



# eGK and Telematics Infrastructure

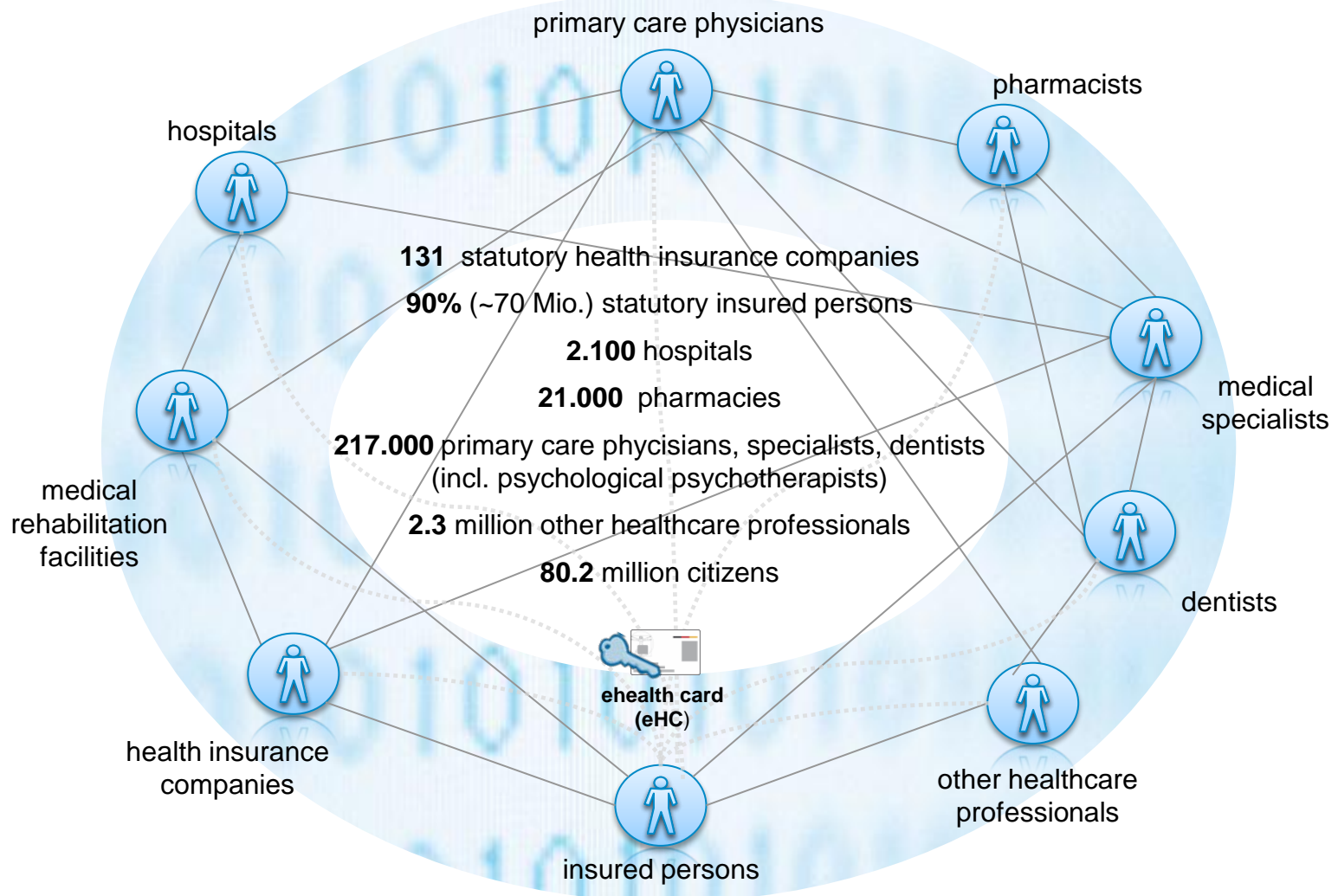
**Prof. Dr. Arno Elmer**

Managing Director

gematik  
Gesellschaft für Telematikanwendungen  
der Gesundheitskarte mbH  
Friedrichstraße 136  
10117 Berlin



