Health Institute

# EUROPEAN HEALTH DATA SPACE - EHDS
# EUROPEAN HEALTH DATA SLICE - EHDSL

## connecting the European health data spaces - EHDS

one6G

one6G 17.10.2024

**Prof. Dr. med. Christoph Thümmler**
Chief Medical Director
6G Health Institute

Health Institute
Prof. Dr. med. Christoph Thuemmler
Chief Medical Officer

one6G

17.10.2024

# Relavant EU policies and regulations


- General Data Protection Regulation (GDPR)
- AI-Act
- Digital Service Act (DSA)
- European Health Data Space (EHDS)
- Medical Device Regulation (MDR)
- Electronic Wallet
- Net neutrality (Directive 2002/22/EC)
- NIS 2 (Europe)
- NIST FIPS 140-3 (USA)

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# The EHDS will:

1. empower individuals to take control of their health data and facilitate the exchange of data for the delivery of healthcare across the EU (primary use of data)
2. foster a genuine single market for electronic health record systems
3. provide a consistent, trustworthy, and efficient system for reusing health data for research, innovation, policy-making, and regulatory activities (secondary use of data)

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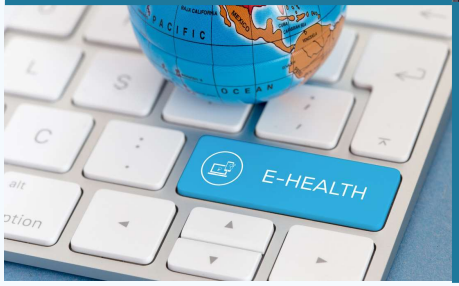
# How does the EHDS work?

*The EHDS builds on the requirements that have been imposed on software through the Medical Devices Regulation and the Artificial Intelligence Act.* Interoperability and compatibility!

*The EHDS sets essential requirements specifically for EHR systems in order to promote interoperability and data portability of such systems, which would allow patients to monitor the use of their data.*




*The preferred option would ensure that natural persons are able to digitally access and transmit their electronic health data, and enable access to it, irrespective of healthcare provider and data source.*
Device Connectivity and physical infrastructure (5G, Slicing and Fiber)

Storage in cloud systems through MyHealth@EU. Secondary use of data through healthData@EU platform. Data transmission through FHIR Protocol.

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Prof. Dr. med. Christoph Thuemmler
Chief Medical Officer

# Physical Connectivity

***"Additionally, where physical connectivity is lacking in the health sector, Connecting Europe Facility will also contribute to the development of projects of common interest relating to the deployment of and access to safe and secure very high-capacity networks, including 5G systems, and to the increased resilience and capacity of digital backbone networks on Union territories"***

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# Teléfonica commercial critical Infrastructure slice (Germany)

- Accessible through direct access on premises and through VPI from anywhere
- Currently 100 MHz for Raspberry Pi based Personal Health Interface (PHI)
- 20 MHz slice channel for RedCap devices under development
- Enhanced encryption (post quantum crypto) and privacy (eID) under development

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# How does the European Health Data Slice work ?

