions and health cards to new information systems that reduce waiting times and errors – to facilitate a more harmonious and complementary European approach to eHealth
 - ◇ Member States should have developed tailored national and regional eHealth strategies derived from the EU eHealth Strategy
- eHealth was also a core part of the EU i2010 Strategy
- „eHealth Action Plan 2012 – 2020“ is a major building block of Europe's *Digital Agenda / Initiative 2020*
- <https://ec.europa.eu/digital-agenda/en/news/ehealth-action-plan-2012-2020-innovative-healthcare-21st-century>



.... Core of the Austrian eHealth Strategy

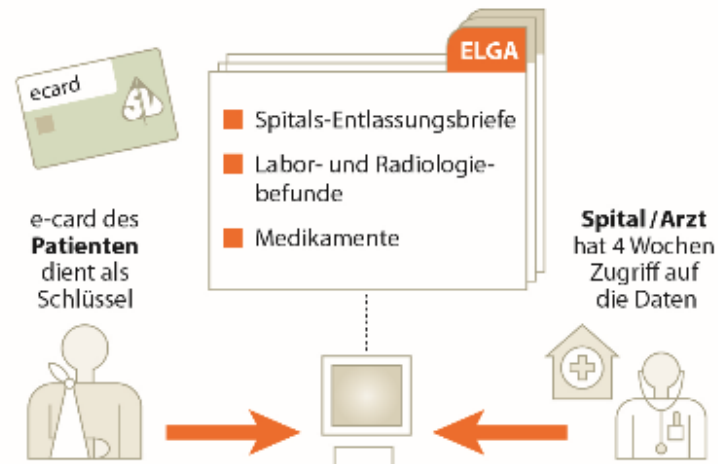
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- ELGA = Acronym for „**EL**elektronische **G**esundheits**A**kte“ („Electronic Health Record“)
- ELGA is an information system which enables all eligible users (citizens / patients, physicians, nurses, pharmacists etc.) to gain access to healthcare information.
 - **e-reports**
 - **e-medikation**
- ELGA links data already available in different provider systems and gives access to care providers who have a confirmed current patient contact.
- ELGA Patient Portal can be accessed via www.gesundheit.gv.at
- ELGA started in Dec. 2015 with the Domains of KAGES (Steiermark) and KAV (Vienna).
- eMedication started in Deutschlandsberg (Steiermark) in May 2016
- Hospitals, Nursing Homes, GPs, Pharmacies will successively be able to provide healthcare information for ELGA and access information in ELGA in a step-by-step go-live-process.
- Planned Go-Live Date for Tiroler Landesdomäne ELGA-GNT: Dec. 2016
- More information about ELGA: www.elga.gv.at



elga in a Nutshell

die elektronische Gesundheitsakte



Was bringt ELGA für die Patienten?

- mehr Sicherheit und Information
- mehr Behandlungsqualität
- mehr Komfort beim eigenen Befund-Management

Wann startet ELGA?

- seit Anfang 2014 ELGA-Portal
- ab Ende 2015 schrittweise in den öffentlichen Spitälern
- danach Zug um Zug Kassenärzte, Apotheken und private Krankenanstalten

Wer ist dabei?

Alle Versicherten, die sich nicht eigens von ELGA abgemeldet haben.

APA-AUFTRAGSGRAFIK
Auftraggeber: ELGA GmbH; Quelle: APA/Gesundheitsministerium





ELGA is mandatory!

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- **ELGA GmbH**, financed by the Republic of Austria, all 9 Federal States and the Social Insurance Group, was founded in November 2009 to manage the technical and organizational implementation of ELGA.

- www.elga.gv.at

BUNDESGESETZBLATT FÜR DIE REPUBLIK ÖSTERREICH

Jahrgang 2012

Ausgegeben am 14. Dezember 2012

Teil I

111. Bundesgesetz: Elektronische Gesundheitsakte-Gesetz – ELGA-G
(NR: GP XXIV RV 1936 AB 1979 S. 179. BR: AB 8818 S. 815.)

111. Bundesgesetz, mit dem ein Gesundheitstelematikgesetz 2012 erlassen und das Allgemeine Sozialversicherungsgesetz, das Gewerbliche Sozialversicherungsgesetz, das Bauern-Sozialversicherungsgesetz, das Beamten-Kranken- und Unfallversicherungsgesetz, das Gentechnikgesetz und das Strafgesetzbuch geändert werden (Elektronische Gesundheitsakte-Gesetz – ELGA-G)

Der Nationalrat hat beschlossen:

Inhaltsverzeichnis

Art.	Gegenstand
1	Gesundheitstelematikgesetz 2012
2	Änderung des Allgemeinen Sozialversicherungsgesetzes
3	Änderung des Gewerblichen Sozialversicherungsgesetzes
4	Änderung des Bauern-Sozialversicherungsgesetzes
5	Änderung des Beamten-Kranken- und Unfallversicherungsgesetzes
6	Änderung des Gentechnikgesetzes
7	Änderung des Strafgesetzbuches



Legal Framework for



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- BGBl. 111/2012: ELGA Law (ELGA-G)
- ELGA Implementation Guideline of the Austrian Ministry of Health (ELGA-VO)
- Health Telematics Guidline 2013
- Data Protection & Privacy Law 2000 (DSG 2000)
- eGovernment Law
- Patient Charta
- Treaty for the Financing and Organisation of the Austrian Healthcare System between States and the Federation according to §15a B-VG
- Hospital und Convalescence Law (KAKuG)
- Physician Law 1998
- Hospital Laws of the Federal States



Which content must be provided for ELGA?

- Currently the following content has to be registered by Healthcare Providers when Healthcare Provider goes live:
 - From Inpatient Stays
 - **Physician Discharge Document**
 - **Nursing Discharge Document (if available)**
 - From Outpatient Stays
 - **Lab Report**
 - **Radiology Report**
- Other content, such as Outpatient Reports, Pathology Reports, Images (DICOM) etc. may only be registered after their ELGA Implementation Guidelines had been released!
- Further ELGA content will be
 - Outpatient Reports
 - Pathology Reports
 - Images
 - Mother-Child Pass
 - ...



Implementation Guidelines

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- ELGA does not only standardize purely technical aspects but also structure and content of documents
- Key part for content standardization are **Implementation Guidelines**
- For each document type an officially approved Implementation Guideline + LOINC(s) must exist before it may be registered in ELGA!
 - Implementation Guidelines describe structure, content and technical implementation of an ELGA Document in CDA
 - Generation of an Implementation Guideline requires intensive discussions among clinical and technical experts → big effort!
- Currently the following ELGA Implementation Guidelines are available
 - Allgemeiner CDA-Implementierungsleitfaden (Version 2.06.1)
 - Implementierungsleitfaden Entlassungsbrief Ärztlich (Version 2.06.1)
 - Implementierungsleitfaden Entlassungsbrief Pflege (Version 2.06)
 - Implementierungsleitfaden Laborbefund (Version 2.06.1)
 - Implementierungsleitfaden Befund bildgebende Diagnostik (Version 2.06.1)
 - Implementierungsleitfaden e-Medikation (Version 2.06.1)
 - Implementierungsleitfaden Pflegesituationsbericht (Version 2.06)
 - Implementierungsleitfaden XDS Metadaten (Version 2.06)
- ... further Implementation Guidelines will follow



ELGA Interoperability Stages

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The benefit of providing documents in ELGA depends on their degree of structuring. The higher the structural level of the documents provided in ELGA, the better such content can be automatically processed and interpreted by IT systems (syntactic and semantic interoperability).

