

metabio

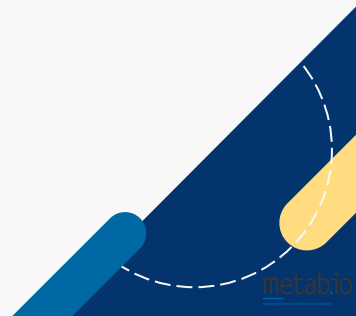
Digital Innovations for Life Sciences



who we are



| | |
|----------------------|--|
| Location: | Based in Thessaloniki (HQ) - Athens (Sub) – Greece, Delaware –USA (Sub) and Sofia - Bulgaria (Sub) |
| Services : | Novel IT solutions for Biobanking, Biomedical Research, Healthcare, Personalized Medicine and Life sciences. |
| Products : | e-MetaBio, AI-MetaBloQ, e-embryo, Medical IoT |
| Technologies: | Big Data, Blockchain, Artificial Intelligence, IoT |
| Personnel: | > 15, Multidisciplinary, Biomedical Researchers, Engineers, Business |



Membership-Collaboration-Support

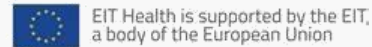
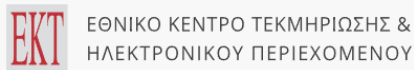
Certification



Funding



Business Development



European Recognition

European Commission
Horizon Europe

SEAL of EXCELLENCE awarded in February 2025



HORIZON-EIC-2024-ACCELERATOROPEN-01
— EIC Accelerator Open 2024



Metabio Group

Innovates **IT services** in **Life Science** sector

Accelerates research for drug development

Elevates **patient engagement**

Standardizes & Harmonizes Healthcare data

Delivers **precision medicine** tools for
self-management interventions

Decreases **cost** and **timeframes** in Healthcare
and Biomedical Research



Scientific Publications

Research Article

Increasing the Value of Real-World Crowdsourcing Health Data with e-MetaBio, a Novel Patient-Centric IT Infrastructure

Desislava Ivanova¹, Panagiotis Katsaounis¹, Konstantinos Votis¹

¹Metabio, Thessaloniki, Greece

Address correspondence to Panagiotis Katsaounis (katsaounis-ceo@metabio.io).

Sources of support: None. Conflict of Interest: The authors are employed by Metabio, and the described technology is created and implemented for commercial purposes.

Submitted: Nov 14, 2023; First Revision Received: Jan 22, 2024; Accepted: Jan 25, 2024

Ivanova D, Katsaounis P, Votis K. Increasing the value of real-world crowdsourcing health data with e-MetaBio, a novel patient-centric IT infrastructure. *Innov Dig Health Diagn Bio*. 2024; 4:15–24. DOI: 10.36401/IDDB-23-14.

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Conference Proceedings

2023 Advancing Healthcare Innovation Summit (AHIS): Executive Summary

Gail Pyne-Geithman MS, PhD^{1,2}

¹Cincinnati Children's Hospital Medical Center, Cincinnati, OH, USA

²Innovative Healthcare Institute, Cincinnati, OH, USA

Address correspondence to Gail Pyne-Geithman (innovativeexpresseditor@gmail.com).

Source of Support: None. Conflict of Interest: None.

Submitted: Dec 2, 2023; First Revision Received: Dec 7, 2023; Accepted: Dec 13, 2023

Pyne-Geithman G. 2023 Advancing Healthcare Innovation Summit (AHIS): executive summary. *Innov Dig Health Diagn Bio*. 2024; 4:2–5. DOI: 10.36401/IDDB-23-X3.

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Conference Proceedings

Workshop Proceedings: Informed Consent in Biobanking—from the Key Barriers, Challenges, and Perceptions to Digital Innovations

ISBER Virtual Annual Meeting and Exhibit, May 14–16, 2021

Desislava Ivanova¹, Panagiotis Katsaounis¹

¹Metabio, Thessaloniki, Greece

Address correspondence to Panagiotis Katsaounis (katsaounis-ceo@metabio.io).

Source of Support: None. Conflict of Interest: None.

Received: Dec 9, 2021; Revision Received: Jan 12, 2022; Accepted: Jan 17, 2022

Ivanova D, Katsaounis P. Informed consent in biobanking—from the key barriers, challenges, and perceptions to digital innovations. *Innov Dig Health Diagn Bio*. 2022; 2:16–26. DOI: 10.36401/IDDB-21-07.

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Brief Report

Real-Time Dynamic Tiered e-Consent: A Novel Tool for Patients' Engagement and Common Ontology System for the Management of Medical Data

Desislava Ivanova, Panagiotis Katsaounis

Metabio, Thessaloniki, Greece

Address correspondence to Panagiotis Katsaounis (katsaounis-ceo@metabio.io).

Received: Mar 29, 2021; Revision Received: Apr 22, 2021; Accepted: May 5, 2021

Source of Support: Metabio P.C. Conflict of Interest: Both authors are employed by Metabio, and the described technology is created and implemented for commercial purposes. *Innov Dig Health Diagn Bio*. Published online. DOI: 10.36401/IDDB-21-01.

