



Collaborative Approaches towards Interoperable, Secure Medical Data Sharing

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Challenges towards the Application of AI in Healthcare

How can we achieve harmonized data structures?



How can we define consistent (broad) consent and governance policies?



How can we objectively measure and optimize data quality?



How can we securely implement ML training and application?



Routine Clinical Data

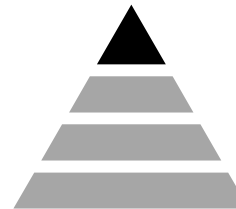
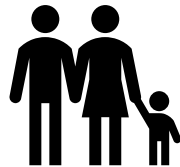
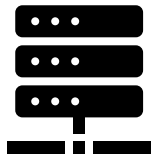
Patient Consent

Governance of data access

Structured Clinical Datasets

Training of ML Models

Application of AI in Healthcare

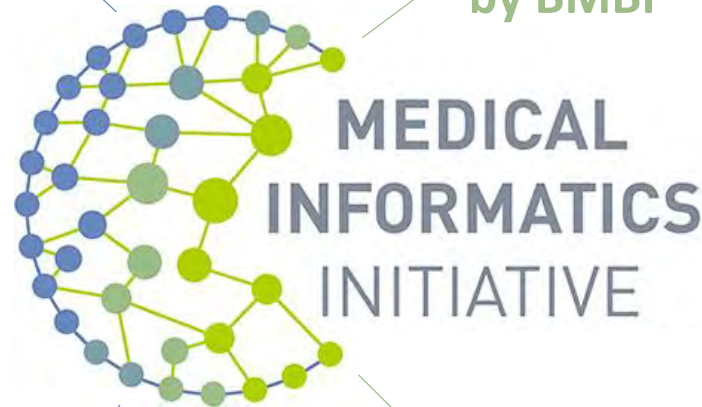


The German Medical Informatics Initiative (MII)