There are 4 different „**ELGA Interoperability Stages**“ („ELGA Interoperabilitätsstufen“, abbreviated „**EIS**“):

- **EIS Basic**

CDA Level, including the clinical document as pdf (content as it is)

- **EIS Structured**

CDA Level 1, including the clinical document as pdf, which is already built up (naming and sequencing of paragraphs) according to the ELGA Implementation Guidelines

- **EIS Enhanced**

CDA Level 2 dokument, according to the ELGA Implementation Guidelines

- **EIS Full Support**

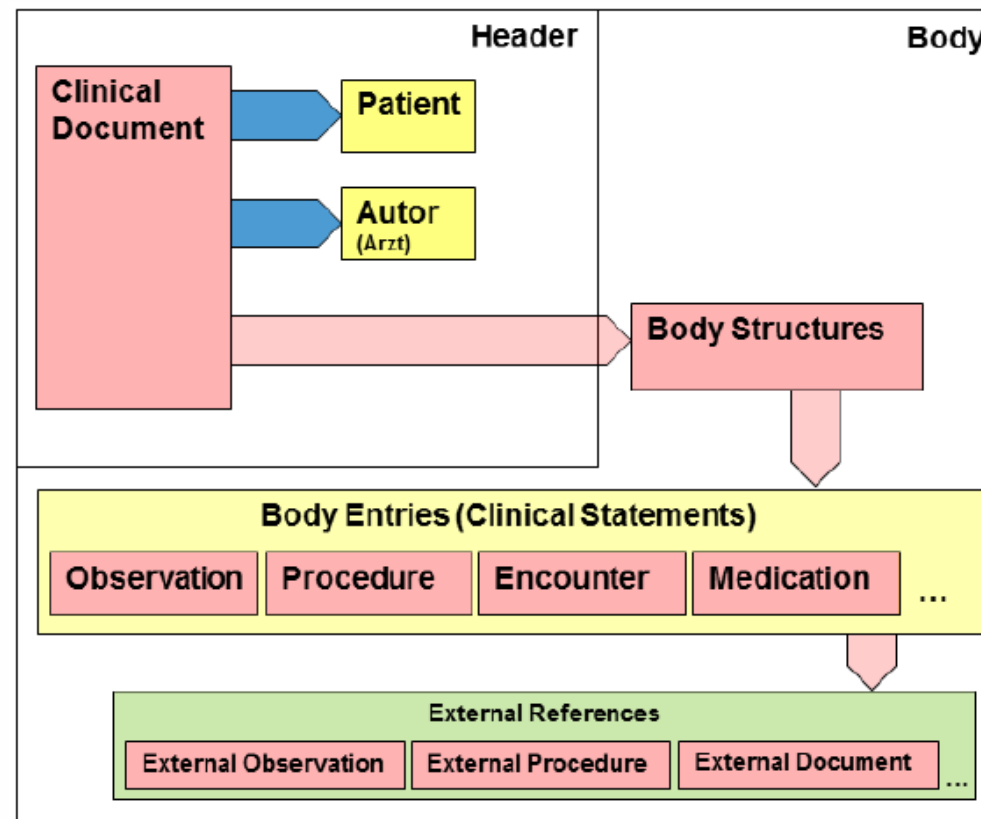
CDA Level 2 dokument, according to the ELGA Implementation Guidelines



CDA Document Structure

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CDA Documents are structured documents in XML Format





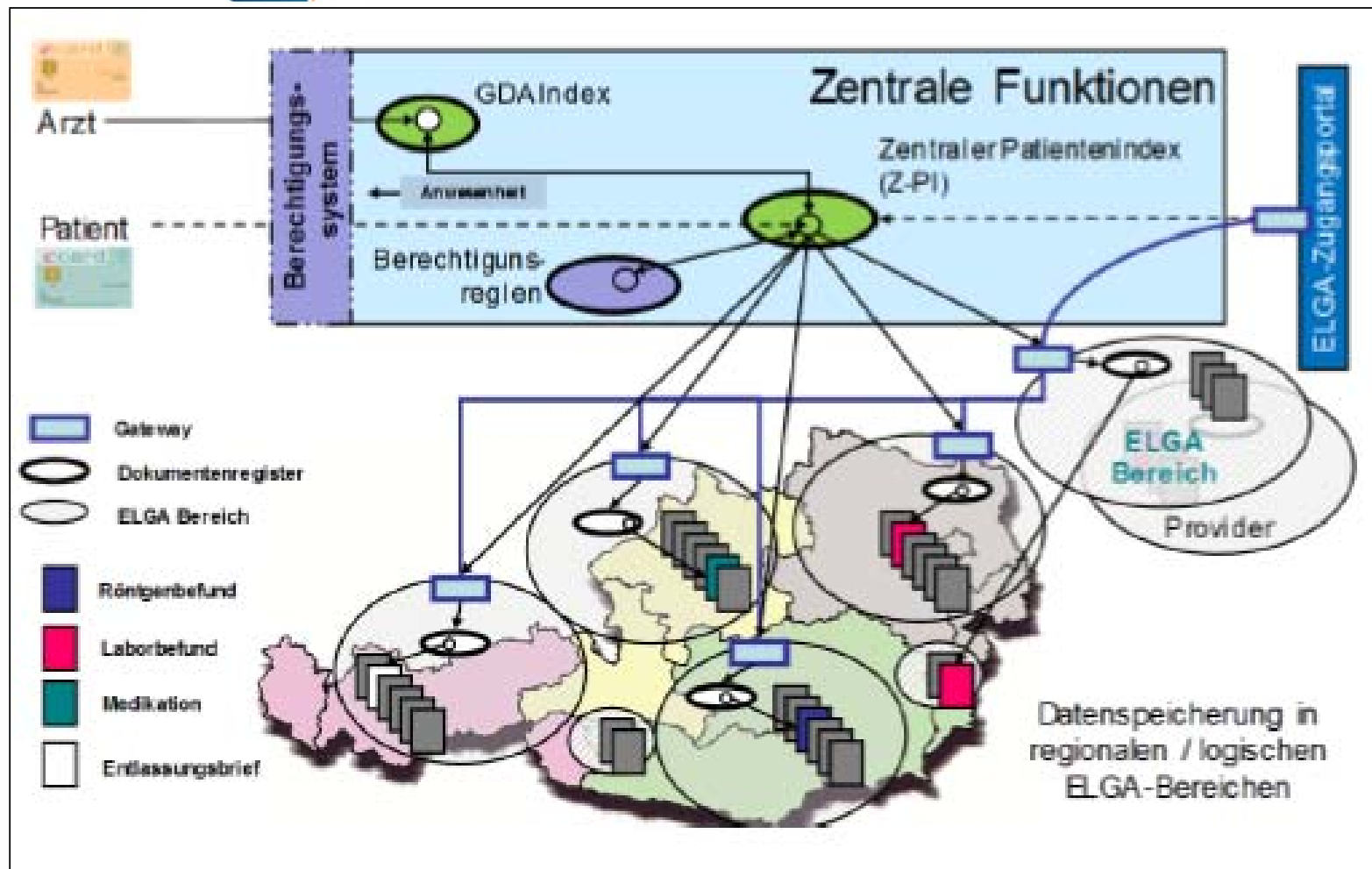
Relevant Initiatives and Standards for ELGA

- **Integrating the Healthcare Enterprise (IHE)**
 - Technical Framework
 - IHE-Profiles
 - Syntactical Interoperability
 - ability of systems to exchange data on a technical level by applying approved standards
 - Semantic Interoperability
 - ability of systems to interpret data automatically via metadata (information about data)
 - Process Interoperability
- **HL7**
 - Reference Information Model (RIM)
 - Clinical Document Architecture (CDA)
- **LOINC** (Logical Observation Identifiers Names and Codes)
 - Coding Standard for Lab-Parameters, Documents ...
- **DICOM**
 - Including Thumbnail Preview (WADO or maybe WADO-RS in the future)



is a virtual, federated EHR linking Data
stored in decentralized Repositories

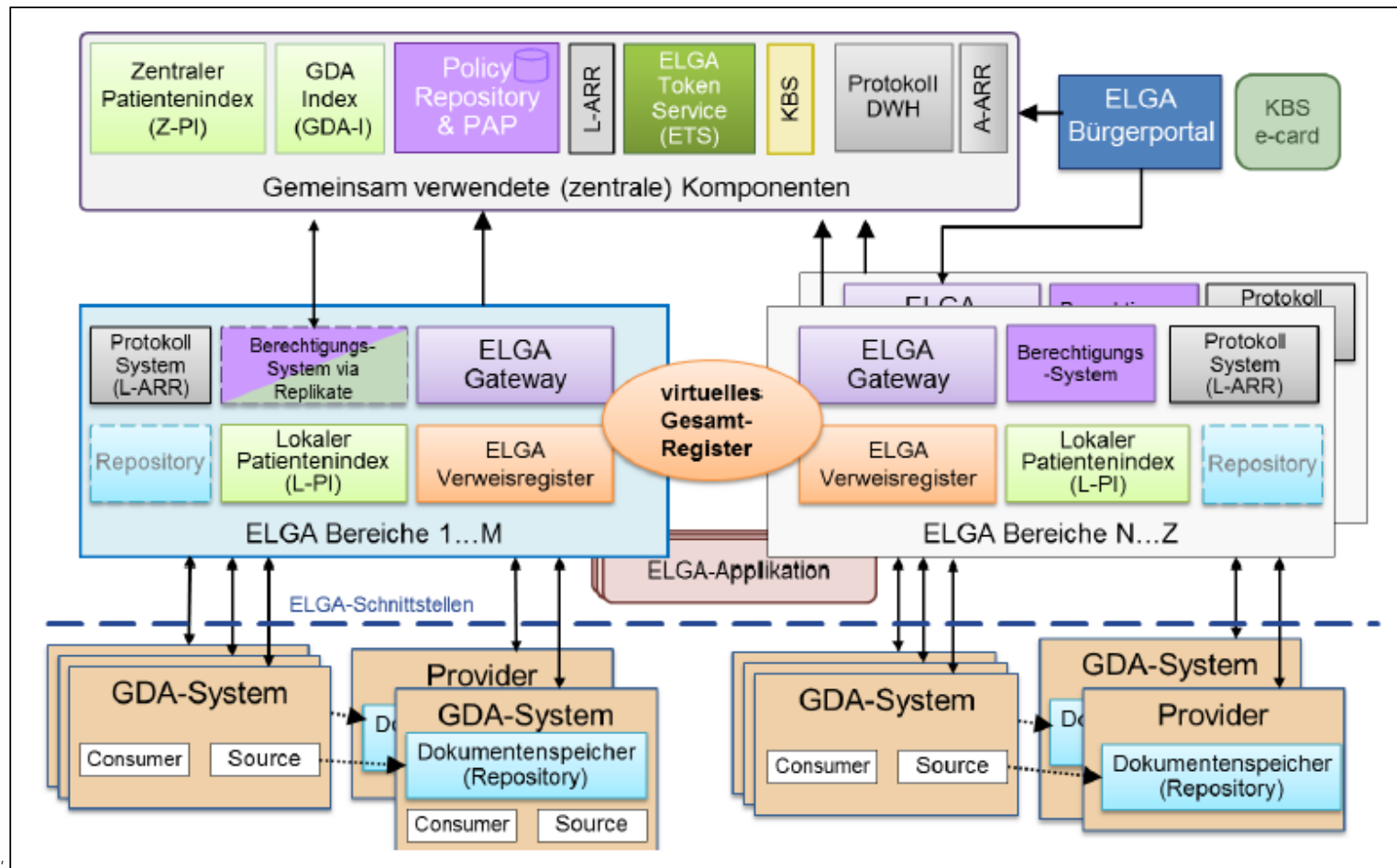
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elga Architecture