# The Connected Health Care System - Telematics Infrastructure

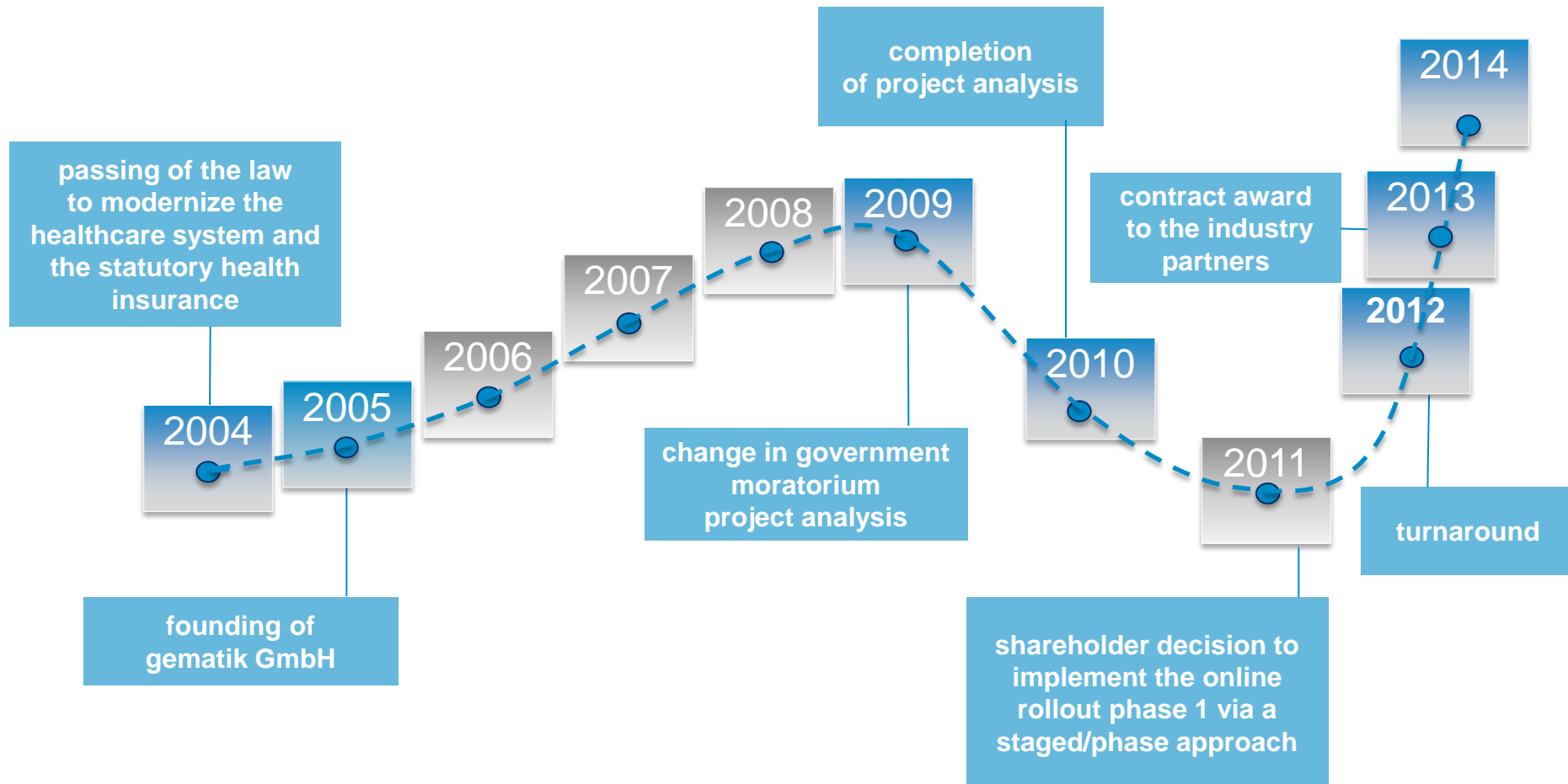


# gematik - Gesellschaft für Telematikanwendungen der Gesundheitskarte mbH

- The German government adopted in 2004 a law to implement the ehealth card. The purpose of this law is to modernize the statutory health insurance.
- **The self-governed entities** of the German healthcare system, especially the statutory health insurance is responsible for establishing the telematics infrastructure and implementing the ehealth card.
- **gematik was founded in January 2005.**
- It is the German **central coordination and communication center** for all topics related to telematics infrastructure and ehealth card.
- Currently around 260 IT experts, application specialists and project managers are employed at gematik.
- Managing Director: Prof. Dr. Arno Elmer
- Shareholders:



# The History of gematik – Successful Turnaround



# gematik: Competence Center for eHC / TI

- **Concepts:** The gematik develops conceptual designs and specifications to define the standards of the components, services and processes.
- **Patient Safety:** The gematik works closely with the Federal Office for Information Security (BSI) and the Federal Commissioner for Data Protection and Freedom of Information (BfDI) in order to assure security and the functionality of all project components.
- **Testing:** Methods to guarantee safety, functionality and quality of all project components.
- **Authorization:** The gematik grants authorization for health telematics products for the telematics infrastructure after approved and successful testing procedures.
- **Tender Procedure:** The organization conducts the tender procedure and awards contracts to the industry partners for the development, the testing processes and the rollout
- **Operational and Corporate Responsibility:** The gematik oversees the operation of the telematics infrastructure and additionally carries out the responsibility for its proper functioning.
- **Communication:** The gematik supports its stakeholders and is the central point of contact in all questions related to the eHC and TI.