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Brief Communication

CoronaBio: Using Crowdsourcing for Biomedical Research on COVID-19 to Manage a Pandemic

Konstantinos Votis¹, Zisis Kozlakidis², Panagiotis Katsaounis³

¹Metabio, Thessaloniki, Greece

²International Agency for Cancer Research (WHO), Lyon, France

³Metabio, Thessaloniki, Greece

Address correspondence to Panagiotis Katsaounis (katsaounis-ceo@metabio.io).

Source of Support: Metabio. Conflict of Interest: None.

Disclaimer: Where authors are identified as personnel of the International Agency for Research on Cancer (WHO), the authors alone are responsible for the views expressed in this article and they do not necessarily represent the decisions, policy or views of the International Agency for Research on Cancer (WHO).

Received: April 16, 2020; Accepted: August 11, 2020

Citation: Votis K, Kozlakidis Z, Katsaounis P. CoronaBio: Using crowdsourcing for biomedical research on COVID-19 to manage a pandemic. *Innov Dig Health Diagn Bio*. 2020; [Epub ahead of print]. DOI: 10.36401/IDDB-20-06.

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The digital revolution of biobanks: what role is precision medicine playing?

8th March 2019

Zisis Kozlakidis

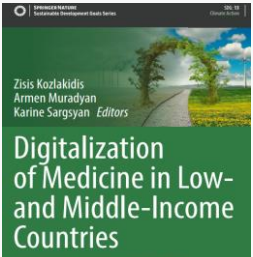
International Agency for Research and Cancer (WHO)

Panagiotis Katsaounis

Metabio

<https://www.iarc.fr>

<https://metabio.io/>



Proliferation, Ingestion, and Interpretation of Health Data in Low- and Middle-Income Countries (LMICS)

Sandra Nanyonga, Plebeian B. Medina, Zisis Kozlakidis, Debra Leilani Garcia, Desislava Ivanova, and Panagiotis Katsaounis

The Need for Patient-Pushed, Real-World Data on Neurodegenerative Diseases

By Metabio - April 27, 2021



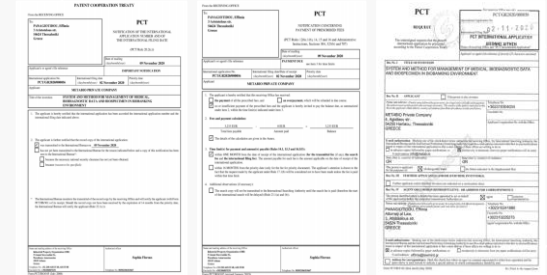
SESSION 3: DIGITAL HEALTH AND PERSONALIZED CARE ABSTRACT PRESENTATIONS

Ms. Desislava Ivanova (Metabio, Greece) started off session 3 (moderated by Drs. Burns and Jazieh) with a possible solution to the dilemma of having sufficient real-world data to train AI algorithms. Her talk was entitled “Increasing the Value of Crowdsourcing Data by Novel Patient-Centric IT Infrastructure for Longitudinal Real-World Data Collection.”

PCT Patent

PCT/GR2020/0000056

“System and method for management of medical, biodiagnostic data and biospecimen in biobanking environment.”



ISO

ISO/IEC 90003:2018, Software engineering
ISO/IEC 9001:2015, Quality Management Systems
ISO/IEC 27001:2013, Information Security Management



ISO 9001



ISO 27001



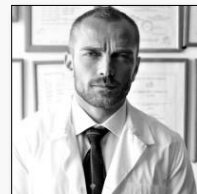
IQNET
RECOGNIZED
CERTIFICATION

Executives



Panagiotis Katsaounis
Medical Geneticist, Founder & CEO

Expert in Cancer Genetics, Bioinformatics, Biobanking, and Biomarker Diagnostics with 12 years of international commercial experience. Extensive knowledge in genetic laboratory methodologies and biosample management.



Nikolaos Grigoriades
Pharm.D, Ph.D Medical Genetics

Expert in Pharmacogenetics, specializing in Cancer Precision Medicine. With over 20 years of experience in the field of Cancer Research, has document numerous novel research protocols and has extensive experience in the field of Biobanking.



Nikitas Alexiades
Business and Economics

Expert in International Relations, Project Development and management. Expert in Security and enterprise growth.

Biomedical Team



Desislava Ivanova
Molecular Biologist, CIO

Expertise in Molecular Analytics, Nucleic Acid Analysis, Pharmacogenomics, Biodiagnostics, Bioinformatics, and Translational Studies. Skilled in Biosample Science, Quality Control, and Validation of Research Protocols for Biobanking and Data Management.



Loukia Touramanidou
Molecular Biologist, R&D Specialist

PhD in Gene Therapy with expertise in developing *in vivo* gene therapies for rare metabolic disorders. Skilled in advancing therapeutic solutions through cross-functional collaboration and patenting innovative technologies.



Anna Bourouliti
Analytical Service and Development Specialist

PhD in Neurosciences with a background in Molecular Biology and Genetics. Experienced in biotech product development, healthcare and scientific writing.

Technical Team



Konstantinos Votis
Engineering & Informatics CTO

Expert in human-computer interaction, information visualization, Big Data management, distributed computing, knowledge engineering, decision support systems, and pervasive computing.



George Gerovasilis, Team Manager
Engineering & Informatics Senior Full stack developer

Expert in 3D model visualization, HL7 technologies, and health data interoperability. Skilled in developing web and mobile apps, distributed information systems, databases, and data security models. Proficient in computer vision, bio-data processing, and intelligence technologies.