ELGA is realized around the XDS-Profile via SOAP based Web Services. Source: ELGA GmbH





ELGA Central Components

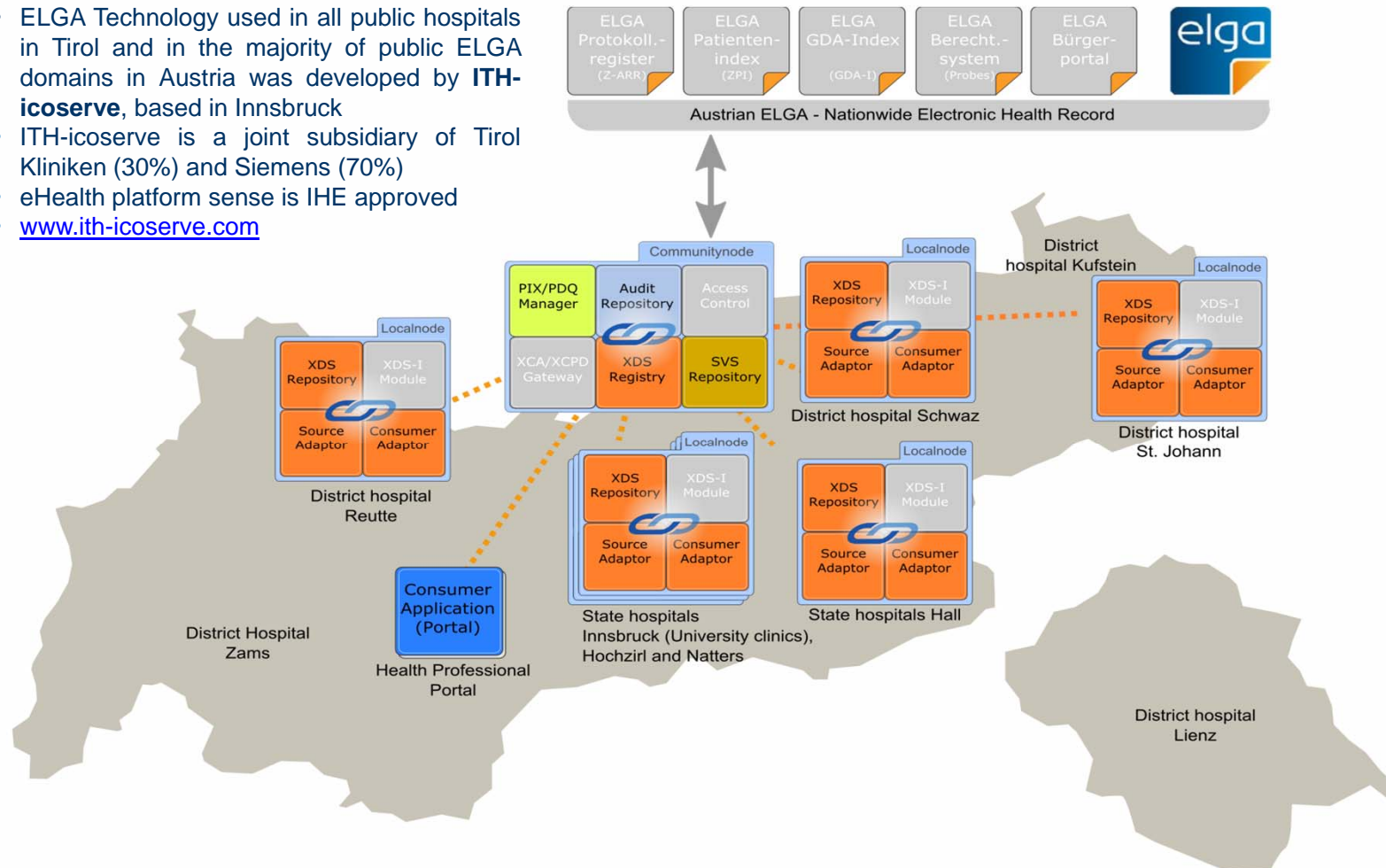
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- **L-PI (Local Patient Index)**
 - Local PIX of an ELGA Domain
- **Z-PI (Austrian Central Patient Index)**
 - Austria wide identification of patients by linking Local Patient Indices
- **PAP (Policy Administration Point & Policy Repository)**
 - Administration and storage of general and individual patient controlled policies
- **ETS (ELGA Token Service)**
 - Issues Authorization-Assertions (SAML Tickets) for ELGA Users
- **GDA Index (GesundheitsDiensteAnbieter ... **Healthcare Provider Index**)**
 - Directory for the identification of Healthcare Providers (Hospitals, Physicians etc.)
- **KBS (Kontaktbestätigungsservice ... **Contact Confirmation Service**)**
 - Saves Contact Confirmations (Kontaktbestätigungen)
- **A-ARR (Aggregated Audit Record Repository) & Protocol Data Warehouse**
 - Summarizes protocol messages from decentralized ARR's for the patient
- **e-Medication**
 - Central Component handling e-Medication in ELGA
- **ELGA Portal**
 - Provides access to ELGA for a patient / citizen



Technical Platform for ELGA-GNT

- ELGA Technology used in all public hospitals in Tirol and in the majority of public ELGA domains in Austria was developed by **ITH-icoserve**, based in Innsbruck
- ITH-icoserve is a joint subsidiary of Tirol Kliniken (30%) and Siemens (70%)
- eHealth platform sense is IHE approved
- www.ith-icoserve.com





ELGA Benefit Expectations

- Optimized support of cross-institutional patient-centered treatment processes
- Saving costs and time
 - Eliminating the isolation between information silos
 - Seamless information exchange between intramural and extramural institutions
 - Avoiding double exams
 - Avoiding double prescriptions and Adverse Drug Events
- Sustainable investment by relying on international standards and initiatives
- Highest level of security → encrypted mechanisms for authentication, data transfer and logging
- Patient himself will be empowered to govern over his ELGA



Information Security in ELGA

Technical Information Security
Organizational Information Security
Information Security under Patient Control



What means Information Security in ELGA?

Generally Information Security in ELGA means:

■ ELGA Access only for eligible Users

- ◇ Citizen / Patient himself or authorized representatives / proxies
- ◇ Healthcare Providers with a confirmed patient contact
- ◇ Co-Healthcare Providers in case of Delegation
- ◇ ELGA-Widerspruchsstelle (WIST): can only administer a general OptOut due to a patient's request. Does not see any further ELGA content
- ◇ ELGA Ombudsstelle (OBST)
- ◇ No ELGA Access for specific players

■ Highest technical Security Standards

- ◇ Decentralized Repositories + federated Registries
- ◇ Certificate based, encrypted WebServices + communication
- ◇ Secure encrypted networks
- ◇ „Security by Design“: intrusion in one system does not give any overview

■ Patient governs his ELGA

- ◇ General / Partial Situative OptOut (SOO)
- ◇ Hiding Informationen
- ◇ Revoke Access Rights from Healthcare Providers
- ◇ Deleting Content



Remark concerning the following Slides

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Most of the means and methods concerning Information Security in ELGA consist of an interrelated mixture of technical, organizational and process related measures which are difficult to disentangle.