# Telematics Infrastructure – The Safest Connection for All



## The telematics infrastructure offers:

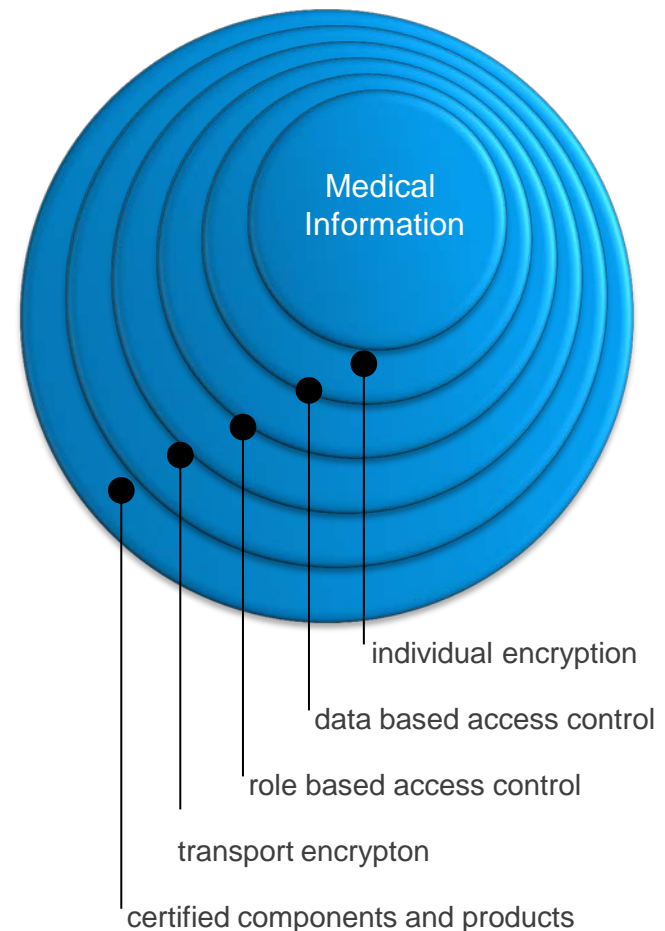
- **Security** because it restricts the use to only certified and proven interoperable components. The roles of the components are clearly defined.
- **Constant availability** due to centrally organized operations
- Guaranteed highest performance through **unified standards**
- **Nationwide, cross-sector platform**

## Safe investment for the industry:

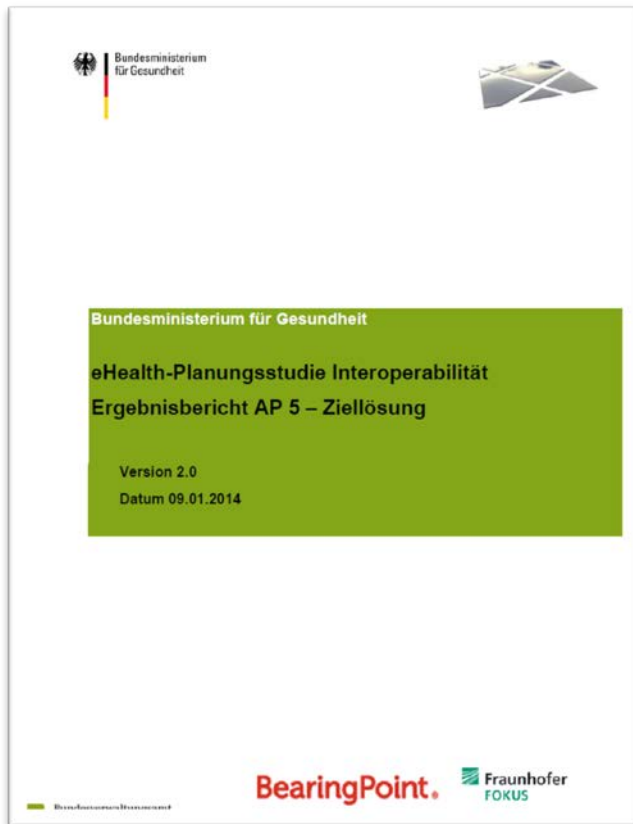
- Use is restricted to defined standards
- Continuous, coordinated and approved development of the entire platform and its components
- Persistent adjustments of security and data protection standards based on current legal requirements

# Multi-Level Security Mechanism

- Access is only granted through the use of **secure** and **certified products** (connector, card terminals, health cards)
- Communication is channelled through **secure client and server authentication**
- Access is only granted to authorized personnel. **The HPC provides the necessary proof of identification.**
- **Access is only granted after the authentication of the insured person.** The authentication is provided through the use of the eHC or through prior, explicitly granted permission.
- **The individual encryption of data takes only place in the systems of the healthcare service providers.**



# eHealth – Interoperability Design Study



The eHealth – Interoperability Design Study was appointed and supported by the German federal Ministry of Health (BMG).

## Conclusion:

By involving the gematik in the proceedings an increase in interoperability and transparency of the healthcare infrastructure will be achieved.