Alexandros Fridas
Engineering & Informatics Full stack developer

Experience in designing and implementing solutions across industries, specializing in medical platforms. Specialized in Computer Networks and expertise in HL7 interoperability standards, he focuses on creating user-centered healthcare technology solutions.



Charalabos Stefanidis,
Engineering & Informatics Full stack developer

Experience in implementing web solutions in Biosciences, specialized in platforms. Specialized in Rational Data and Machine Learning Libraries, he focuses on creating CNN neural networks .

Business Team *



Ioannis Ioannidis
UAE & Asia Pacific Market Coordinator

Global supply chain leadership, successfully managed complex operations and matrix organizations. Dual focus on organizational development in-market excellence. Expert in human-computer interaction, information visualization, Big Data management, distributed computing, knowledge engineering, decision support systems, and pervasive computing.



John Kourkoutas
Sub-Saharan Africa Market Coordinator

Specializes in export marketing and business development, focusing on the countries of Sub-Saharan Africa. Cooperates with various bodies, such as SEV, SEVE, Hellenic African Chamber, ISTCollege, etc., as a scientific associate and lecturer in topics concerning sub-Saharan Africa.



Nektarios Gkiatas
Global Business Coordinator

Highly motivated business leader with extensive experience in leading successful teams and driving business growth. Dedicated to delivering exceptional results through digital technology, AI and innovation.



Mohamed Suliman
UAE & Asia Pacific Business Developer

Devised and executed business-integrated Digital, data, and IT strategies. Established data foundations, master data management and governance, enabling several AI/ML decision-support tools that foster a culture of data-driven insights and enable faster reactions to market changes.



Costas Constantacopoulos
Sub-Saharan Africa Market Business Manager

Business professional with experience in Africa, planning, developing and implementing sales marketing and business development initiatives aimed and sustained long-term growth at some of the most challenging business sectors and industries across the Southern African region..

* Business team is composed of collaborators and partners

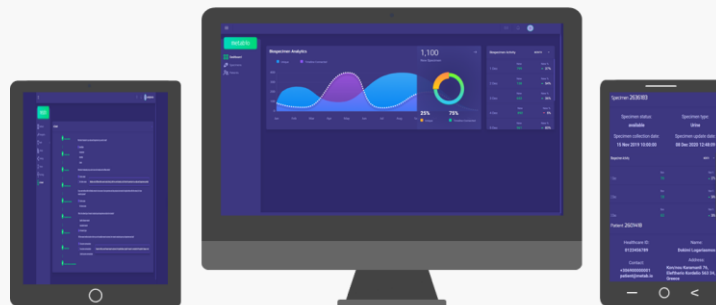
Market



ΕΛΛΗΝΙΚΗ ΚΑΡΔΙΟΛΟΓΙΚΗ ΕΤΑΙΡΕΙΑ
HELLENIC SOCIETY OF CARDIOLOGY



SNEAK PEEK

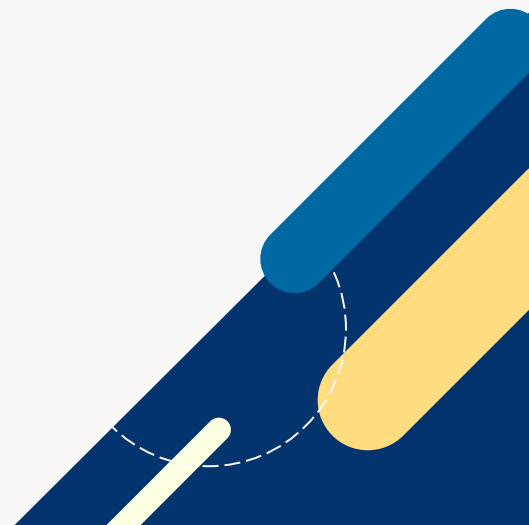


e-Metabio, the go to solution for biospecimen
and patient data collection & management

e-MetaBio®

Your Platform for BioMedical data collection

e-MetaBio tracks and captures biosample related data from each member of the usage chain, patients, healthcare, biobanks, research labs



Main pitfalls addressed...



Incomplete electronic health records

Difficulties in obtaining holistic biosample & patient profiles



Decreased cohort validation

Difficulties in locating suitable candidates for given research and clinical trials in time; increased recruitment phase



Increased cost & time during basic research

Decreased ability to record biosamples' pre-analytical data; bias in research results, false positive/negative



Ad-hoc systems

Decreased ability to provide interoperability, standardization and harmonization, for data in the initial phase of basic research



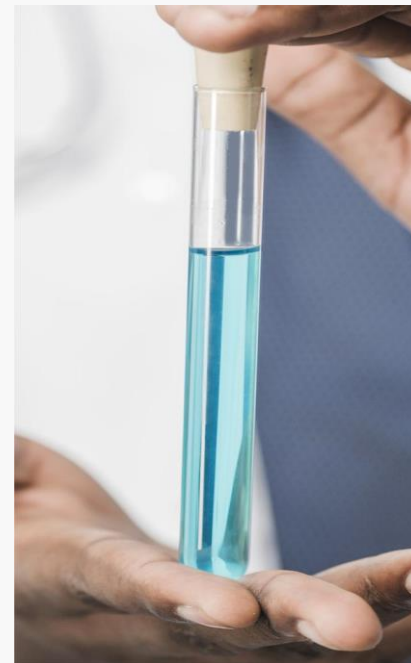
Decreased off-site monitoring

Difficulties in monitoring patients in real-time and capturing RWD for a spectrum of adverse events and similar initiatives



Inability to remotely Reconsent

Long-lasting procedures for patient reconsenting, in the event of research hypothesis alteration



...the solution

All-In-One vertical, modular and interoperable platform offering flexibility, unprecedented information and interaction, for all members of the biosample usage chain.