So I will reference to the most important measures on the following slides without labeling each topic as purely technical, purely organizational or purely process related one.



ELGA Environments & Test Patients

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Every ELGA Domain Operator and every Healthcare Provider (e.g. Hospital Institution) has to maintain 3 separated ELGA Environments, which have to be connected to the corresponding Source Systems (HIS/CIS, LIS, RIS ...)

- **Integration Environment (Integrationsumgebung)**
Serves as test bed for new SW-Releases (ELGA Releases or Releases of an Affinity Domain Software)
- **PreProduction Environment (Vorproduktionsumgebung)**
correlates 1:1 to Prod-Environment. Serves mainly to analyze and correct Prod errors without further disturbing Prod operation
- **Production Environment (Produktionsumgebung)**
ELGA Productive Environment

There are officially assigned sets of **Test Patients for each ELGA Domain** and each ELGA Environment. Tests may be performed using these test patients only, but never with real patients!



ELGA GoLive Permission

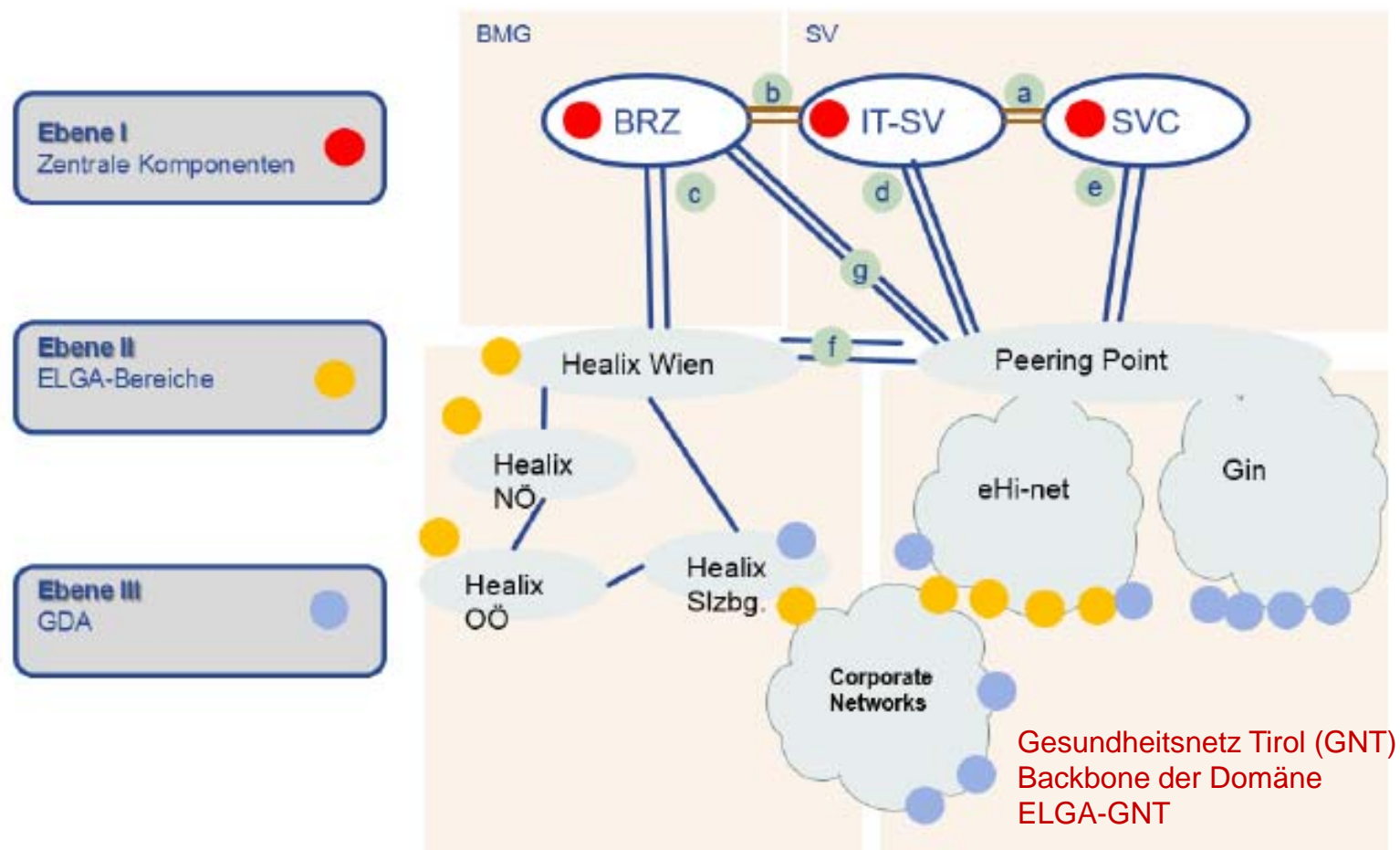
Each ELGA Domain Operator has to undergo a strict procedure before the Domain gets permission to go live. This means e.g.

- Implementation and permanent operation of **3 ELGA Environments**
- Proof / Demonstration that only CDA documents which follow the ELGA Implementation Guidelines will be registered
- Application of **ELGA conform Domain Certificates** within the Domain, which have been generated by a proprietary ELGA conform PKI or an ELGA conform PKI from an authorized provider (Bundesrechenzentrum, Magistratsabteilung 14 der Stadt Wien, A1-Telekom ...).
- Exclusive utilization of **closed encrypted networks**
- Successful completion of the ELGA **Global Integration Test (GIT, Gesamtintegrationstest)**
 - 800 automated test cases initiated by a **VMWare Test Instance**
 - Additional manual Tests of typical document related workflows
- Tests with all Healthcare Providers which will be part of an ELGA Domain (Hospitals, Nursing Homes, etc)
- Successful completion of the **operational Readiness Tests (ORT)**
- **Pentration Tests**
- **Implementation of ISMS**
- Implementation of all necessary **Monitoring- and Operating Processes** (ELGA-Umbrella Monitoring, Ticketing System, SLAs, BCM, Update Process for new ELGA-Releases and Terminologies etc)



Secure ELGA Networks

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ELGA Access Control and Logging System

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ELGA Access Control and Logging System represents the technical implementation of all legal and privacy requirements according to ELGA law and other legal regulations:

Who is when and under which circumstances authorized to access which information / which documents in ELGA?

The implemented solution supports:

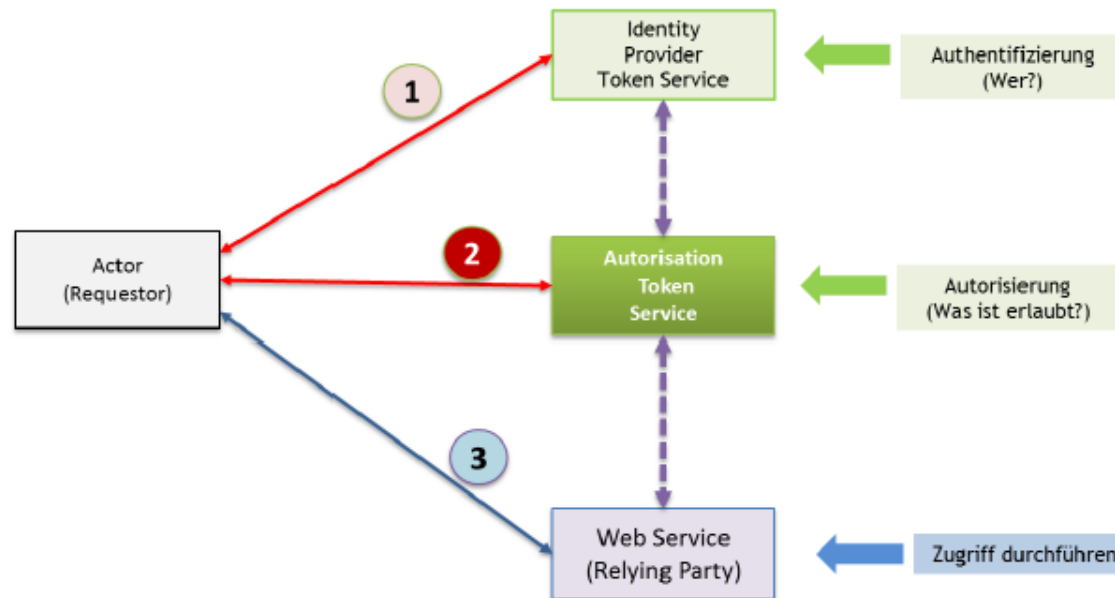
- Federation of authenticated electronic identities (Chain of Trust) of users based on electronic certificates (e.g. via citizen card)
- Authorization of all ELGA Accesses via a standardized Access Control System
- Logging of all actions in ELGA via a protocol system which provides transparency for the citizen / patient

The ELGA Access System is based on

- Security Mechanisms of OASIS WS-Trust
- Principles and Use Cases from IHE White Paper **Access Control**
- Electronic Access Permission Exchange via **Policy Push**



Authentication and Authorisation of ELGA Users



1. Authentication of an ELGA User against an ELGA approved Identity Provider to gain an Identity Assertion.
2. Authorization by ELGA Token Service based on the Identity-Assertion. The ELGA Token Service issues *ELGA-Authorisation-Assertions* on which Access Decisions in ELGA are being taken.
3. *Authorisation-Assertions* issued by the ELGA-Token-Service must be used by all ELGA Users or all Information Systems so that the ELGA Access Control System can verify the eligibility of any access.