Quelle: eHealth - Planungsstudie Interoperabilität - Ergebnisbericht AP 5 – Ziellösung; Version 2.0 /Bundesministerium für Gesundheit



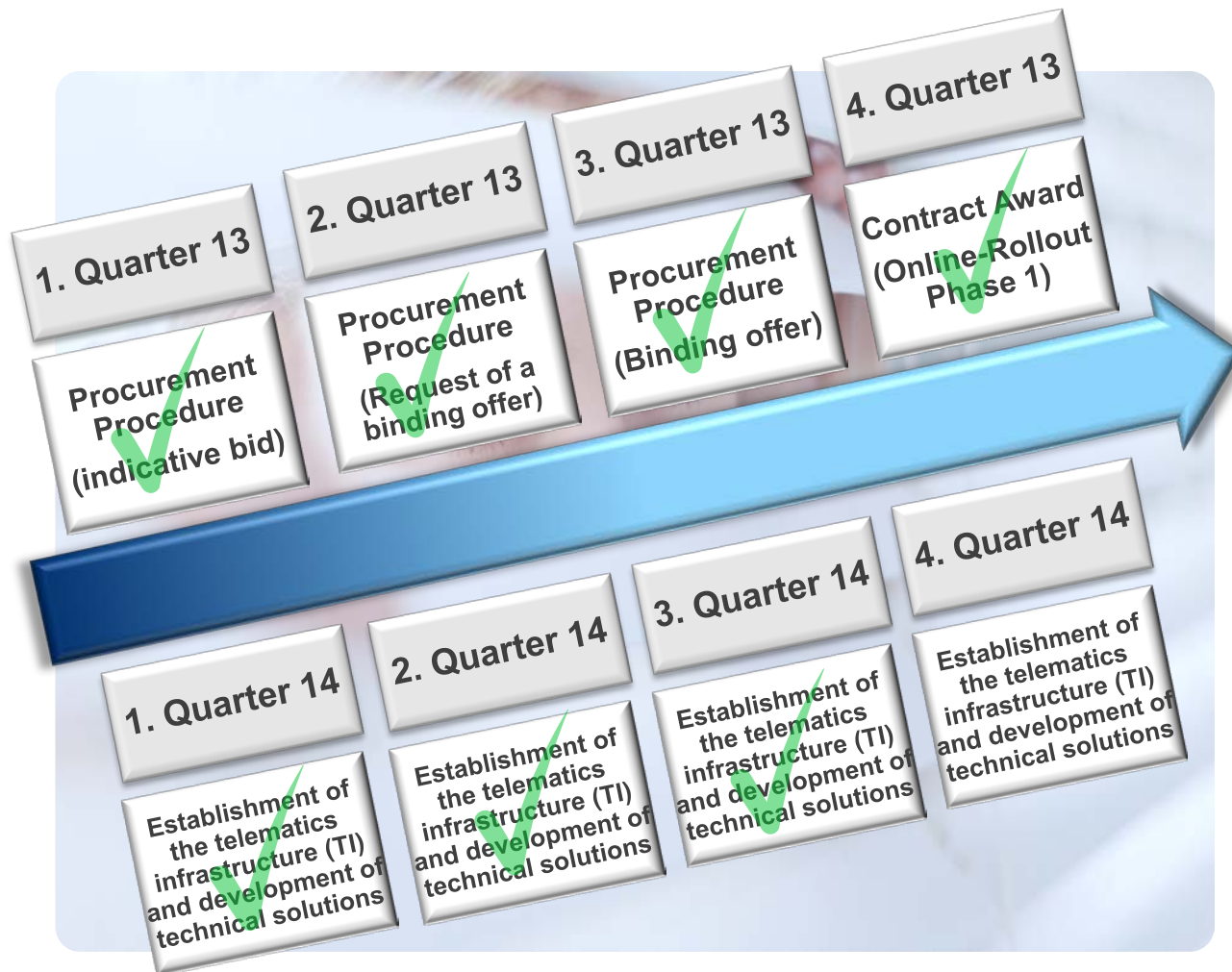
# The Electronic Health Card (eHC)