UMBRELLA system, works seamlessly on top of current IT infrastructure, with no need for change in routinely used system, easing the integration process.

AI reactive tool, produces, in real time, Quality Assessment of biosamples, with simultaneous prediction of their suitability for downstream use in a given research activity, based on preanalytical data evaluation.

Unified IoT, syncing with existing devices & environmental sensing appliances, providing high level security and blockchain based technologies.

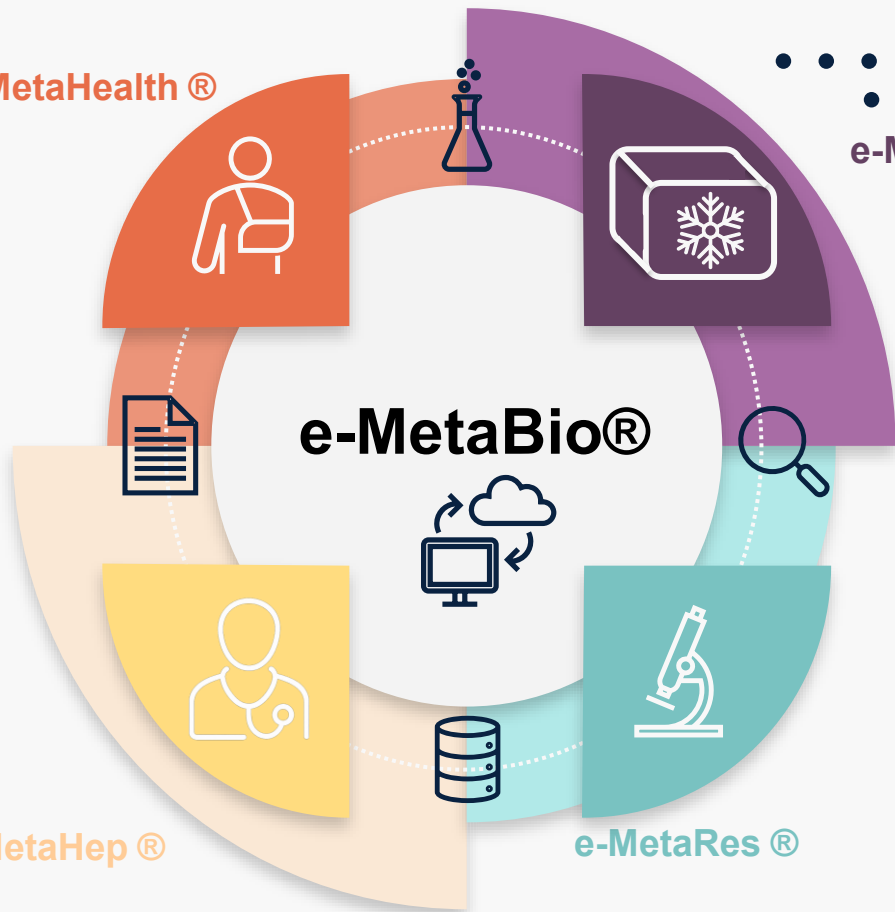
e-MetaHealth[®]

e-MetaBank[®]

e-MetaBio[®]

e-MetaHep[®]

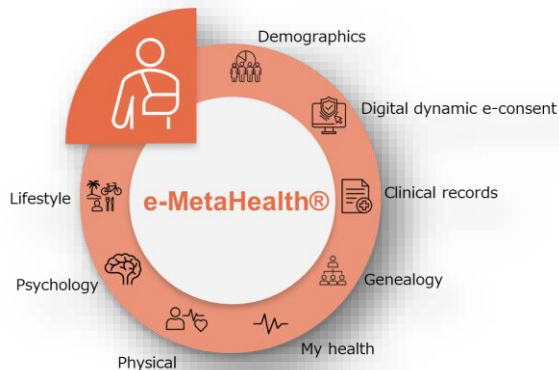
e-MetaRes[®]