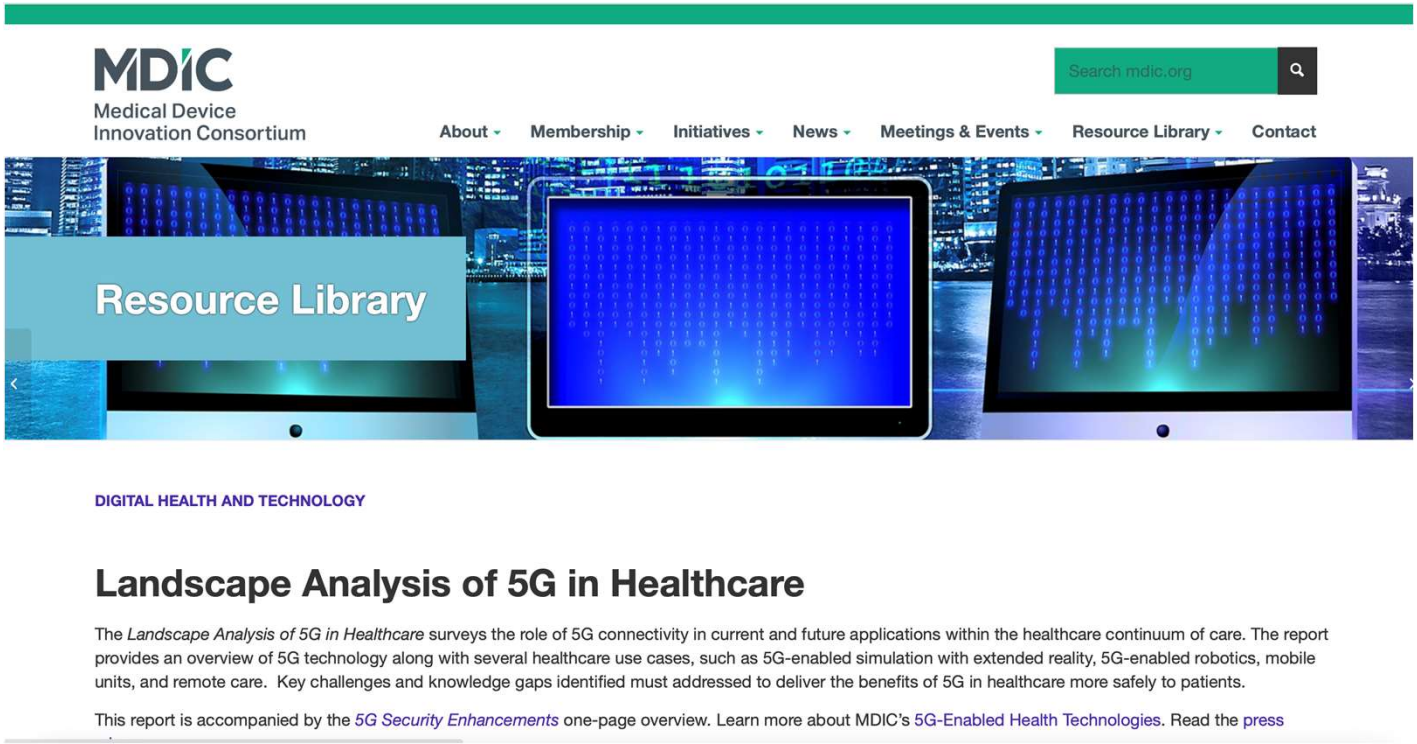
- ***Hybrid 5G network slice***
- ***Pilot in Leipzig***
- ***Cloud infrastructure on EU territory***
- ***Advanced, quantum robust encryption (RSA and FHE)***
- ***Small model AI***
- ***Connected medical devices – 5G enabled devices***
- ***1800 hospitals in Germany, 15000 hospitals in Europe, 4000 essential medical devices / hospital***


Mepivacaine
8.7
ml/h
50cc Fresenius P-Spritze
MENU
STOP
Agilia
Fresenius
Kabi


IntelliVue
MP30
Philips MP30
Keine Aufnahme
Erwchs
16:06
3-K NIBP
HF
80
Pleth
SpO2
97
Resp
AF
20
Auto
NBP
180
130
PHILIPS
Health Institute