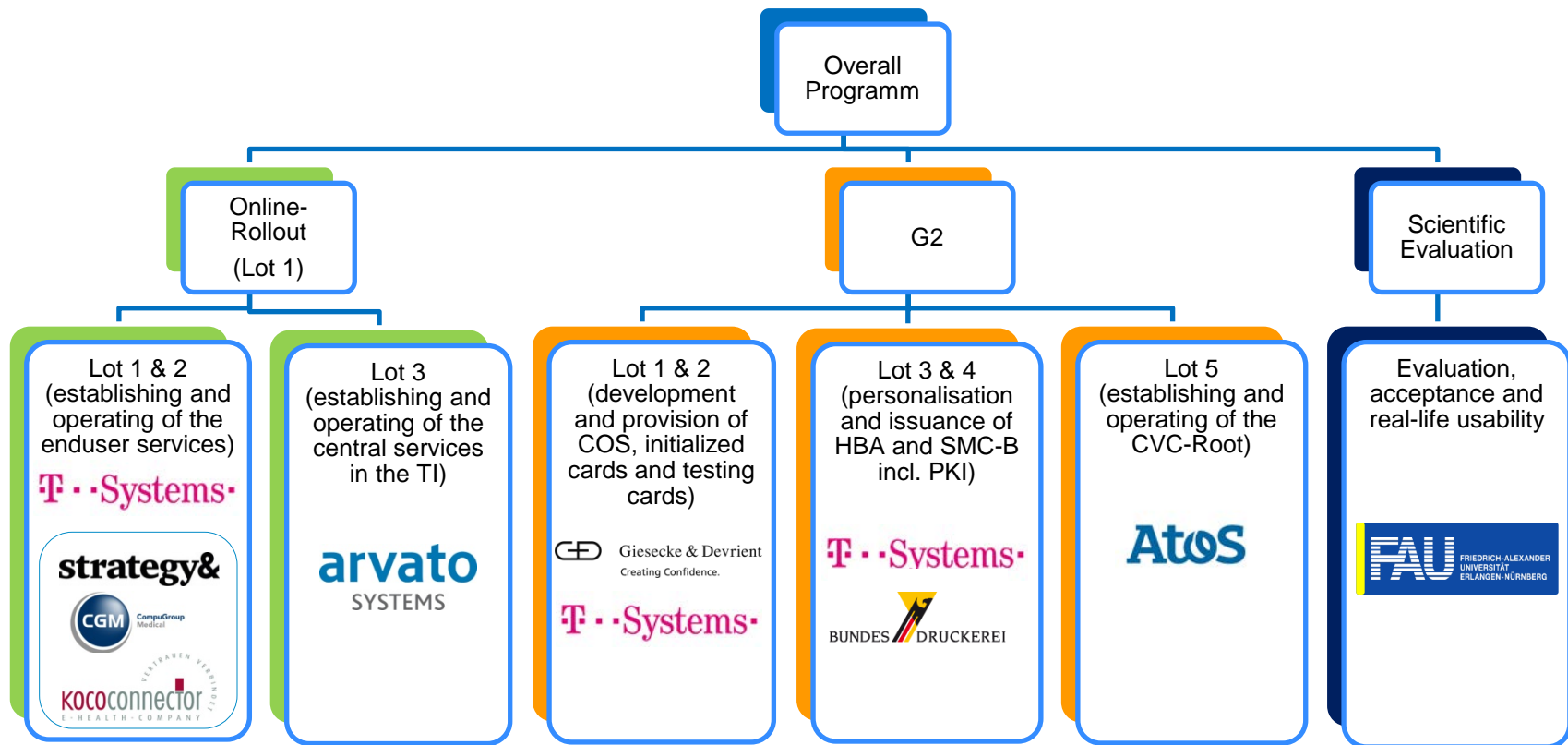
**As of 1. Januar 2015 the electronic health card is sole proof of insurance!**

On August 14th, 2014 agreed the Kassenärztliche Bundesvereinigung (KBV) and the GKV-Spitzenverband (GKV-SV) agreed, that as of **January 1st 2015**, the old health card without chip and photograph will be invalid. At this point statutory insured persons have to provide proof of insurance at their physicians office with the new electronic health card (eHC).

# Project Milestones 2013 / 2014



# Industry Partners



# Testing Region of the gematik during the Trial Period

**The designated testing regions of the telematics infrastructure and ehealth card (eHC):**

Testing region North-West with their regional representative offices:

- Bochum/Essen – North Rhine-Westphalia
- Flensburg – Schleswig-Holstein
- Trier – Rhineland-Palatine

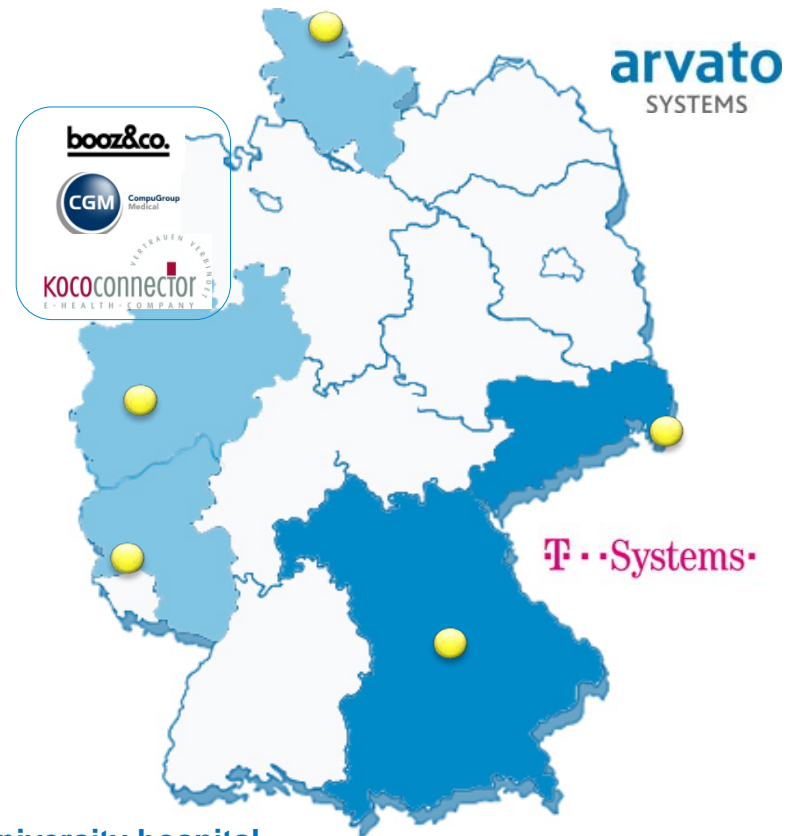
Testing region South-East with their regional representative offices:

