Towards an OHDSI-based Data-Sharing Infrastructure in Germany

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on behalf of the MIRACUM consortium

Motivation

We need
- coordinated
- secure
- data protected
- governed

access to data

based on a trustworthy framework of technologies and policies

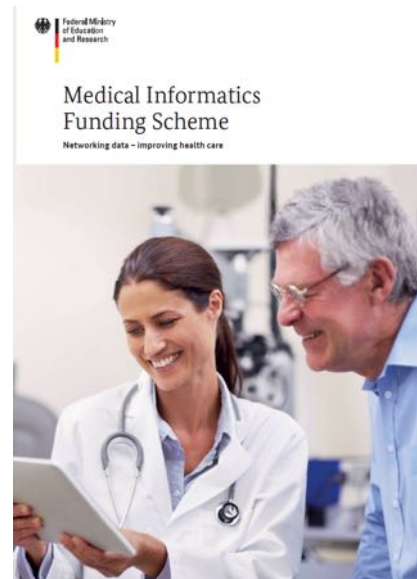# The German
Medical Informatics Funding Scheme

- Improve **research opportunities** and **patient care** through innovative IT solutions
(initially at university hospitals)

- Intensify the **exchange and sharing of data** between the research community and the health care delivery system

- Position medical informatics as a progressive field in research, **teaching and continuing education**

- As a key element of the funding scheme
data integration centres are to be set up and interlinked by the university hospitals

Förderkonzept Medizininformatik
Daten vernetzen – Gesundheitsversorgung verbessern

Bild: Bundesforschungsministerin Wanka auf der MEDICA (Bildquelle: Messe Düsseldorf / ctillmann)

Medical Informatics Funding Scheme
Networking data – improving health care

The initiative so far...

Announcement 2015

Conceptual Phase 2016-2017

Development and Networking Phase 2018-2021
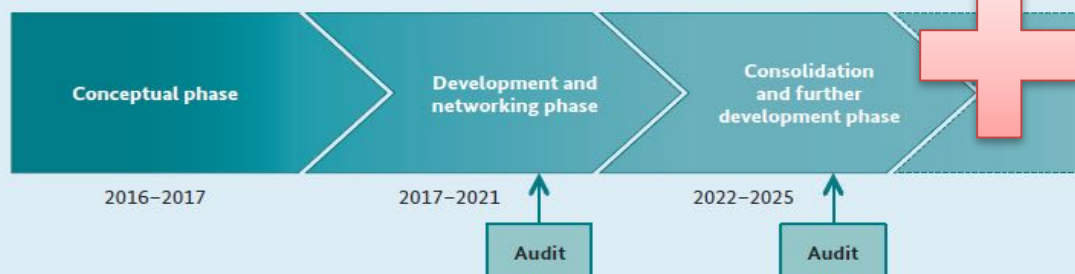
Supplementary Funding for
- new professorships
- young researcher groups and
- non-funded university hospitals

The MIRACUM consortium

- Medical Informatics in Research and Care in University Medicine
  - eight University Hospitals and Medical Faculties, two Universities of Applied Science, and one industrial partner
  - across five German States
  - associated with four German Health Research Networks

- comprising ¼ of all German University Hospitals
- handling clinical and research data of more than 10 Mio patients

Usecases of MIRACUM

Alerting in Care

- *IT Support for Patient Recruitment*
- Medical Informatics / Clinical Trials

From Data to Knowledge

- *Clinico-molecular Predictive Knowledge Tool*
- Biostatistics / Prediction Models / Med. Inf.

From Knowledge to Action

- *Support for Molecular Tumor Boards*
- Bioinformatics / Medical Informatics / Precision Medicine

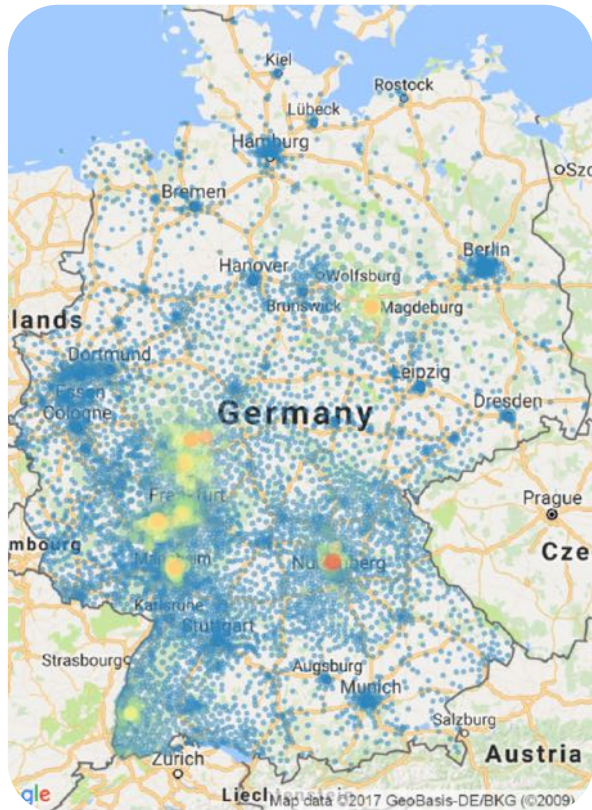# The MIRACUM ecosystem is based on ...

- Medical Informatics ReusAble eCosystem of Open source Linkable and Interoperable software tools – X
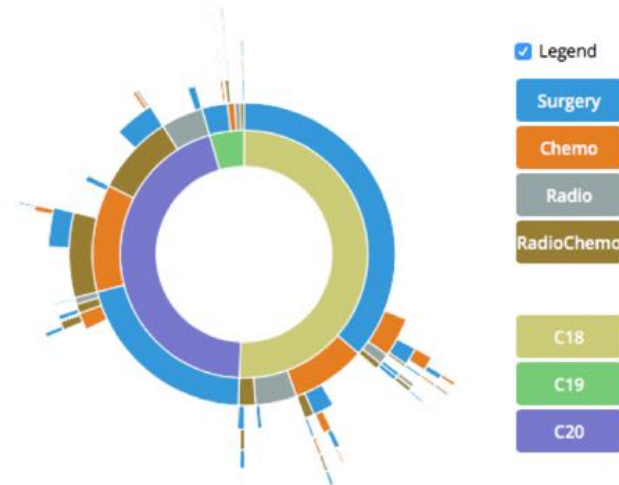
MIRACOLIX

- MIRACOLIX is
  - pragmatic
  - modular
  - reusable
  - open source
  - interoperable
  - federated

Example: Feasibility

Catchment Area of MIRACUM Partners

*Combined Sunburst-Plot of 18,376 Cases
from 11 University Hospitals*

- 11 University Hospitals

- 3,3 Mio Patients

- 30 Mio Diagnoses

- 23 Mio Procedures

Current work and first results

- Full import of the clinical data warehouse
- Mapping, mapping, mapping
  - National SNOMED license on the way
  - ICD10GM, OPS (procedures)!, cost?
- App infrastructure
  - OMOP on FHIR (http://omoponfhir.org)
  - SMART on FHIR (https://smarthealthit.org)
  - FHIR-enabled wearables
- Automatic data sharing based on a central query broker
  - Inspired by li2b2 (https://github.com/li2b2)
- Interactive queries and (geo-)visualization
  - based on Kibana

See you!