



Case  
Study

One of  
**Europe's largest**  
and most advanced Enterprise VNA

Tirol Kliniken GmbH – Innsbruck, Austria



*“syngo.share is our digital multi-media archive, offering stable and reliable image management for any data format.”*

**Dr. Dietmar Reiter,**  
Head of IT Special Systems, Tirol Kliniken GmbH, Innsbruck, Austria

A flagship implementation of a Vendor Neutral Archive (VNA), *syngo.share*<sup>1</sup>, at the Tirol Kliniken GmbH Hospital Group, Austria. Commissioned in 2002 the installation has undergone numerous enhancements. The installation currently represents the latest long term archiving and data management technology distributed by Siemens Healthineers.

*syngo.share* provides the central universal archive platform for all image and multimedia data acquired across the five sites which comprise the Tirol Kliniken GmbH. With a data volume of over 580 TB online and offline, the facility is one of the largest medical Vendor Neutral Archives in Europe. It currently contains more than 1 billion objects (DICOM studies and non-DICOM data). Approximately 3 TB of new data are entered into the *syngo.share* archive each month.

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**Tirol Kliniken GmbH**

- Medical University and City Hospital Innsbruck
  - LKH Hall: Regional General Hospital and Psychiatric Hospital
  - LPK Hall: State Care Clinic for high maintenance patients
  - LKH Natters: Hospital for Pulmonary, Cardiac and Cancer Post-Treatment
  - LKH Hochzirl: Hospital for Geriatric and Internal Medicine
- .....

<sup>1</sup> *syngo.share* consists of several medical devices of ITH icoserve technology for healthcare GmbH, Innsbruck, Austria. *syngo.share* products are not commercially available in all countries and their future availability cannot be guaranteed due to regulatory reasons. Please contact your local Siemens Healthineers organization for further details.



**8,139**  
Employees

**1,113,280**  
Outpatient Visits



**54,000**  
Operations per year

**118,771**  
Inpatient Visits



**2,458** Beds



*“It would be simply impossible to manage 150 GB of data produced daily, adding up to a total of 200 TB storage volume online, without such a powerful tool and all its centralized functionalities.”*



**Univ.-Prof. Dr. Gerhard Pierer,**  
Head of plastic, reconstructive and aesthetic surgery, University Hospital, Innsbruck, Austria

# Tirol Kliniken IT-Strategy: Evolution of *syngo.share*

## Early PACS Projects

- **1997–1999** first PACS projects (Trauma, Neuro, Internal Med.)
- **1999** first technology migration: 1.5 TB CDROM to TAPE LTA (ASP)
- **2000** starting image distribution by selected PACS-Workstations

## The Advanced Image Management project – *syngo.share*

- **2001–2003** starting *syngo.share* project (Nuclear Med., Dental Med.)
- **2003** archiving subsystem contents (everything-online strategy)
- **2004** starting hospital-wide multi-media distribution by *syngo.share*
- **2004** starting strategic multimedial EPR integrating *syngo.share* and HIS
- **2005** launching first “health@net” portal (proprietary, web-based)

## Digital Clinical Archive of Tirol Kliniken

- **2007** changing to online-offline data management (150 TB ILM)
- **2008** start of the HIS security backup (“DKAT”)
- **2009** start of the health network tyrol, based on IHE

## *syngo.share* becomes a mature VNA

- **2010** integrating PACS and RIS into *syngo.share* backend
- **2011** integrating *syngo.via* as 3D / 4D postprocessing solution
- **2014** *syngo.share* gets registered for the nationwide healthrecord initiative (ELGA)
- **2014** archive migration of LKH Hall to *syngo.share*
- **2016:** starting eHealth Affinity Domain Tyrol, connecting share to ELGA
- **2017:** archive migration of LKH PACS to *syngo.share* – approx. 40 TB



*“What I like the most is the versatility and tight integration of syngo.share. It allows me to have a holistic patient-centric view on all DICOM and non-DICOM data of my patients.”*

**Univ.-Prof. Dr. Gerhard Pierer,**  
Head of plastic, reconstructive and aesthetic surgery, University Hospital, Innsbruck, Austria

Multiple PACS archive DICOM data to the central *syngo.share* Vendor Neutral Archive, for enterprise wide distribution of DICOM studies to referring physicians, utilizing the universal viewers shipped with the VNA. Depending on the respective need and environment, a *syngo.share* client is used on one of the 3,300 workstations. Alternatively access by a zero footprint web viewer is integrated with the HIS. In addition to radiology the VNA and its accompanying applications are used in departments as cardiology, dermatology, dental care and plastic surgery – to name just a few.

*syngo.share* is integrated with more than 250 subsystems from over 100 different vendors. Different modalities of various kinds (XA, CR, CT, MR, MG, US, ...) feed data into the *syngo.share* solution directly. Many other subsystems, producing images, videos or PDF documents, are also connected. Their data – independent of format and origin – is imported and stored centrally. Supporting the Electronic Medical Record (EMR), the VNA stores medical reports and scanned patient records.

The entire archive of clinical results follows the strategy of digitalization. Microfilm archiving of traditional, paper-based patient records was replaced by high performance scanners and an online archiving interface between the EMR and the *syngo.share* VNA.

Regarding the growing networking healthcare landscape, the aim is to constitute a comprehensive, multimedia Electronic Patient Record together with the HIS containing every health document and data needed for a high quality and efficient treatment.

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### **DICOM, non-DICOM, multimedia, IHE XDS repository**

- >250 subsystems >100 vendors
  - 5+1 sites, 38 clinic departments
  - 163 diagnostic departments (laboratory, radiology, etc.)
  - 180 GB production per day
  - 5.8 m DICOM studies
  - 570 millions individual documents (DICOM + non-DICOM + PDF)
  - 10,000 HIS documents, 250,000 DICOM images inbound per day
  - 2.3 m patient records
  - 45 m generic documents (non-DICOM + video + PDF)
  - 12 m DICOM studies with 1 bn DICOM images
  - 10 k HIS documents, up to 250 k DICOM images inbound per day
  - 130 modalities connected via PACS
  - 100+ modalities directly connected
  - 50+ medical subsystems connected
  - 1200+ filesystems (import) and scanning AETs (print) connected
  - up to 300 GB data production per business day (~ 50% radiology)
  - 594 TB compressed total data volume (as of 1805)
  - 504 TB online disk capacity, fully mirrored (DC Hall, DC Innsbruck)
  - 700+ TB LTA ASP disk capacity, fully mirrored (DC Hall, DC Innsbruck)
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The statements by Siemens Healthineers' customers described herein are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results.

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The information in this document contains general technical descriptions of specifications and options as well as standard and optional features which do not always have to be present in individual cases.

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