- Ingolstadt – Bavaria
- Löbau/Zittau – Saxony

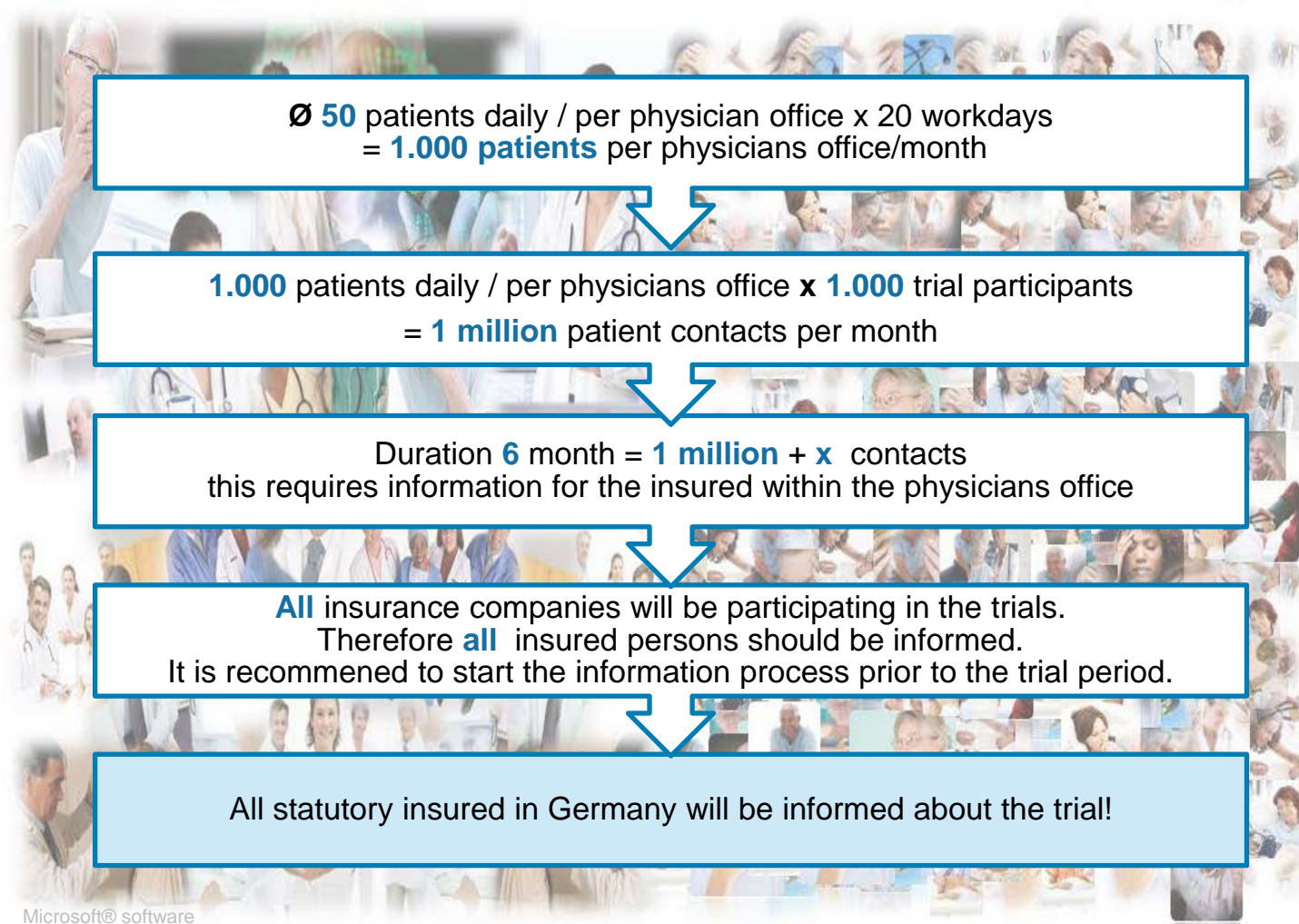
**Testing participants per testing region:**

**375 physicians, 125 dentists, 4 hospitals and 1 university hospital  
= 500 testing participants x 2 testing areas = 1000 testing participants**