Nationwide Coverage of
all University Hospitals

Foster re-use of
routine clinical data

160 M€ funding
by BMBF



Demonstrate utility
through clinical use cases

Strengthen Medical
Informatics as a discipline

Long-term perspective

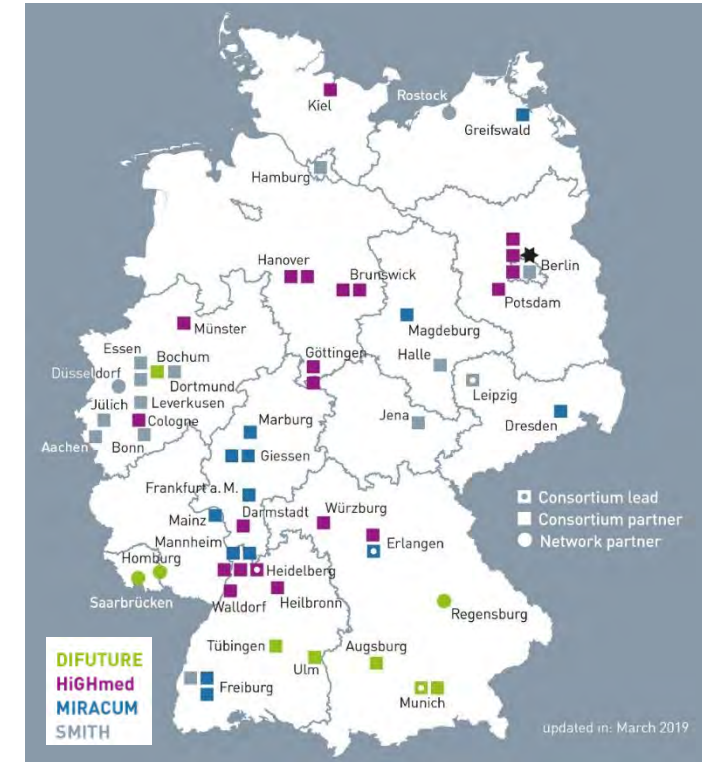
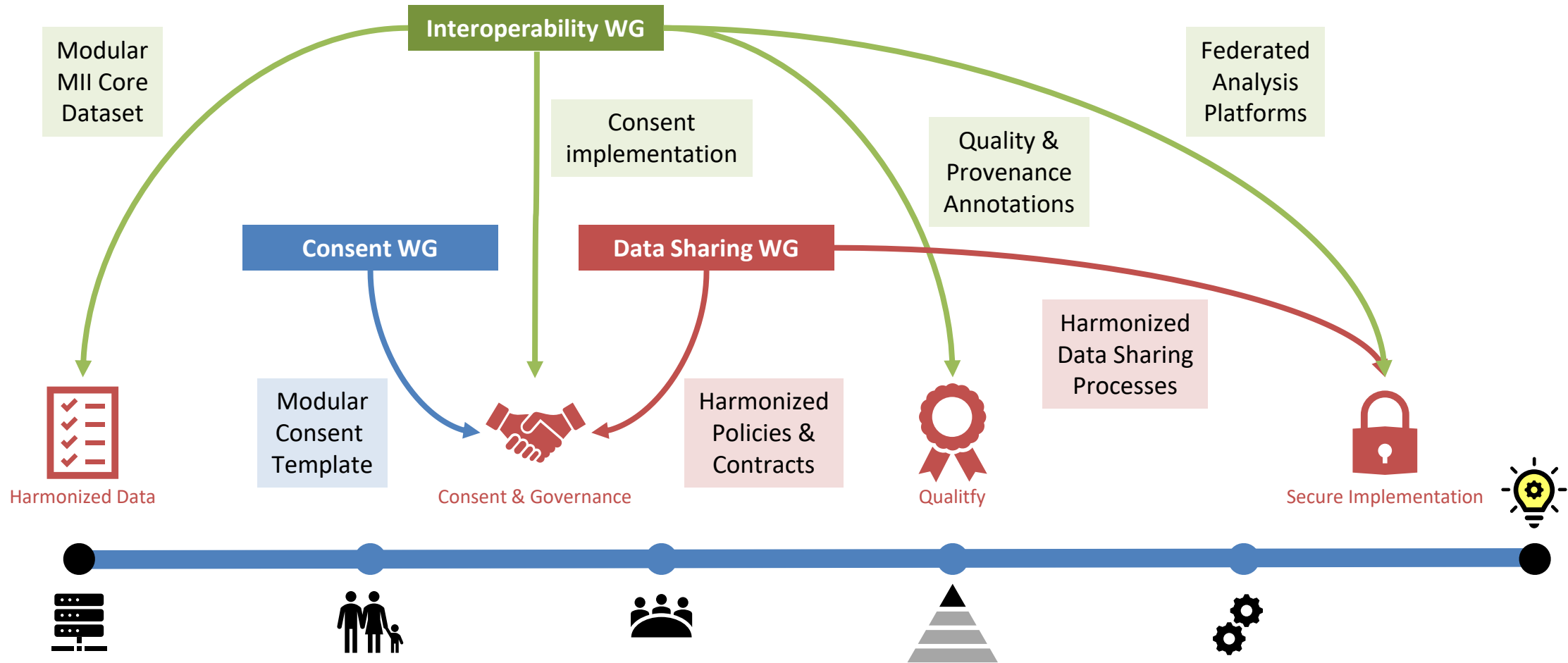