e-MetaBio Platforms

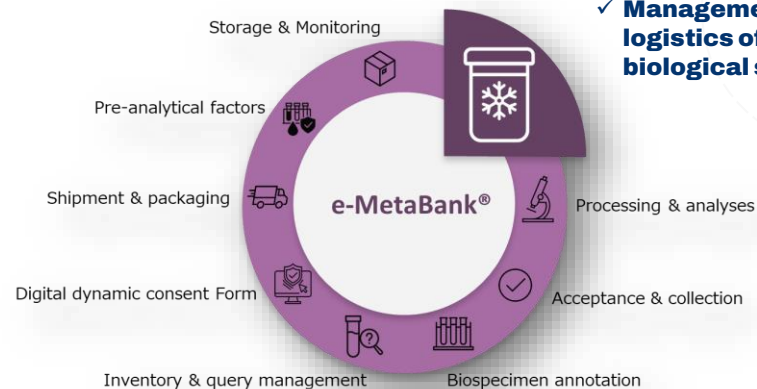
Patients

- ✓ Platform for RWD & remote disease self-management



Biobanks & Repositories

- ✓ Management and logistics of biological samples



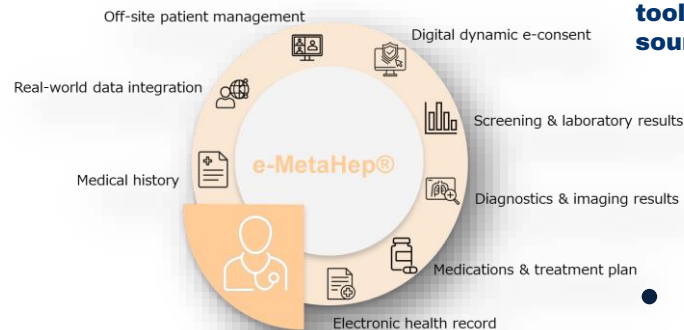
Healthcare professionals

- ✓ Complete EHRs & remote disease monitoring

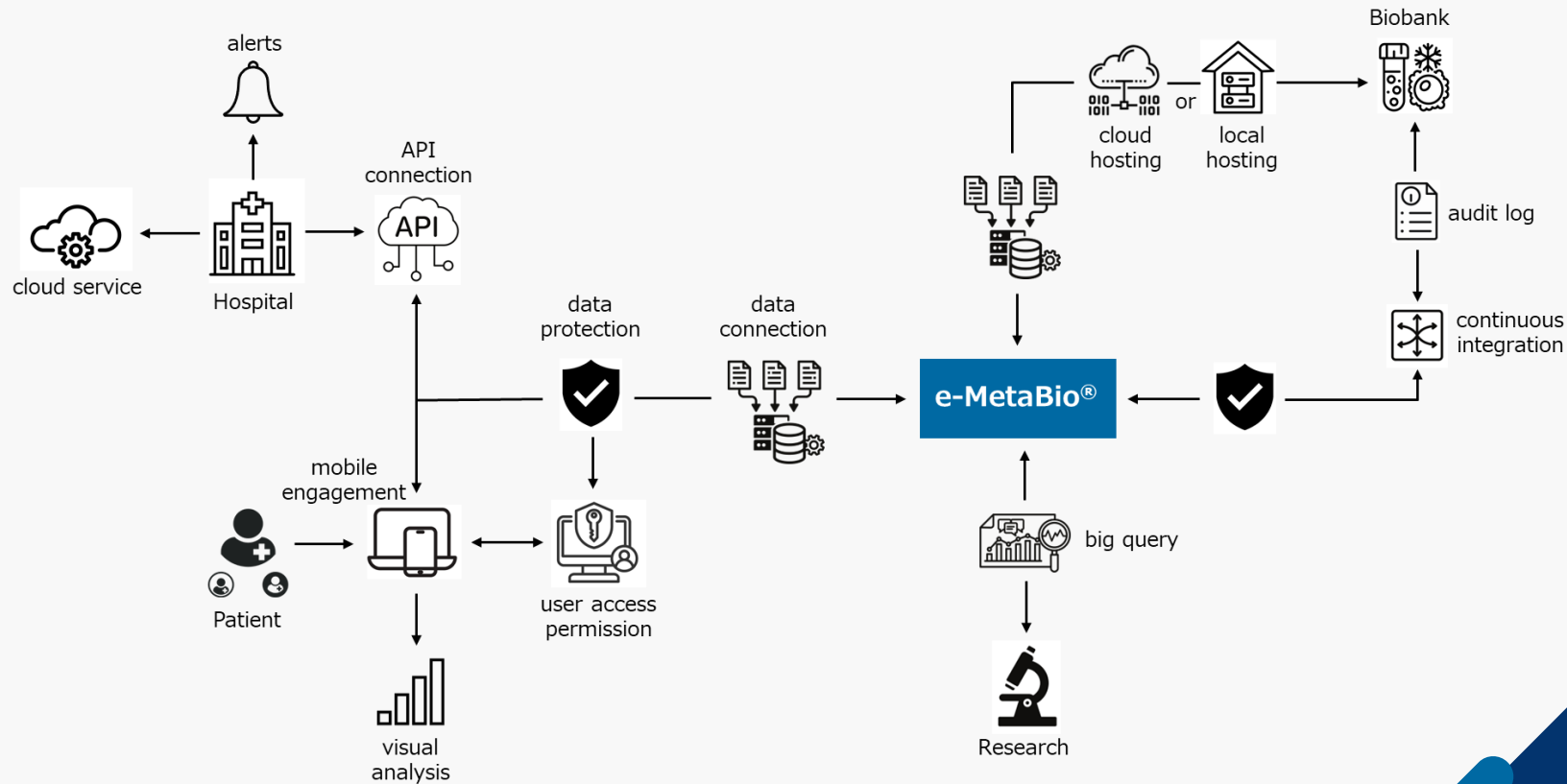


Researchers / Industry

- ✓ Real-time collaboration tool & access to multi-source data cohorts



The Network





e-Metabio offers the ability to:



