

the BMB initiative: laying the foundation of a BioMedical center for Big data

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actors

- Università degli Studi di Genova
- A.Li.Sa.
- IRCCS A.O.U. San Martino
- IRCCS Gaslini
- Ospedali Galliera
- Liguria Digitale
- CNR
- IIT

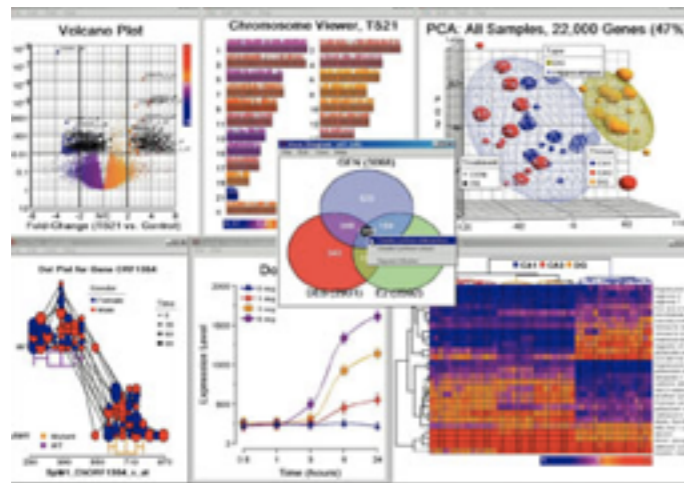
two aims (2yrs time)

7p (and counting) **medicine**: *planning, predictive, preventive, proactive, participatory, personalised, and precision*

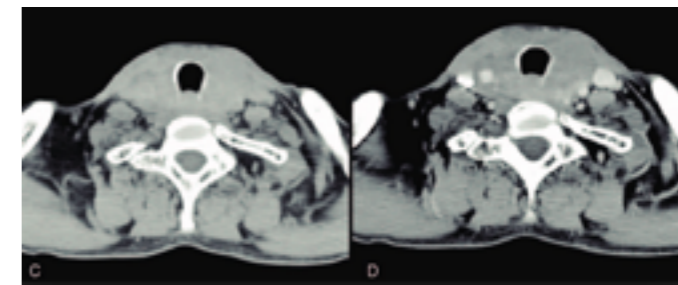
- 1. build a data lake which, in accordance with privacy regulation and by meeting the highest protection and security standards, allows to access all the biomedical data acquired in Liguria*
- 2. launch a center that supports patient health care, health policy planning, biomedical research, and technology development & transfer*

1: patient health care

with BMB: state of the art data driven AI technologies will deliver important advances in **predictive, preventive, proactive, and participatory** medicine the near future belongs to **personalised** and **precision** medicine



Gene	1	2	3	4	5	6	7	8	9	10
Gene 1	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9
Gene 2	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7
Gene 3	2.5	2.8	3.1	3.4	3.7	4.0	4.3	4.6	4.9	5.2
Gene 4	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
Gene 5	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4
Gene 6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
Gene 7	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2
Gene 8	1.5	1.7	1.9	2.1	2.3	2.5	2.7	2.9	3.1	3.3
Gene 9	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6
Gene 10	1.1	1.3	1.5	1.7	1.9	2.1	2.3	2.5	2.7	2.9



2: health policy planning

with BMB: data driven **methods** will be the key to improve and optimise

- performance analysis
- hub and spoke models
- diagnostic, prognostic, and health care path evaluation
- health care delivery planning & structure

3: biomedical research

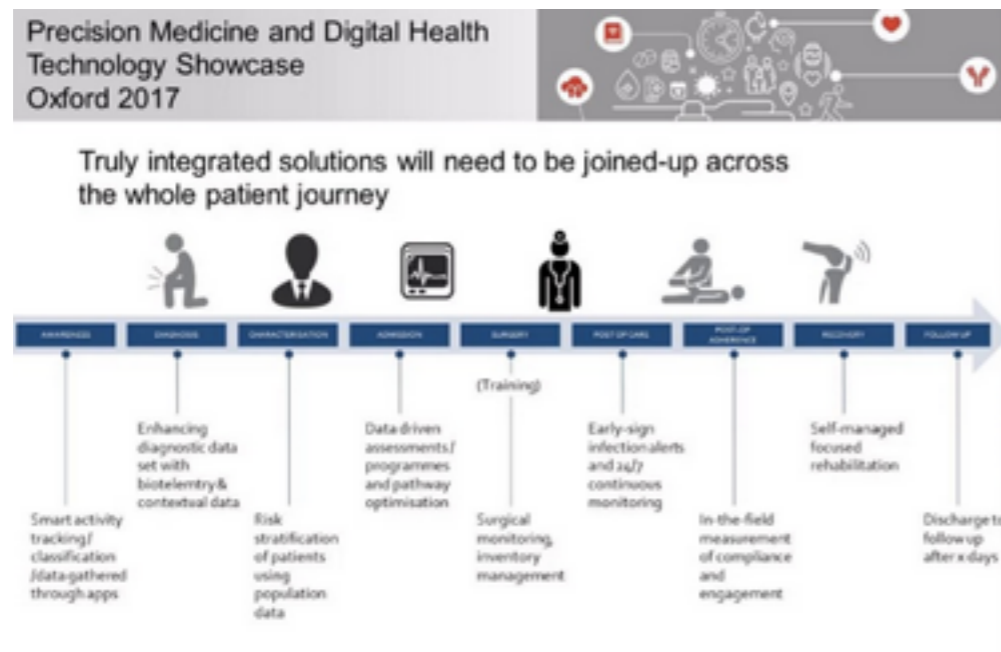


trend: the entire **data life cycle** is dealt with in data centres

with BMB: **control** and **intellectual property** of the entire data life cycle remain **on site**