**Nationwide network including all statutory health insurance companies.**



# Participants of the trial period



Microsoft® software



# Telematics Infrastructure – Phase Model



## Telematics infrastructure and first applications during the trial period (testing) (Phase I):

- establishing the telematics infrastructure
- online update of insurance master data
- secure internet access
- connection of existing networks
- qualified electronic signature
- secure communication between service providers (e.g. \*physicians)

## Planned Applications (Phase II + et seq.):

- emergency data management
- migration of health and medical data services to the TI, eg. electronic medical record
- data management for medication safety
- organ donation,

## Other projects & applications:

- QS-markers, telemedicine, ISO-Project ePrescription, electronic health record, epSOS (European Patient – Smart and Open Service)

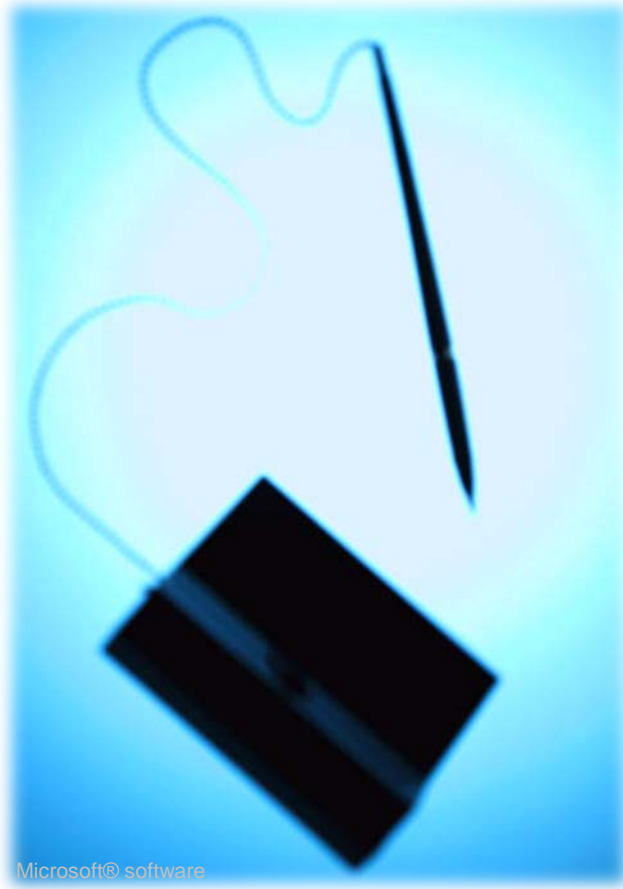
\*subject to resolution passed by the shareholders

# VSDM – Insured Master Data Management

- the so-called **master data** of the insured is stored on the electronic health card
- part of the **master data** are the administrative information of the insured
- The **insured master data service** checks if the current information on the card is up-to-date. If necessary the information up-date takes place online.