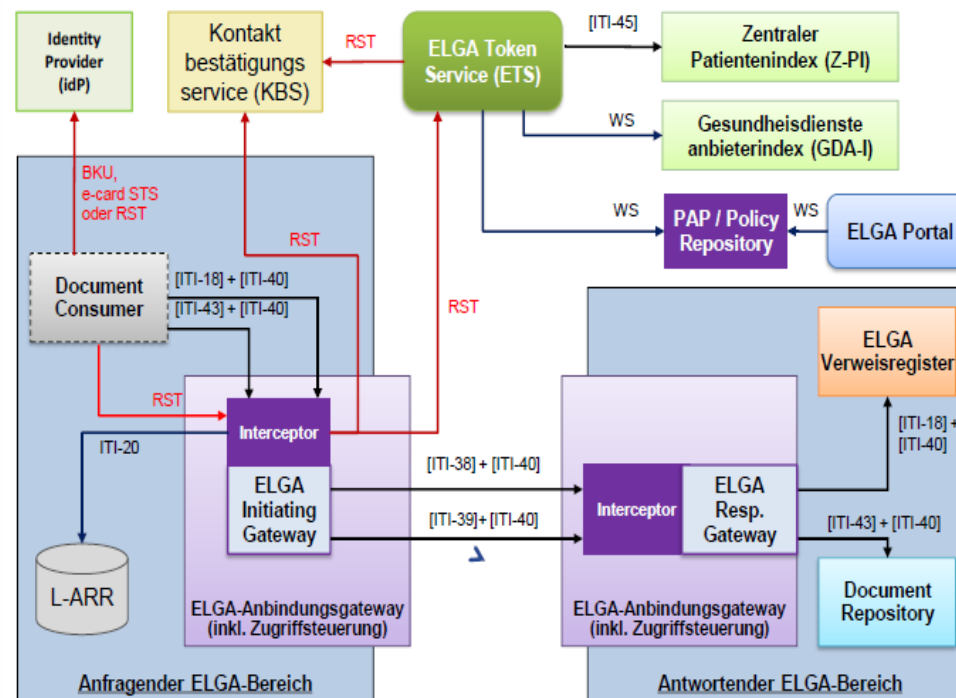
ELGA Access System (ELGA Berechtigungssystem)

ELGA Access System (ELGA Berechtigungssystem) consists of

- ELGA-Token-Service (ETS)
 - Central Patient Index (Z-PI)
 - Healthcare Provider Index (GDA-I)
 - Policy Administration Point (PAP)
- Kontaktbestätigungsservice (KBS)
- ELGA-Access Gateways (AGW ... Anbindungsgateways)

ELGA Token Service utilizes the services of Z-PI, Policy Administration Point (PAP), Healthcare Provider Index (GDA-I) and Contact Confirmation Service (KBS) to issue an ELGA Authorization Assertion (SAML-Token). Each ELGA Domain needs one ELGA-Access Gateway („ELGA Anbindungsgateway“) to communicate with the ELGA Central Components and to enable XCA Access to other ELGA Domains.

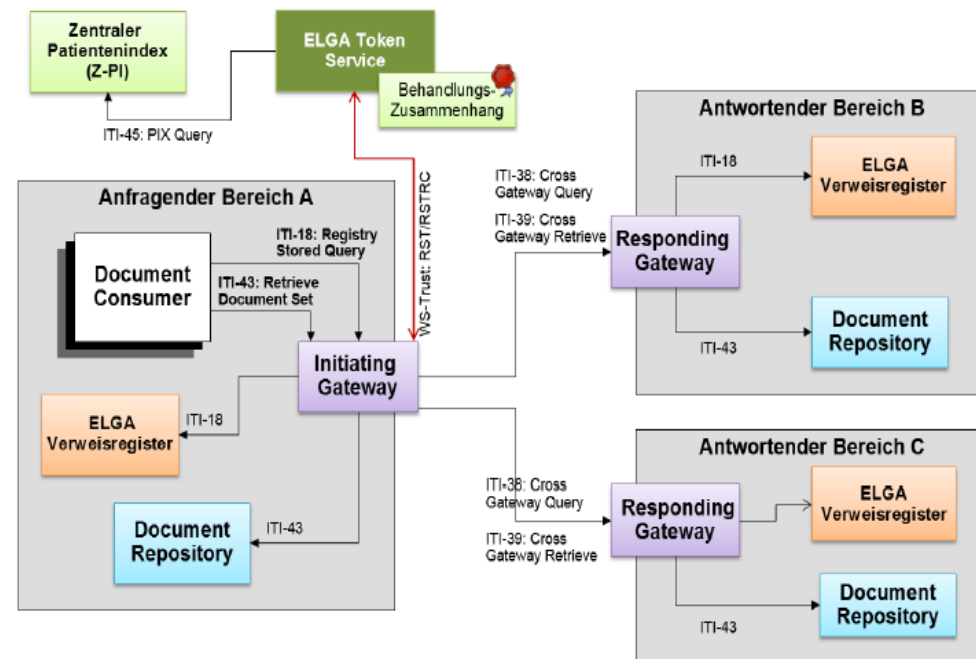
An ELGA-Access Gateway (ELGA Anbindungsgateway) will be provided as downloadable VMWare by Bundesrechenzentrum (BRZ).





Document Query in ELGA

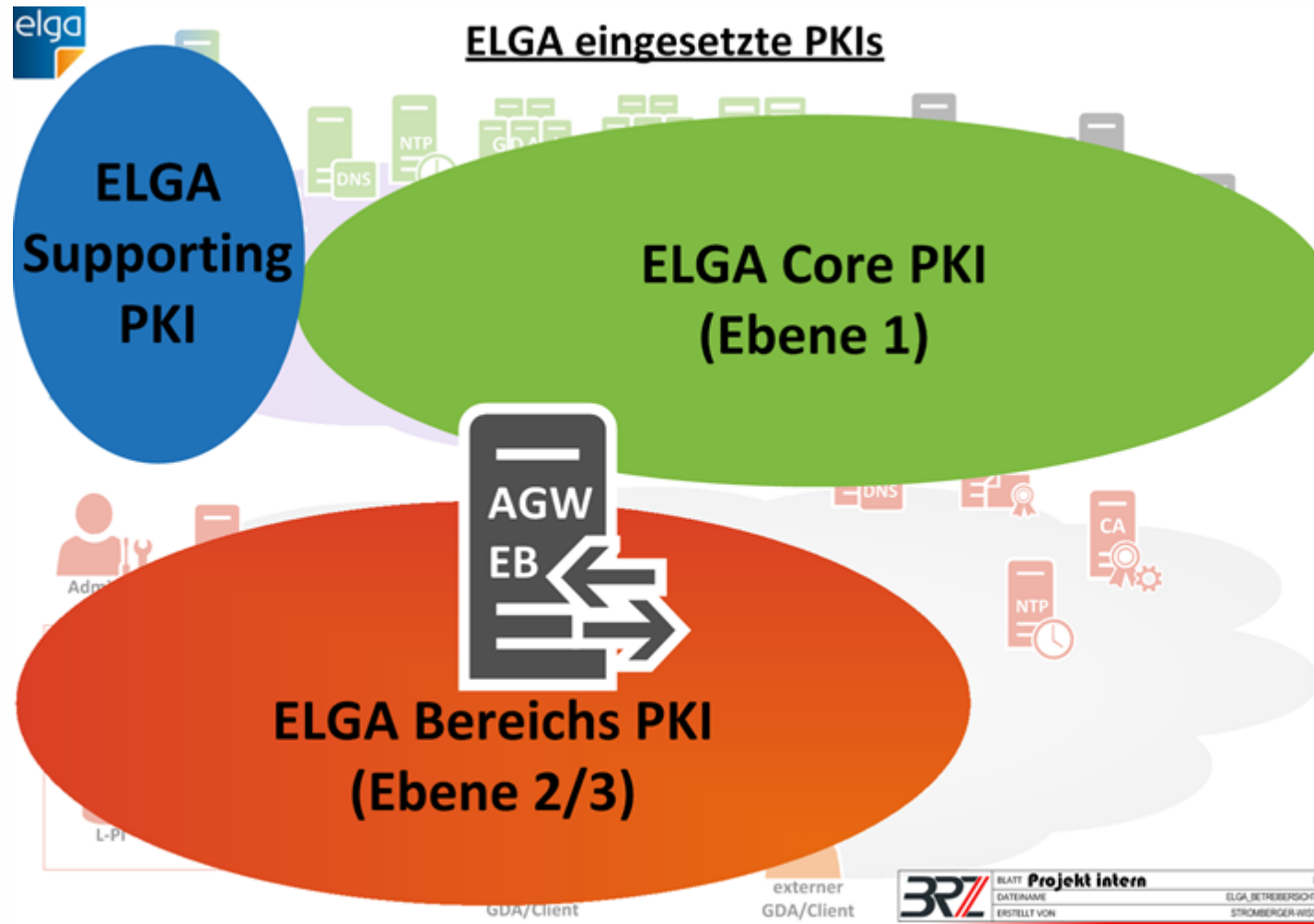
- Document Consumer initiates search for a patient's ELGA Documents
- ELGA Token Service (ETS) checks if the Document Consumer may access the patient's ELGA due to a confirmed patient contact.
- Via Cross-Gateway-Queries the Initiating Gateway provides a list of encounters + links to ELGA Documents for the Document Consumer.
- If the clinician on the Document Consumer side wants to fetch a document from another GDA (GesundheitsDiensteanbieter, such as a hospital from another organization) he has to click on the document link on the ELGA encounter list.
- The requested document will be fetched from the Document Source Repository using a Retrieve Document Transaction.