Image source: <http://www.medizinformatik-initiative.de/en/node/5>



Collaborative solutions through MII Working Groups



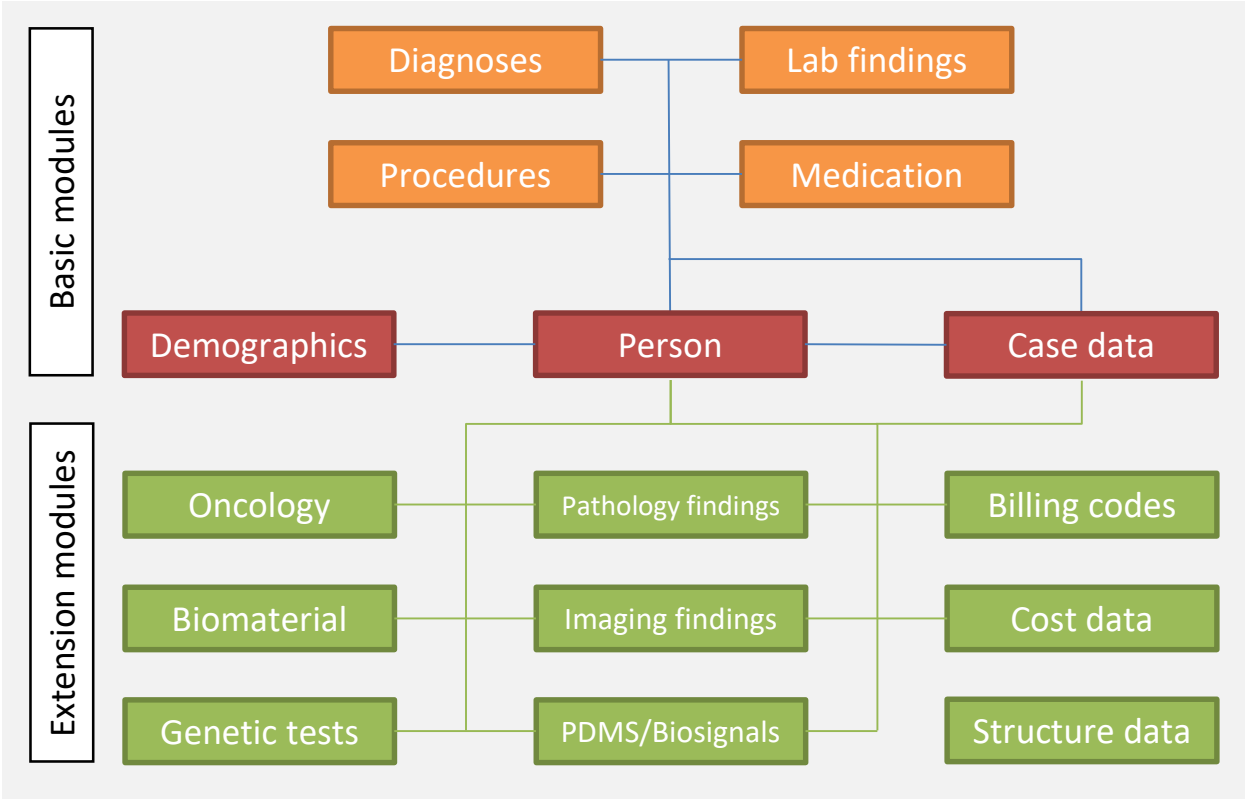
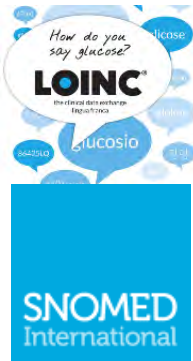
Interoperability WG