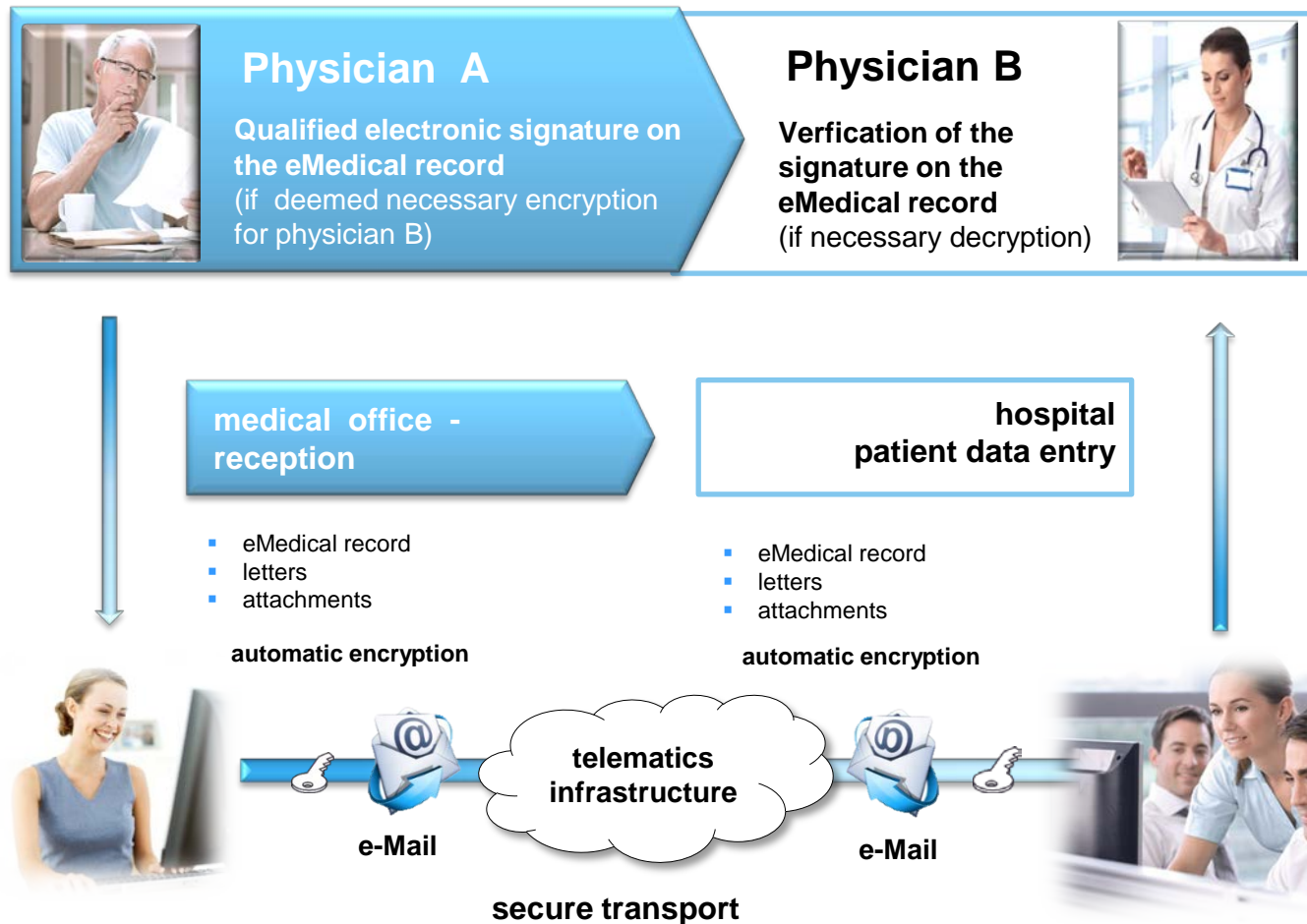


# Qualified Electronic Signature



- A physician can sign legally binding medical documents with the qualified electronic signature (QES).
- QES can completely replace a handwritten signature.
- QES can be used for different TI application, e.g. electronic referral letter or the quarterly billing.

# KOM-LE – Communication between Physicians (e.g. electronic discharge letter)



# NFDM – Emergency Data Management

## Scenario 1:

prior to admission: patient treatment through emergency services

emergency deployments:  
**2,1 million per year**

emergency deployments without physician: **2,3 million per year**

## Scenario 2:

unplanned submission of a patient into emergency room of a hospital

emergency cases with hospital submission: **6,6 million per year**

emergency cases without hospital submission: **5,4 million per year**

## Scenario 3:

physician meets unknown patient with acute symptoms in an outpatient setting

emergency care in outpatient setting: **12,6 million per year**

Source: Arbeitskonzept Notfalldatenmanagement (NFDM) 2011/ Bundesärztekammer



# Usability and Benefits:

## AMTS - Data Management for Medication Therapy Safety

**Idea: medication data on a smart card**

**Significant improvement of patient care**

- target group – multi-morbid patients
- polypharmacy for patients who have to take five or more prescription medications a day
- easier and more efficient check of potential side effects and medication interaction

 **Benefits for all Patients**

**Save Lives!**

It is estimated that approximately **9.000** people die in Germany annually as consequence of medication incidents and prescription drug interaction

**AMTS can make a significant contribution to prevent medication related deaths.**

Microsoft® software

# Problem: Polypharmacy



The amount of different prescribed medications that 1/3 of all 65 year old persons take daily:

**five or more**

data provided to improve medication therapy safety helps to reduce physical harm of patients

## Studies found that:

- 10% of all insured patients consult ten or more different physicians a year
- Problem: It is unknown which physician prescribes what medication
- Problem: due to the absence of a communication and information platform and missing coordination, polypharmacy and issues caused by medication side effects create additional costs in the billions.

Source: Arzneimittelreport 2013 Barmer GEK

# The Future of Telemedicine in Germany



innovative telemedicine projects

will be based on

a save, swift and reliable  
**telematics infrastructure**

using

defined standards

# Qualitative Benefits of Care in the Future

## Additional examples of applications:

- eCase file
- ePatient file
- eMedication plan
- supplemental pay tracking system
- nursing file / nursing and care documentation
- eDocumentation
- Medical diary (e.g. diabetes, pain management, asthma,...)
- reminder function e.g. for recommended screenings and medical examinations
- eVaccination record
- Already today the industry invests massively in the field of E-Health (e.g. T-Systems, IBM, accenture, SAP, Siemens)



We connect the healthcare system. The safest way.



**gematik**





Thank you for your attention.

**Prof. Dr. Arno Elmer**

Managing Director

[Arno.Elmer@gematik.de](mailto:Arno.Elmer@gematik.de)

Diese Unterlage dient der Information des Empfängers. Das enthaltene Bildmaterial ist urheberrechtlich geschützt. Eine Nutzung dieser Unterlage inklusive des Bildmaterials zu anderen Zwecken ist daher nicht gestattet.



**gematik**