ELGA PKI Levels

ELGA eingesetzte PKIs





Minimal Certificate Configuration in an ELGA Domain

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Who can access ELGA?

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- ELGA access for citizens / patients only via citizen card + password or via smart phone + password + TAN
- ELGA access for healthcare providers only due to a confirmed patient contact („Kontaktbestätigung“)
 - Extramural: plugging of a patient's e-card (e.g. in a physician office)
 - Intramural: admission message opens a patient's ELGA for the hospital and all its eligible users
- ELGA Law does not allow ELGA Access for specific players / institutions. Excluded are
 - Insurances
 - Authorities
 - Company Physicians
 - Employers
- Unauthorized ELGA Use can be sentenced with several 10.000 € fine or with prison



Information Ageing in ELGA

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ELGA is not a lifelong („longitudinal“) EHR

ELGA Law requires that information in ELGA disappears after 10 years by hard deletion of ELGA content after 10 years (hard delete of Meta Data Entries in Registries)

- Patient / Citizen has access to all ELGA content for 10 years from registration on (eMedication access is given for one year)
- Healthcare data in intramural systems of hospitals have to be provided for 30 years and in the systems of physician offices for 10 years.



Deleting Content from ELGA

- Cancellation of a document in CIS → document will be set to „deprecated“ in ELGA
- Deprecated documents remain accessible in ELGA for the patient
- In case of registration of a document for the wrong patient the healthcare provider (hospital, physician office, etc.) causing the problem has to inform the patient, which wrongly received the document in his ELGA via a registered letter
- Final hard delete of a document in ELGA can only be initiated by the patient via ELGA Portal or he has to authorize the ELGA Ombudsstelle (OBST) to hard delete the document



Protocol Logging in ELGA

ELGA Services have to follow the clear protocol rules of the IHE-Framework. Each single technical step must be logged technically.

■ **Lokal Audit Record Repository (L-ARR)**

Each ELGA Domain has to provide at least one local Audit Record Repository (L-ARR).

According to IHE ATNA the L-ARR has to log all ELGA conform Audit Trail Messages being generated by the different components of the Domain persistently.

■ **Aggregated Audit Record Repository (A-ARR)**

Is a centralized service for which access has to be provided for all ELGA participants via the ELGA Portal. Looking into the A-ARR citizens / patients can see all accesses to their ELGA by healthcare providers, OBST etc.

For a patient protocol data have to be accessible for at least 3 years.



ELGA Control Mechanisms for Patients

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Citizens / Patients do have the following control mechanisms at their fingertips:

- **OptOut Variants**

Currently all people with an Austrian Social Security Number are by default ELGA participants but they can choose among the following OptOut variants:

- ◇ **General OptOut**

Citizen does not want to participate in ELGA at all

- ◇ **Partial OptOut**

- **OptOut for any content, except eMedication**
- **OptOut for eMedication only**

General and partial OptOut can be administered by the patient himself (via ELGA Portal) or via ELGA Opposition Center ("ELGA Widerspruchsstelle" WIST, centrally located in Vienna)

- ◇ **Situative OptOut (SOO)**

Patient is basically an ELGA participant, but he does not want any documents to be registered from a healthcare provider (e.g. a hospital) during a specific encounter or for a specific time interval.

For highly sensitive encounters (psychiatry, med. psychology, HIV- treatments, encounters generating genetic results, abortions) the healthcare provider (e.g. physician) has to inform the patient actively about his SOO right.

SOO must be administered by the healthcare institution (either via CIS or via Patient Administration System)



Administration of Situative OptOut (SOO)

- sense offers a Web-based Service to administer SOO → sense.Consent.Application
- At Tirol Kliniken we will make sense.Consent.Application available from SAP-IS-H (Patient Administration System) and CIS (Cerner Millennium + Patidok)

The screenshot displays a web application interface for administering Situative Opt-Out (SOO). The main window shows a patient record for Aagwbätz Elgatest, Dr. Hildelind Rose-Marie, with details such as Pat.ID: 2204444873, Geschl.: weiblich, and Bewegungsnummer: 3006494278-STAT. A modal window titled "Erfassen eines situativen Opt-Out" is open, prompting the user to record a situative opt-out for the patient. The modal includes a text area for the patient's name and a dropdown menu for the duration of the opt-out, currently set to "2 Monate". A "Kommentar:" field is also present. The modal has buttons for "Abbrechen", "Drucken", and "Speichern". The background interface shows a sidebar with various menu items and a main content area with a table for "Zustimmungserklärungen und T".



... more ELGA Control Mechanisms for Patients

Additional control mechanisms a patient can adjust via the ELGA Portal or via OBST (Ombudsstelle) are:

- granting long term access to his ELGA for a physician or an institution he trusts (max. for one year)
- excluding physicians / hospitals / institutions from any access to his ELGA
- declaring proxy status for other trusted persons (e.g. children, parents)
- hiding specific information (documents etc.)



Delegation

- Delegation is the mechanism for enabling ELGA Access for other institutions (e.g. an external pathology, other external laboratories etc.) which are involved in patient treatment and where only specimen, tissue etc. of the patient shows up, but not the patient himself.
- Delegation means, that the patient contact from the primary treatment institution can be handed over to another secondary institution, that will be involved but which has no direct contact to the patient himself (e.g. an external pathology lab)
- After the delegation the secondary institution can access the ELGA of a patient.
- If the patient declared an SOO at the primary institution this SOO must be transferred with the delegation to the secondary institution. In this case the secondary institution may only read in ELGA but not write into ELGA.
- All delegations will be visible for the patient in ELGA.
- Electronic Delegation Mechanism within a domain do exist, but across domains they are under construction ...



And finally a short look into ELGA





ELGA Access from CIS (Cerner Millennium)

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Aagwbätz Elgatest, Dr. Hildelind Rose-Marie - 2204444873 Geöffnet von Stark, Christian

Anwendung Bearbeiten Ansicht Patient Akte Verknüpfungen Benachrichtigungen Navigation Hilfe

Patientenliste Inbox Terminübersicht Patient Access List Tracking List Tracking Shell Aufgaben MPAGE Stationstermine Anforderungsmonitor VTT QM sn_op_protocol PC OP Diktierliste PC Boards FR Histologie

Neue Notiz Notizen anzeigen Herausnehmen Anhängen Ändern Unterbrechen Beenden Rechner Neu Aktenkodierung Terminkalender Kommunikation Hinzufügen

Aagwbätz Elg... Liste Zuletzt geöffnet Patienten-Nr.