Enhance
Recruitment
Procedures

use of e-consent
module for
reconsenting



Decrease Time of
Basic Research

limit biosample
profile search
timeframes



Decrease Costs

basic-research cycle
during drug-development
by 75%

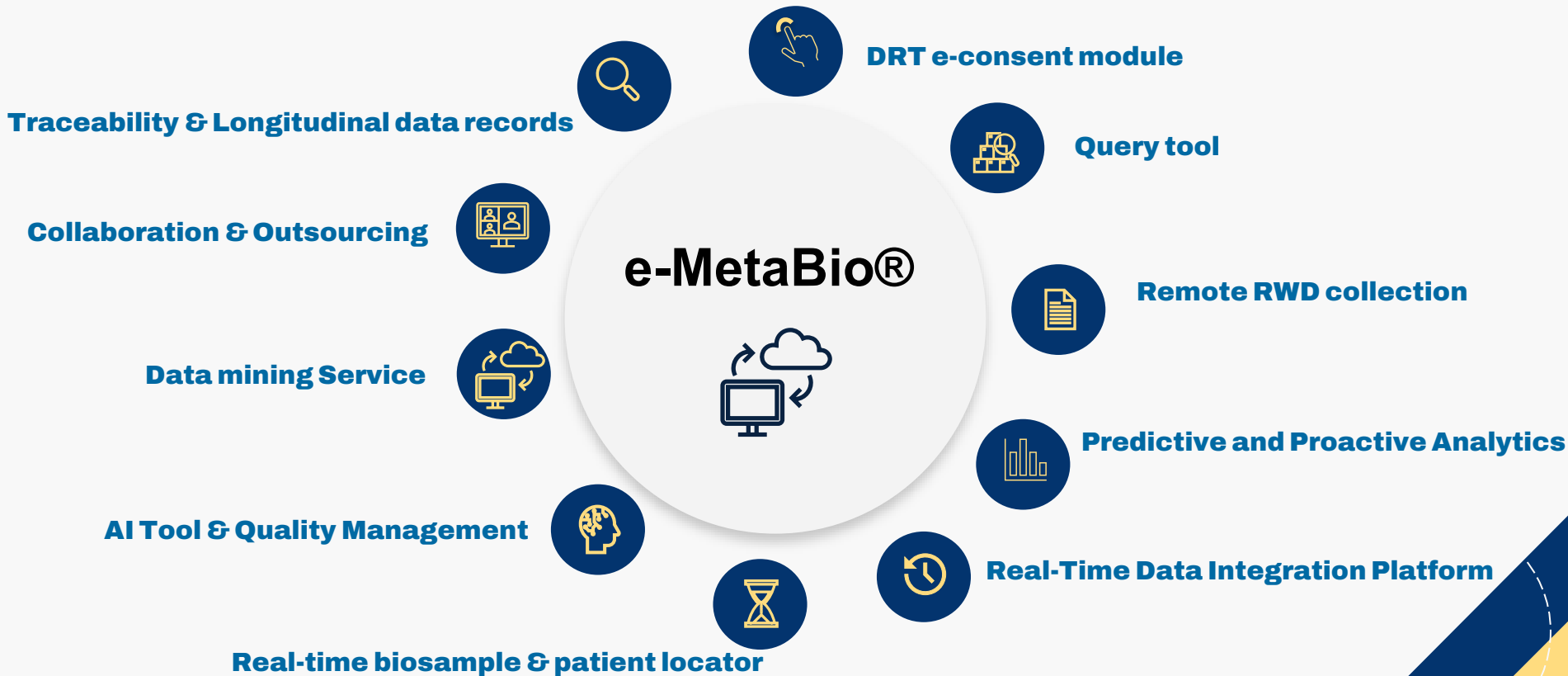


Increase Value

biosample scientific and
market raised up to
250%



we provide:



Innovation

Added value

Cost elimination for recontact "\$600/patient"



Increased biosample scientific & market value "up to 150%"



Decreased cost for basic-research and project implementation "\$80 to 200M"



Decreased significant bias in basic research



Improved accreditation and certification system in biobanking sector



Decreased waste of biosamples not suitable for given downstream analytics



Limits biosample profile search timeframes "2 to 4 years"



High Quality Biosample and Data Assurance.....



Quality
Accuracy
Reproducibility
Comparability

USPs

1 Real-time qualified biosample and patient cohort locator

2 Interoperable solution, for network data sharing across different systems

3 e-consent Real-time & Dynamic, enabling patients' enrollment in healthcare management