60
Health
Institute
Quectel_1.1-6GHz_FPC_X2

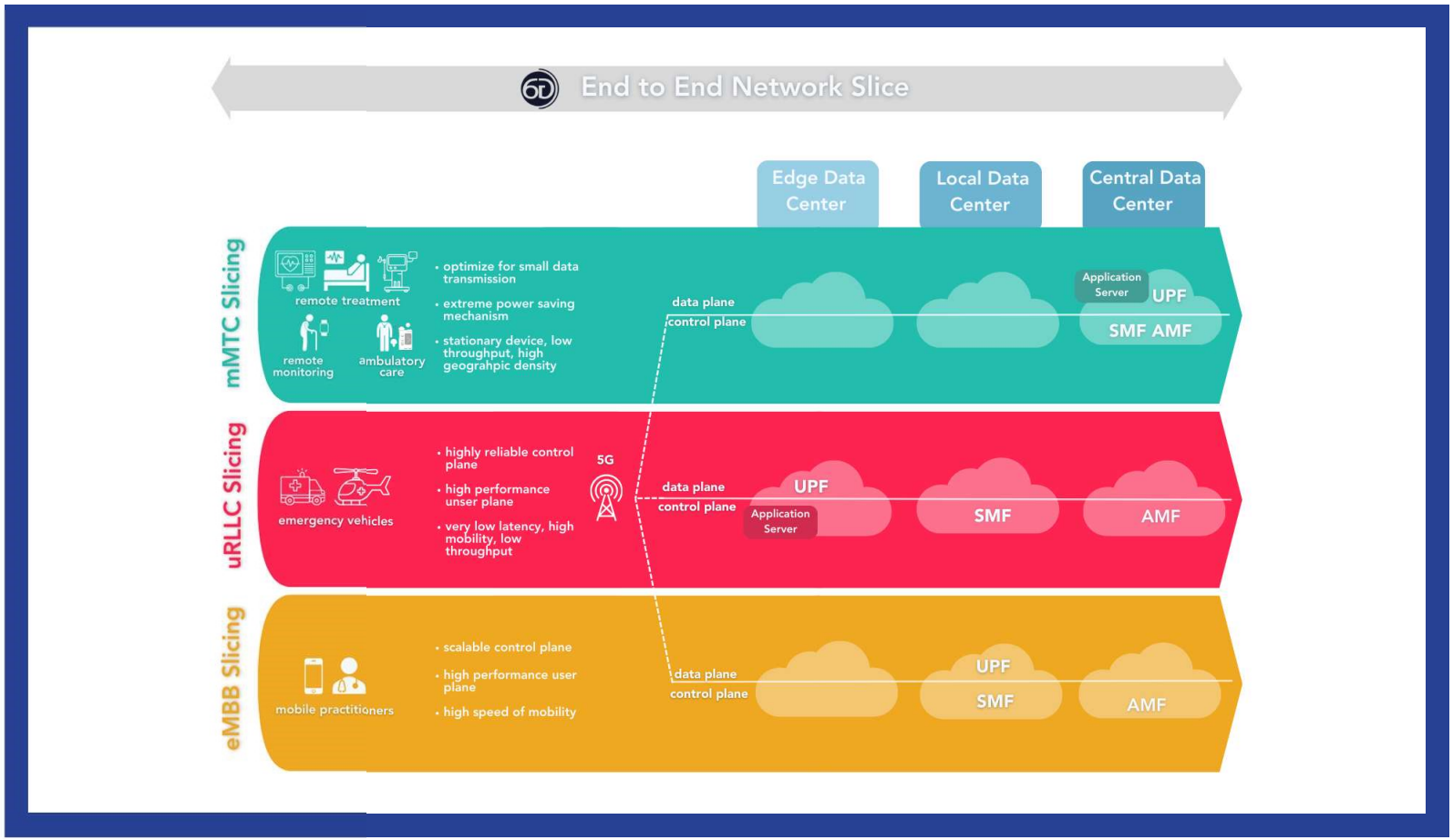
# Landscape Analysis of 5G in Healthcare - MDIC



