

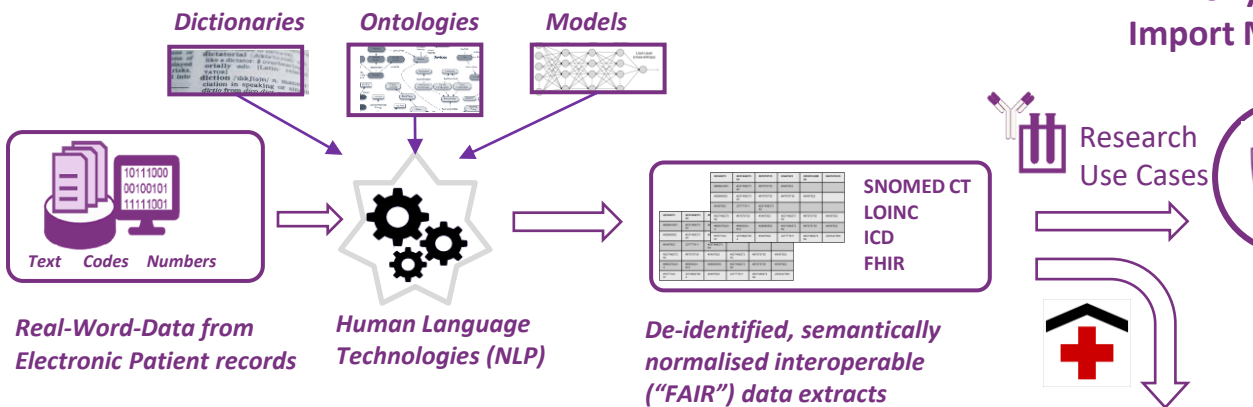
Digital Biomarkers for Precision Medicine

DBM4PM

“**DIGITAL BIOMARKERS**” pursues the mission to create value and promote biomedical research by transforming large-scale structured and unstructured health record content into an interoperable, structured and computable form. Thus, deep phenotyping is supported by international standards, human language technology and artificial intelligence in the spirit of the FAIR criteria ("findable", "accessible", "interoperable", "re-usable").

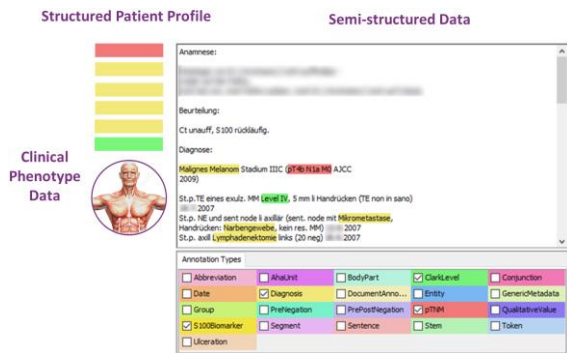
SCENARIOS OF USE:

- **Phenotype mining** based on semantically enhanced structured patient profiles
- **Cohort formation** for clinical research and health care management
- **Clinical queries** facilitated by **multi-hierarchical ontology-based representations**
- **Semantic search**, within a patient's complete record; including content summarization and context-aware, personalized document filtering
- **Biobank sample** annotations with **standardized clinical data extracts**
- **Knowledge association** with FUSION Technology: combining standardised clinical phenotypes with biomarker research data
- **Predictive models** for clinical decision support and business analytics
- Provision of structured and standardised clinical content to **CBmed FUSION**

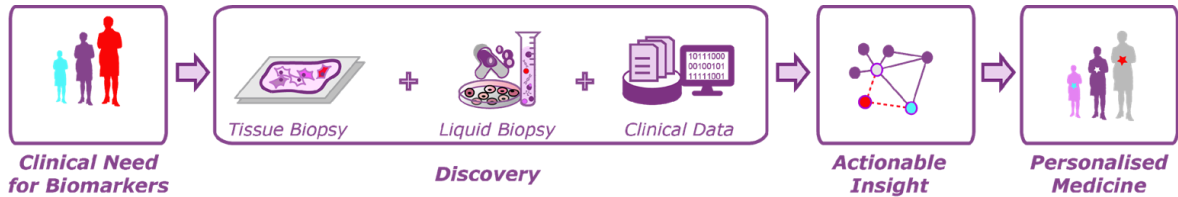


COMPETENCIES:

- **Natural language processing (NLP)**, combining commercial with in-house components
- **Machine learning**, big data analytics, data science
- International standards **SNOMED CT**, **LOINC**, **FHIR**
- Information retrieval, **information extraction**, multi-hierarchical semantic search
- **Clinical language**, **ontologies**, information models
- Scientific data warehousing

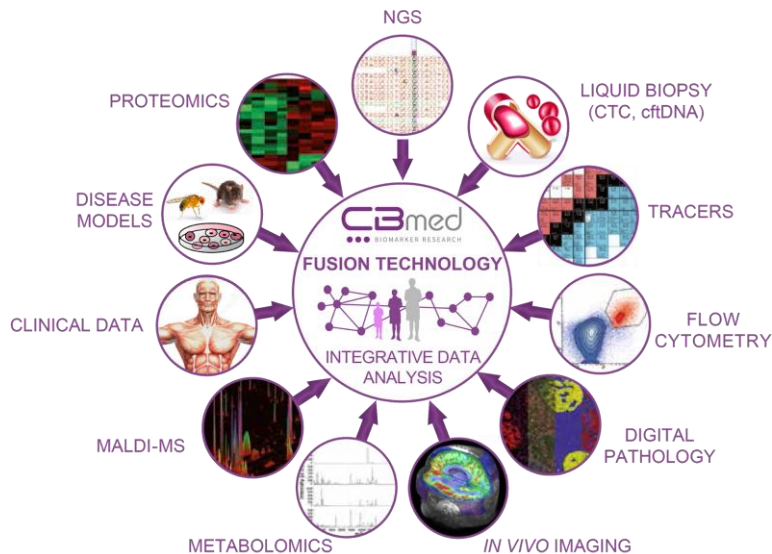


FUSION Technology



FUSION Technology Enables:

- Data-driven, multi-platform biomarker research studies
- Professional, efficient and secure data management
- Integrative data analyses, across multiple platforms
- Systems-level molecular + clinical phenotyping
- Candidate biomarker discovery



Data Safety, Security & Compliance:

- GDPR compliance through anonymization of sensitive information
- Capability for association of clinical and molecular data

Data Management & Analysis:

- In-house interdisciplinary team of data scientists
- Data processing and sharing infrastructure
- **FUSION-SOFT** for customized user applications
- **FUSION Technology** as a service (FUSIONaaS)