Aagwbätz Elgatest, Dr. Hildelind Rose-Marie Pat.ID:2204444873 Bewegungsnr.:3006494278-STAT Allerg./Unvertrgl.: Keine Allergien dokumentiert
geb.am:13.11.1902 Alter:113 Jahre Geschl.:weiblich Leistungsstelle:NCAU

Menü - Alle ELGA

Document Viewing + Hinz...
OR Rad Besprechung
NEPA
testBWe
Dienstuebergabe Vgl.
Fieberkurve
Portal Akte
Mpage Workflow Test
Fieberkurve v2
Entlassungsmanagement
AU Optometrie
GAb Test
PFLEGEBERICHT_TAB_PLG
KI Amb.Karte neu
Dekurs
BWe Test ExtGrid
EM Monitor
MPTest
ELGA
ELGA Debug
Pflege-Zeitfilterung
Sozialarbeit

Consumer App Consent App

Aagwbätz Elgatest, Hildelind Rose-Marie Geburtsdatum: 13.11.1902 ♀ Identifikator: 5346131502

Zugriffsinformationen

Situatives Opt-Out für ELGA

✗ Es liegt kein situatives Opt-Out für den Patienten vor.

Zeige 5 gefundene Ergebnis(se) an

Globale Suche: Suchbegriff eintippen ... Leeren

Titel ↑	Erstellungszeitpunkt	Dokumenttyp	Fachbereich	Institut
AB	03.05.2016	Discharge summary	Innere Medizin	BKH St. Johann in Ti
Entlassungsbericht 04.05.2016	04.05.2016	Discharge summary	Innere Medizin	BKH St. Johann in Ti
Entlassungsbefehl Pflege	04.05.2016	Discharge summary	Gesundheits- und Krankenpflege	Universitätskliniken I
GYN AB Stat	04.05.2016	Discharge summary	Gynäkologie und Geburtshilfe	A.ö. Landeskrankenh
NC Stationärer Arztbrief	04.05.2016	Discharge summary	Neurochirurgie	Universitätskliniken I



Display of CDA Level2 Document in ELGA

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The screenshot displays the ELGA (Electronic Health Record) web interface. The top navigation bar includes links for 'Anwendung', 'Bearbeiten', 'Ansicht', 'Patient', 'Akte', 'Verknüpfungen', 'Benachrichtigungen', 'Navigation', and 'Hilfe'. Below this, a patient summary bar shows the patient's name 'Aagwbätz Elgatest, Dr. Hildelind Rose-Marie', ID 'Pat.ID:2204444873', age 'Alter:113 Jahre', and other details. The main content area displays a document titled 'Entlassungsbericht 04.05.2016' (Discharge Report 04.05.2016). The document content includes patient information, admission details, and a section for 'Erstellt von' (Created by). The left sidebar contains a menu with various options like 'Document Viewing', 'OR Rad Besprechung', 'NEPA', 'testBWe', 'Dienstuebergabe Vgl.', 'Fieberkurve', 'Portal Akte', 'Mpage Workflow Test', 'Fieberkurve v2', 'Entlassungsmanagement', 'AU Optometrie', 'GAb Test', 'PFLEGEBERICHT_TAB_PLG', 'KI Amb.Karte neu', 'Dekurs', 'BWe Test ExtGrid', 'EM Monitor', 'MPTest', 'ELGA', 'ELGA Debug', 'Pflege-Zeitfilterung', and 'Sozialarbeit'.

Aagwbätz Elgatest, Dr. Hildelind Rose-Marie - 2204444873 Geöffnet von Stark, Christian

Anwendung Bearbeiten Ansicht Patient Akte Verknüpfungen Benachrichtigungen Navigation Hilfe

Patientenliste Inbox Terminübersicht Patient Access List Tracking List Tracking Shell Aufgaben MPAGE Stationstermine Anforderungsmonitor VTT QM sn_op_protocol PC OP Diktierliste PC Boards FR Histologie

Neue Notiz Notizen anzeigen Herausnehmen Anhängen Ändern Unterbrechen Beenden Rechner Neu Aktenkodierung Terminkalender Kommunikation Hinzufügen

Aagwbätz Elg... x

Aagwbätz Elgatest, Dr. Hildelind Rose-Marie geb.am:13.11.1902 Alter:113 Jahre Pat.ID:2204444873 Geschl.:weiblich Bewegungsnr.:3006494278-STAT Leistungsstelle:NCAU Allerg./Unvertrgl.: Keine Allergien dokumentiert

Menü - Alle x

Document Viewing + Hinz...

OR Rad Besprechung

NEPA

testBWe

Dienstuebergabe Vgl.

Fieberkurve

Portal Akte

Mpage Workflow Test

Fieberkurve v2

Entlassungsmanagement

AU Optometrie

GAb Test

PFLEGEBERICHT_TAB_PLG

KI Amb.Karte neu

Dekurs

BWe Test ExtGrid

EM Monitor

MPTest

ELGA

ELGA Debug

Pflege-Zeitfilterung

Sozialarbeit

ELGA

http://svelga-int-box.tilak.cc/group/sens x Dokumente suchen - Sense... x

Dokument Entlassungsbericht 04.05.2016 anzeigen für AAGWBätz ELGATest, HildelindRose-Marie Geburtsdatum: 13.11.1902 ♀ Identifikator: 5346131502

Dokument

Entlassungsbericht 04.05.2016

Erzeugt am 4. Mai 2016 um 11:45 Uhr | Version: 1

▼ Inhaltsverzeichnis ausklappen ▼ Alle Inhalte ausklappen

▼ Patientin: Hildelind Rose-Marie AAGWBätz ELGATest
Geschlecht: weiblich | geboren am: 13. November 1902 | SVN: 5346131502
Aufenthalt: A.ö.Bezirkskrankenhaus St.Johann in Tirol
Stationär von: 4. Mai 2016 bis: 4. Mai 2016 | Aufnahmezahl: 2016305471

▼ Erstellt von: A.ö.Bezirkskrankenhaus St.Johann in Tirol, Innere Medizin --

Informationen zum Dokument

RAW herunterladen



Display of CDA Level 3 Laboratory Report in ELGA

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Informatik

Dokument Routine-Endbefund anzeigen für AAGMBLaschnia ELGATEST, Irmgardt Sighild Geburtsdatum: 03.11.1902 Identifikator: 5229031502

Dokument

Routine-Endbefund

Erzeugt am 10. Februar 2015 um 16:49 Uhr | Version: 3

Inhaltsverzeichnis ausklappen

Alle Inhalte ausklappen

Patient:

Dr.Phi Irmgardt Sighild AAGMBLASCHNIA ELGATEST
Geschlecht: männlich | geboren am: 3. November 1902 | SVN: 5229031502

Erstellt von:

A.ö. Landeskrankenhaus -
Universitätsklinken-Innsbruck

Probeninformation

Probenentnahme	Untersuchtes Material	Probeneingang	Bemerkung Labor
unbekannt	Vollblut	03.02.2015 06:59	
unbekannt	Körperflüssigkeit	03.02.2015 06:59	

Hämatologie

Blutbild

Absolute NeutrophilenzahlLympho absolut, korr.

Analyse	Ergebnis	Einheit	Referenzbereich	Interpr.
Leukozyten	2.4 ³⁾	10 ⁹ /L	4 - 10	-
Thrombozyten	151 ⁴⁾	10 ⁹ /L	150 - 380	
Erythrozyten	3.37 ⁵⁾	10 ¹² /L	4.4 - 5.9	-
Hämoglobin	107 ⁶⁾	g/L	130 - 177	-
MCV (mittleres Zellvolumen)	91.7 ⁷⁾	fL	77 - 96	
MCH (mittleres zelluläres Hämoglobin)	31.8 ⁸⁾	pg	27 - 32	
MCHC (mittlere zelluläre Hämoglobinkonzentration)	346 ⁹⁾	g/L	310 - 360	
RDW (Erythrozytenverteilungsbreite) -CV	14.0 ¹⁰⁾	%	11 - 16	

Informationen zum Dokument



ELGA Citizen Portal

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Informatik



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e-Befunde

e-Medikation

GDA

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Teilnahme

Willkommen in Ihrer ELGA!

e-Befunde

Hier finden Sie eine Liste Ihrer e-Befunde.

10 Befunde vorhanden
aktueller Befund vom 14.02.2016
Seit dem letzten Login
keine neuen Befunde

e-Medikation

Hier sehen Sie eine Liste Ihrer verordneten und in der Apotheke abgegebenen Medikamente.

Keine Medikation gefunden.

GDA

Hier finden Sie Ihre Gesundheitsdiensteanbieter (GDA) - Ihre behandelnden oder betreuenden Ärzte, Spitäler, Apotheken und Pflegeeinrichtungen.

7 GDA sind derzeit zugriffsberechtigt
Individuelle Einstellung
Keine Zugriffsdauer geändert

Protokoll

Hier sind die von Ihnen und Ihren GDA durchgeführten Aktionen aufgelistet, etwa Ihre eigenen Änderungen oder wer wann auf Ihre ELGA zugegriffen hat.