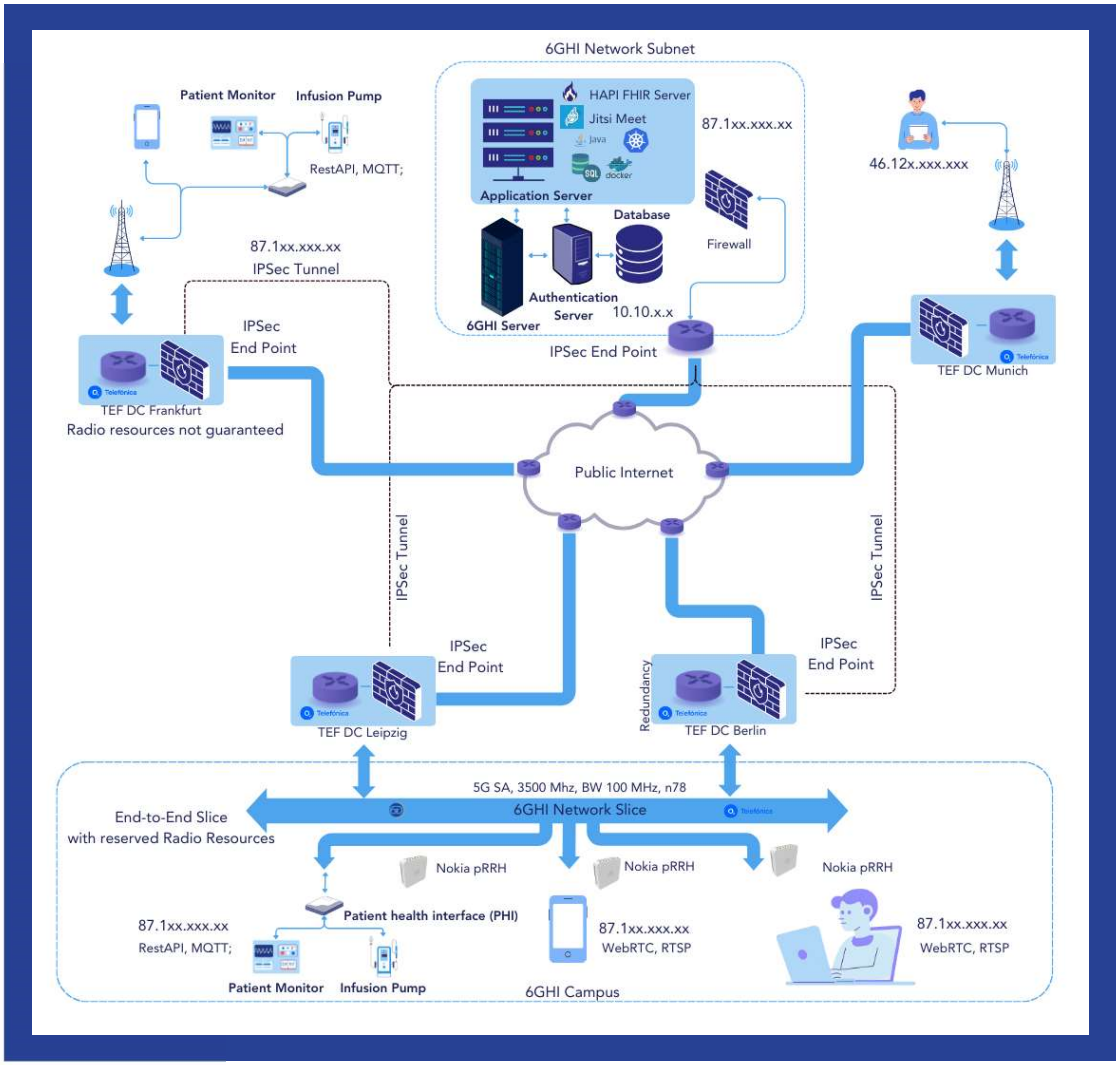

https://mdic.org/resource/landscape-analysis-of-5g-in-healthcare/

US Food and Drug Administration FDA

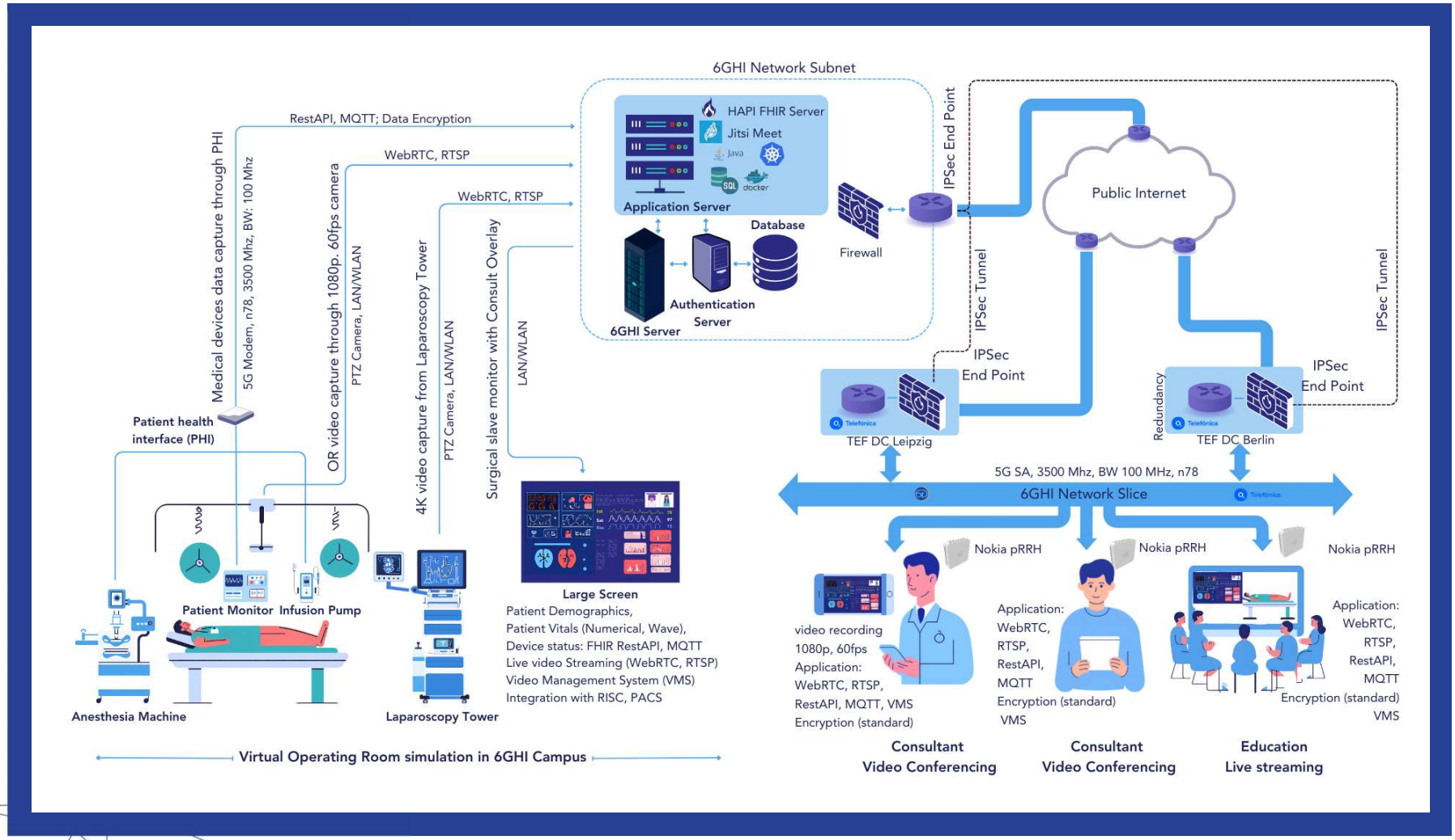
5G Network Slicing



# 6GHI Network Slice



## 6GHI Network Vision



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6GHA HEALTH ASSOCIATION