4 Longitudinal data, from all data sources from the patient to researcher

5 All in one vertical solution, across B2B networks and data usage chains

6 100% GDPR & HIPAA compliance for Biomedical data

7 Real time Quality Management System for biosamples





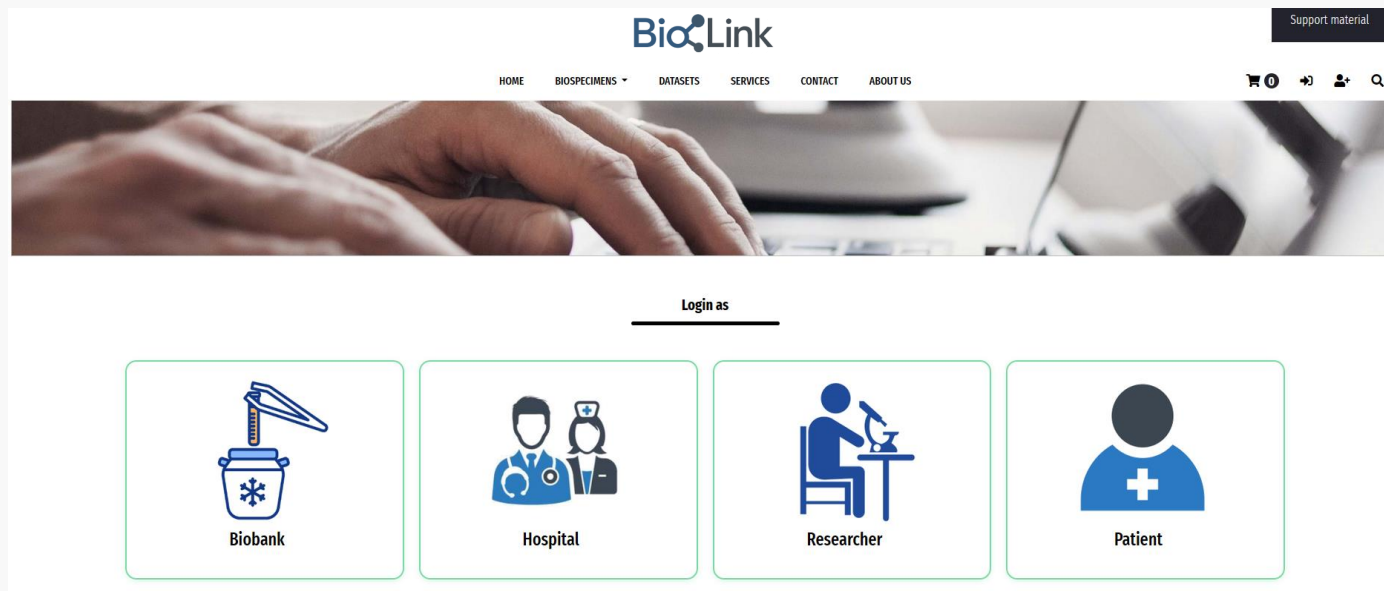
Biolink

Decentralized Marketplace for the Life Sciences




connects biobanks, hospitals, researchers, and patients through secure, transparent, and patient-centric biospecimen and data transactions



1st worldwide marketplace for biospecimen & data



Stakeholder Benefits

-  **Biobanks** → Connect to multiple healthcare providers and multiple researchers
-  **Researchers** → Sourcing and quality management of biospecimens
-  **Hospitals** → Specimen and related data management and donation
-  **Patients** → Privacy-preserving data control and monetization





DLT Marketplace for Biosamples

Purpose:

A decentralized marketplace ensuring secure and ethical transactions of biospecimens and related data

Integrates DLT & AI tools



secure audit trails and smart contracts & AI-driven quality assessment of biosample

Empowers Biobanks, Hospitals, Researchers & Patients



seamless transactions and data security

Revolutionary Patient-Centric Approach



patients can monetize their donations and gain control over their biological data

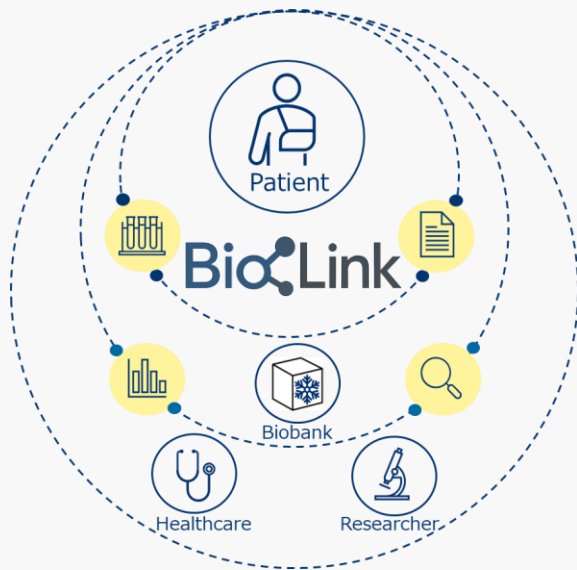
Endless Possibilities in Biospecimen Usage



enhancing research, precision medicine, and clinical trials

Transformative solution for data and biosample commodities

- ✓ Offers secure, transparent and compliant transactions
- ✓ Customized to diverse organizations
- ✓ Reduces biomedical research cost & improves interoperability