Teilnahme

Hier können Sie Ihren aktuellen ELGA-Teilnahmestatus ansehen und gegebenenfalls ändern.

- ✓ ELGA
- ✓ e-Befunde
- ✓ e-Medikation

Hilfe

Hier finden Sie Antworten zu den wichtigsten Fragen, Erläuterungen zu den verwendeten Symbolen sowie weiterführende Informationen zur Bedienung des ELGA-Portals.



ELGA Citizen Portal: eReports

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Meine e-Befunde

Keine neuen e-Befunde seit dem letzten Login
2 gesperrte e-Befunde

Aktive Filter: Gesamter Zeitraum

Befund

wählen ...

Zeitraum

Gesamter Zeitraum

GDA

wählen ...

☐ nicht mehr gültige Befundversionen anzeigen

Filter zurücksetzen

Liste aktualisieren

Gesamte e-Befund-Liste

als PDF anzeigen

als CSV anzeigen

Befundtyp Titel	Datum	GDA	
Befund bildgebende Diagnostik Bildgebende Diagnostik	14.02.2016	Sozialmedizinisches Zentrum Wien Mitte	▼
Entlassungsbrief Entlassungsbrief Pflege	14.02.2016	Amadeus Spital	▼
Entlassungsbrief Entlassungsbrief Ärztlich	14.02.2016	Amadeus Spital	▼
Befund bildgebende Diagnostik Bildgebende Diagnostik	30.01.2016	Omnimed Klinik	▼
Entlassungsbrief Entlassungsbrief Ärztlich	30.01.2016	Omnimed Klinik	▼
Befund bildgebende Diagnostik Bildgebende Diagnostik	12.01.2016	Krankenhaus Waldheimat	▼
Entlassungsbrief Entlassungsbrief Pflege	05.01.2016	Klinikum Joglland	▼
Entlassungsbrief Entlassungsbrief Ärztlich	05.01.2016	Klinikum Joglland	▼
Befund bildgebende Diagnostik Bildgebende Diagnostik	20.12.2015	Amadeus Spital	▼
Entlassungsbrief Entlassungsbrief Ärztlich	20.12.2015	Amadeus Spital	▼
Befund bildgebende Diagnostik	16.12.2015	Amadeus Spital	▼



ELGA Citizen Portal: Discharge Letter opened

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Entlassungsbrief
Entlassungsbrief Pflege
14.02.2016

PDF e-Befund

PDF e-Befund
alle Details

Sperren

Löschen

X

Entlassungsbrief

Erzeugt am 14. Februar 2016 um 10:48 Uhr | Version: 1

Inhaltsverzeichnis ausklappen

Alle Inhalte ausklappen

Patient:

Peter Mustermann
Geschlecht: männlich | geboren am: 24. Dezember 1972 | SVN: 1111241272
Aufenthalt: Amadeus Spital - Chirurgische Abteilung
Stationär von: 12. Februar 2016 bis: 14. Februar 2016 | Aufnahmezahl: Az123456

Erstellt von:

Amadeus Spital - Chirurgische Abteilung

An:

Ordination Dr. Empfänger

ⓘ Allergien, Unverträglichkeiten und Risiken

📄 Patientenverfügung vorhanden

Aufnahmegrund

Bei Zustand nach Gelenksempyem im linken Knie (2/13) durch Fremdkörper neuerlicher Fieberanstieg und Gelenksschwellung. (OP am 12.2.2013: ASK li. Kniegelenk, Gelenkspülung und Synovektomie, FK-Bergung aus der li. Quadrizepssehne, Spülung, antimikrobielle Therapie mit Abcdefghin 300 mg als KI 4x1 i.v. für 6 Tage)

Diagnosen bei Entlassung

Diagnose	Datum von	Datum bis	Status
M25.46, Gelenkerguss li. Meniskus (Empyema gen. sin. post corpus alienum ligneum operat.)	12.02.2016	14.02.2016	Abgeschlossen
M54.9, bekannt rezidivierende Rückenschmerzen	12.02.2016		Offen

Durchgeführte Maßnahmen



ELGA Citizen Portal: eMedication

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Meine e-Medikation



Abgeholte Arzneimittel

Arzneimittel	Dosierung					Hinweis / Zusatzinformationen / Art der Anwendung	abgeholt am	
	Einnahme	morgens	mittags	abends	nachts			
Schmerzmittel TBL 100 MG	täglich	1	0	0	1	zum Einnehmen	27.05.2016	▼
Antibiotikum TBL 10 MG	täglich	1	0	0	1	zum Einnehmen	27.05.2016	▼

Verschriebene Arzneimittel / offene Rezepte

Arzneimittel	Dosierung					Hinweis / Zusatzinformationen / Art der Anwendung	verordnet am	
	Einnahme	morgens	mittags	abends	nachts			
Entzündungshemmer RET TBL 75 MG	täglich	1	0	0	1	zum Einnehmen	03.06.2016	▼
Antibiotikum TBL 10 MG	täglich	1	0	0	1	zum Einnehmen	03.06.2016	▼
Nasentropfen						nasale Anwendung	03.06.2016	▼
Schmerzmittel TBL 100 MG	täglich	1	0	0	1	zum Einnehmen	03.06.2016	▼



ELGA Citizen Portal: Access Protocol

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Meine elektronische
Gesundheitsakte.
Meine Entscheidung!

Peter Mustermann

Auftragsliste



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Mein Protokoll

52 Aktionen

Aktive Filter: Zeitpunkt von 29.12.2015 bis 14.02.2016

Zeitraum

Zeitpunkt

von 29.12.2015

bis 14.02.2016

Aktion

wählen ...

Filter zurücksetzen

Liste aktualisieren

angezeigte Liste

als PDF anzeigen

als CSV anzeigen

Aktion	Datum	Person / Organisation	
e-Befund aufgerufen	14.02.2016, 14:35:33	Peter Mustermann	▼
e-Befund aufgerufen	14.02.2016, 10:59:07	Peter Mustermann	▼
Berechtigungsänderung durchgeführt	14.02.2016, 06:03:44	Peter Mustermann	▼
e-Befund aufgerufen	13.02.2016, 19:45:01	Peter Mustermann	▼
e-Befund aufgerufen	13.02.2016, 15:22:33	Peter Mustermann	▼
ELGA-Abfrage durchgeführt	12.02.2016, 07:45:23	Peter Mustermann	▼
e-Medikationsliste aufgerufen	05.02.2016, 12:10:56	Peter Mustermann	▼
ELGA-Abfrage durchgeführt	28.01.2016, 17:05:33	Peter Mustermann	▼
e-Medikationsliste aufgerufen	27.01.2016, 23:45:47	Peter Mustermann	▼
ELGA-Abfrage durchgeführt	22.01.2016, 08:56:11	Peter Mustermann	▼
ELGA-Abfrage durchgeführt	14.01.2016, 19:59:23	Amadeus Spital Univ.-Prof. Dr. Sigrid Muster-Med	▼
e-Befund bereitgestellt	11.01.2016, 16:45:25	Klinikum Joglland OA Dr. Maximilian Vidierer	▼
e-Befund bereitgestellt	05.01.2016, 23:11:45	Amadeus Spital Univ.-Prof. Dr. Sigrid Muster-Med	▼
e-Befund bereitgestellt	03.01.2016, 17:45:07	Amadeus Spital	▼



Summary

- Any communication among healthcare institutions (Hospitals, Nursing Homes) within the Domain „ELGA-GNT“ (official Domain of Tirol) runs over a special closed and encrypted backbone (GNT-Backbone)
- Any communication from the Domain ELGA-GNT to central ELGA Services or other ELGA Domains runs over specialized and secure healthcare networks (eHiNet or Healix)
- No single ELGA component can provide enough exploitable information
- Access to ELGA for healthcare providers only due to a confirmed patient contact (Kontaktbestätigungsservice) + the issuing of an Access Token of limited validity.
- Logging of all accesses to a patient's ELGA + full transparency for the patient
- ELGA-Portal gives a patient access to all his ELGA content, including access log lists
- Only known components can communicate with each other via End-to-End Encryption
- ELGA is an Opt Out System
 - **Opt Out only for eMedikation**
 - **Opt-Out only for eReports** → only e-Medication will be available in ELGA
 - **General Opt Out** → no ELGA participation at all
 - Important: if a Patient opts out and opts in again after a while, he will restart with an empty ELGA!
 - **Situative Opt Out (SOO)**
 - Patient wants to keep all information regarding a specific encounter out of ELGA
- ObSt (Ombudsstelle) und WiSt (Widerspruchsstelle) support patients who are not able to access and manage their ELGA via the ELGA Portal



Thank you very much for
your attention!