# Mitteldeutscher Gesundheitsdatenraum (MIG)
## *(Central German health data space)*

Collaborative project on the design and creation of a Central German Health Data Space in collaboration with the Saxony Agency of Structural Development (SAS) and several Hospitals in the Central-German Region.

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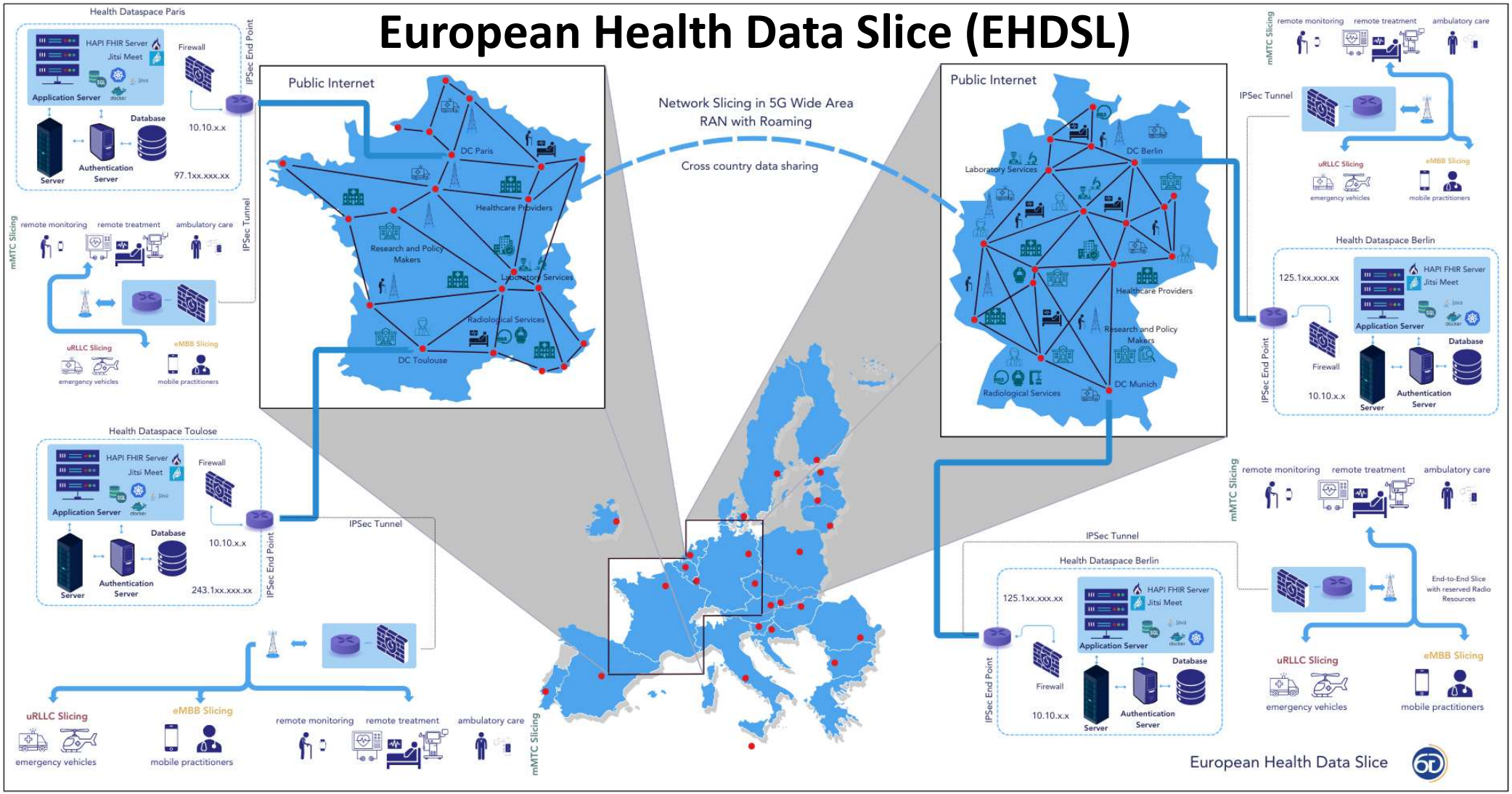
Chief Medical Officer