4: technology transfer & development



biomedical data driven technologies are **hampered** by the difficulty of accessing the relevant data

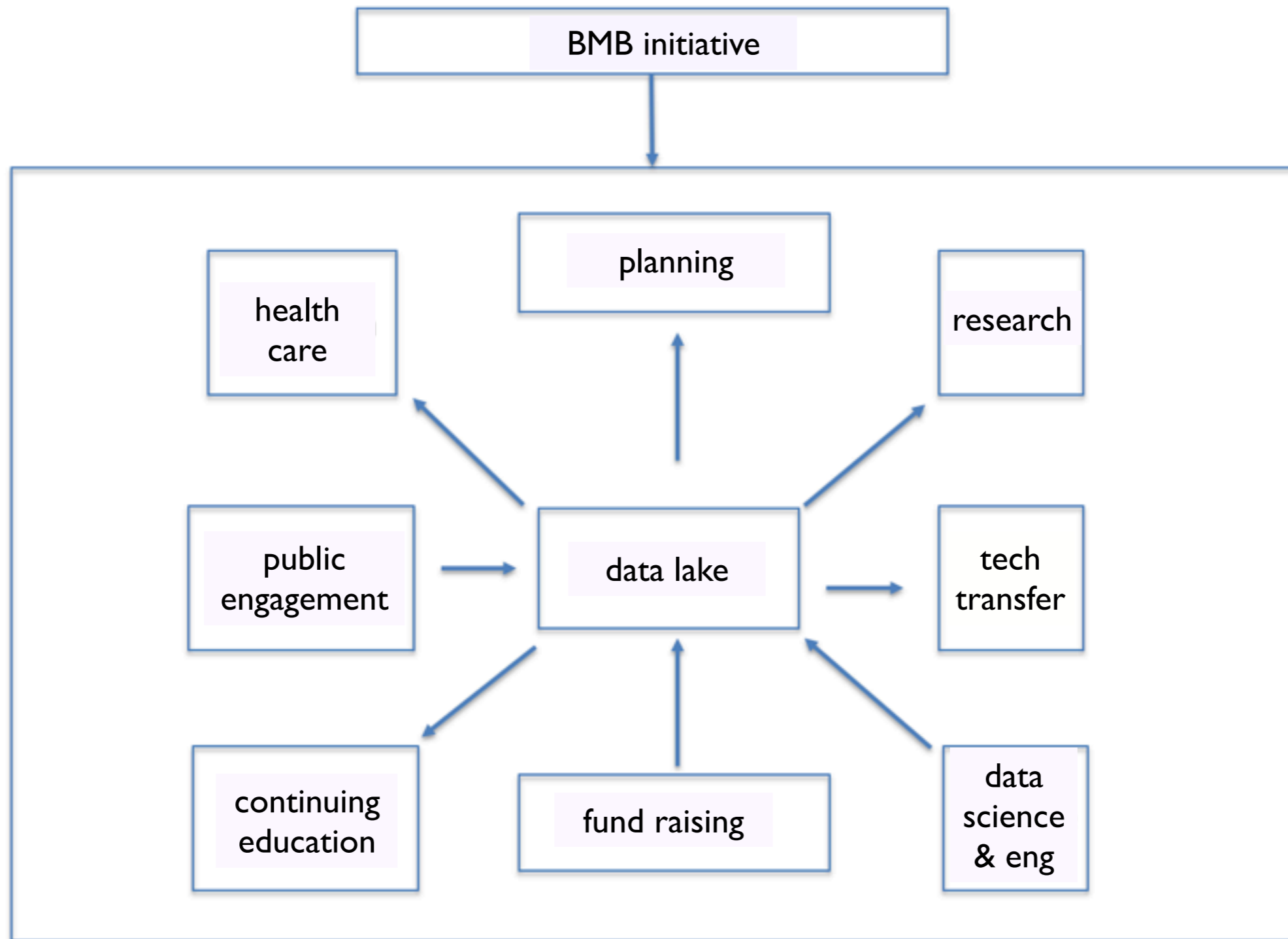
with BMB: companies will be able to **develop and test** solutions effectively



first steps

- *resolve data privacy & protection issues*
- *set up the data collection effort*
- *make optimal use of the data already available for optimising predictive models*
- *develop a new model for biomedical research*

7 working groups



11 work packages

- *Project Management & Coordination*
- *Data Privacy, Protection, and Security*
- *Data Collection*
- *Storage & High Performance Computing*
- *Data Science & Engineering*
- *Health Planning*
- *Public Engagement*
- *Research*
- *Continuing Education*
- *Business Model*
- *Center Structure & Organization*