MII Modular Core Dataset

Data structures based on HL7 FHIR Standard



Semantic annotation based on international terminologies



Collaborative tools for requirements specification and data modelling



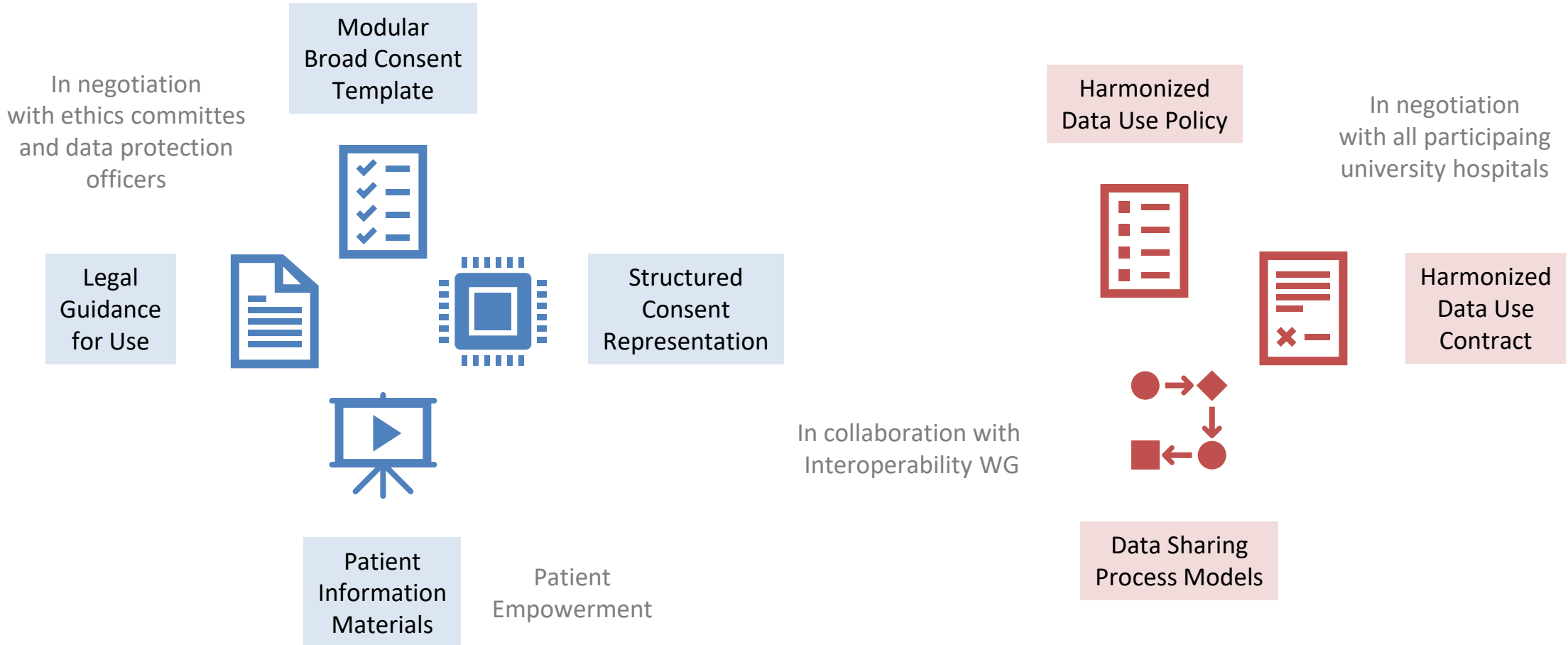
Open governance processes and balloting



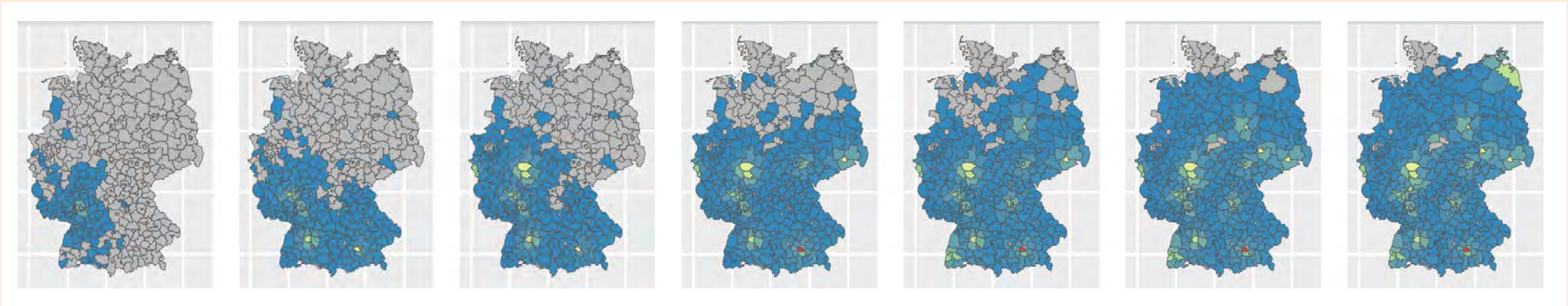
Consent WG

Data Sharing WG

Harmonized Consent & Governance



Demonstrator Study: Iterative approach, harvesting low-hanging fruit



(09/2018 - 03/2019)

Patient Participation: they want to donate, and they place trust in academia

Representative phone survey carried out by FORSA in 08/2019 (1,006 German participants) for TMF e.V.

Consent to data donation for medical research



79%
agree

46% fully agree
33% agree
13% disagree
7% strongly disagree

Source: TMF e.V. 2019 | Data base: 1006 respondents aged 18 and older in Germany

With whom would Germans share their health data?



97%
support public research

97% Scientists at universities and public research institutions
3% Scientists from industry and private companies

Source: TMF e.V. 2019 | Data base: 793 respondents who would agree to their personal health data being made available for medical research



Conclusions & Outlook: How we should approach Medical Data Sharing for AI