Federal Project: central German health data space (MIG)

# AIMS AND OBJECTIVES

- Establish a central German Health Data Space in line with EC regulations (European Health Data Space, AI-Act, General Data Protection Regulation, etc.)
- Utilize the private-public 6GHI / Telefónica Health Data Slice Infrastructure prototype and expand and validate it
- Define and implement adequate security features
- Define and implement adequate “green e-Health” strategies
- Foster and enhance co-creation and co-design by the relevant stakeholders
- Validate the approach
- Expand the infrastructure across Europe in line with European and US FDA regulations


European Health Data Slice (EHDSL)
Health Dataspace Paris
HAPI FHIR Server
Jitsi Meet
Application Server
Database
Server
Authentication Server
Firewall
IPSec End Point
10.10.x.x
97.1xx.xxx.xx
IPSec Tunnel
mMTC Slicing
remote monitoring
remote treatment
ambulatory care
uRLLC Slicing
eMBB Slicing
emergency vehicles
mobile practitioners
Public Internet
DC Paris
Healthcare Providers
Research and Policy Makers
Laboratory Services
Radiological Services
DC Toulouse
Network Slicing in 5G Wide Area RAN with Roaming
Cross country data sharing
Public Internet
DC Berlin
Laboratory Services
Healthcare Providers
Research and Policy Makers
Radiological Services
DC Munich
Health Dataspace Berlin
125.1xx.xxx.xx
Health Dataspace Toulose
243.1xx.xxx.xx
End-to-End Slice with reserved Radio Resources
European Health Data Slice

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# 6G Topics

- Non-Terestrial-Networks
- Advanced Network Slicing and SLAs
- eID
- Post-quantum Crypto
- AI features
- Sensing

# 6G Health Association

- Web Site
- Global Association
- Inauguration on 3rd December 2024 in Leipzig
  - Topics
  - Seamless Device Integration
  - 5G / 6G transition
  - Safe, secure, resilient IoT connectivity
  - Safe, secure, resilient EHDS connectivity

Health Institute
Prof. Dr. med. Christoph Thuemmler
Chief Medical Officer

(one6G)
Valencia, Spain 05 - 06 Sept. 2024

# Thank you!

**Prof. Dr. med. Christoph Thümmler**
Chief Medical Officer
6G Health Institute

*christoph.thuemmler@6ghi.net*
*+49 (0)34297 98 32 10*

*scan for contact*