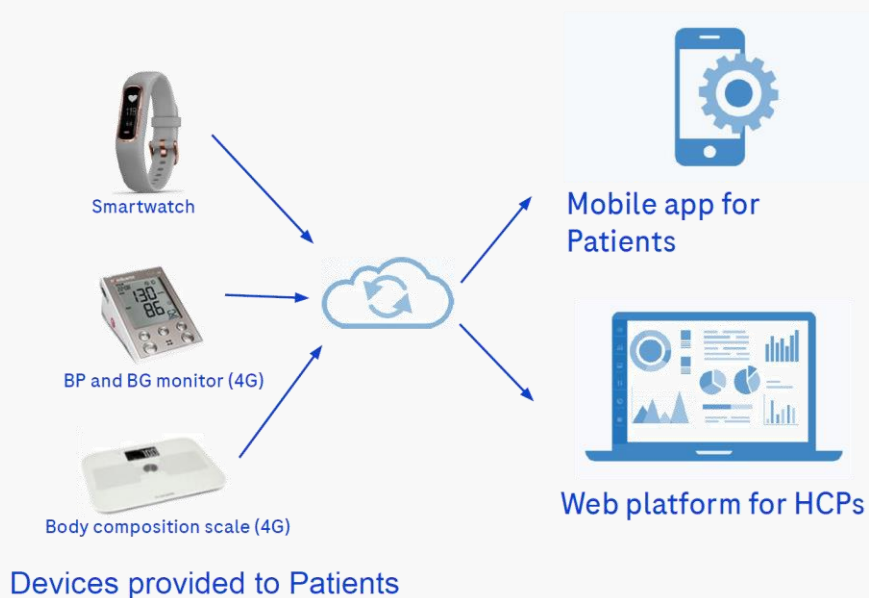
Biomedical IoT

Next Generation Self-management solution

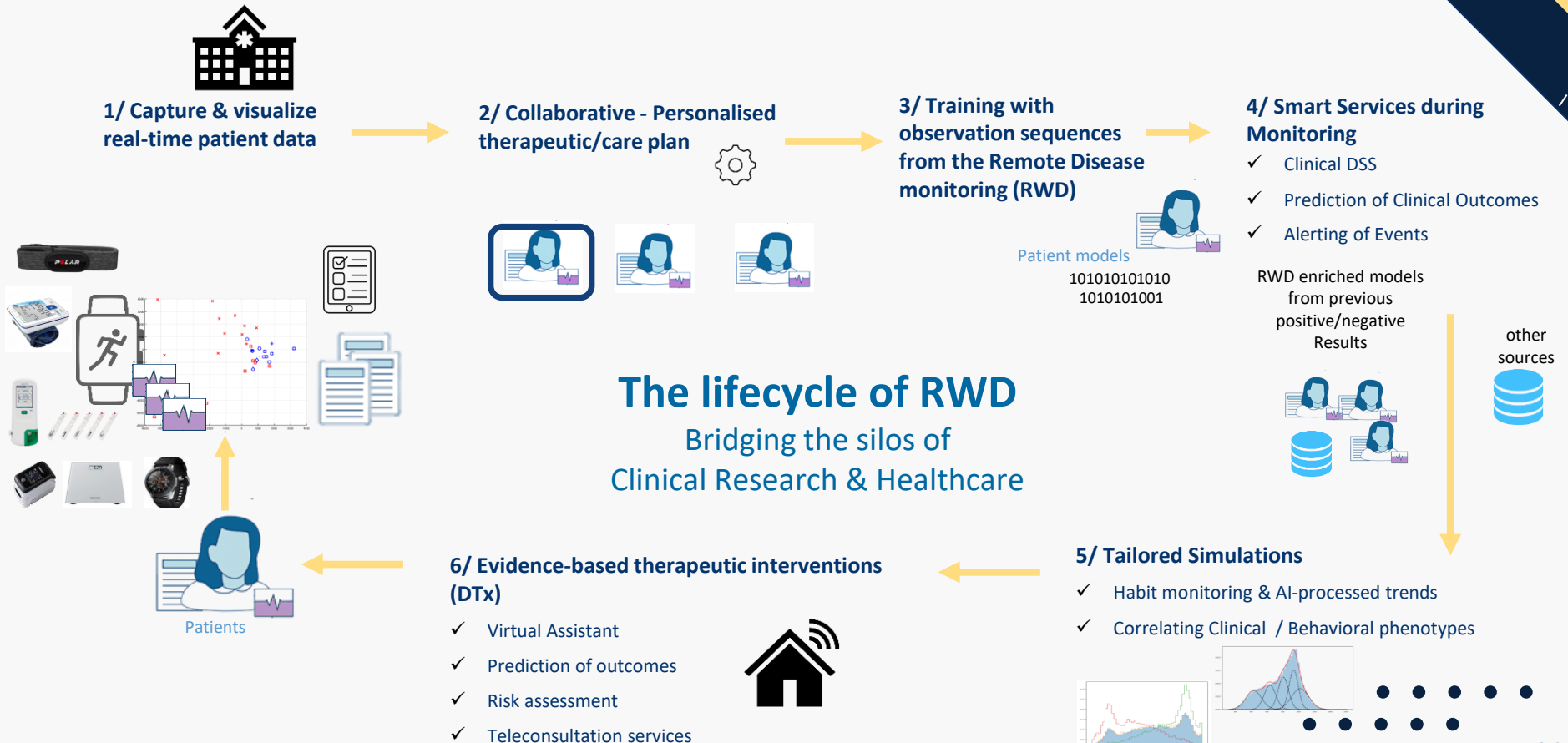
IoT Health platform

Intelligence monitoring providing:

- Integrated solution with hospitals
- Seamless exchange of health Data with local and nation EHRs
- Remote Patient Monitoring
- AI-based monitoring and assistance
- Patients support & predictive analytics
- Smart devices
- Indoor Environmental Monitoring Device
- Shared Care Plan (HL7) / Education , Nutrition, Drug Interaction



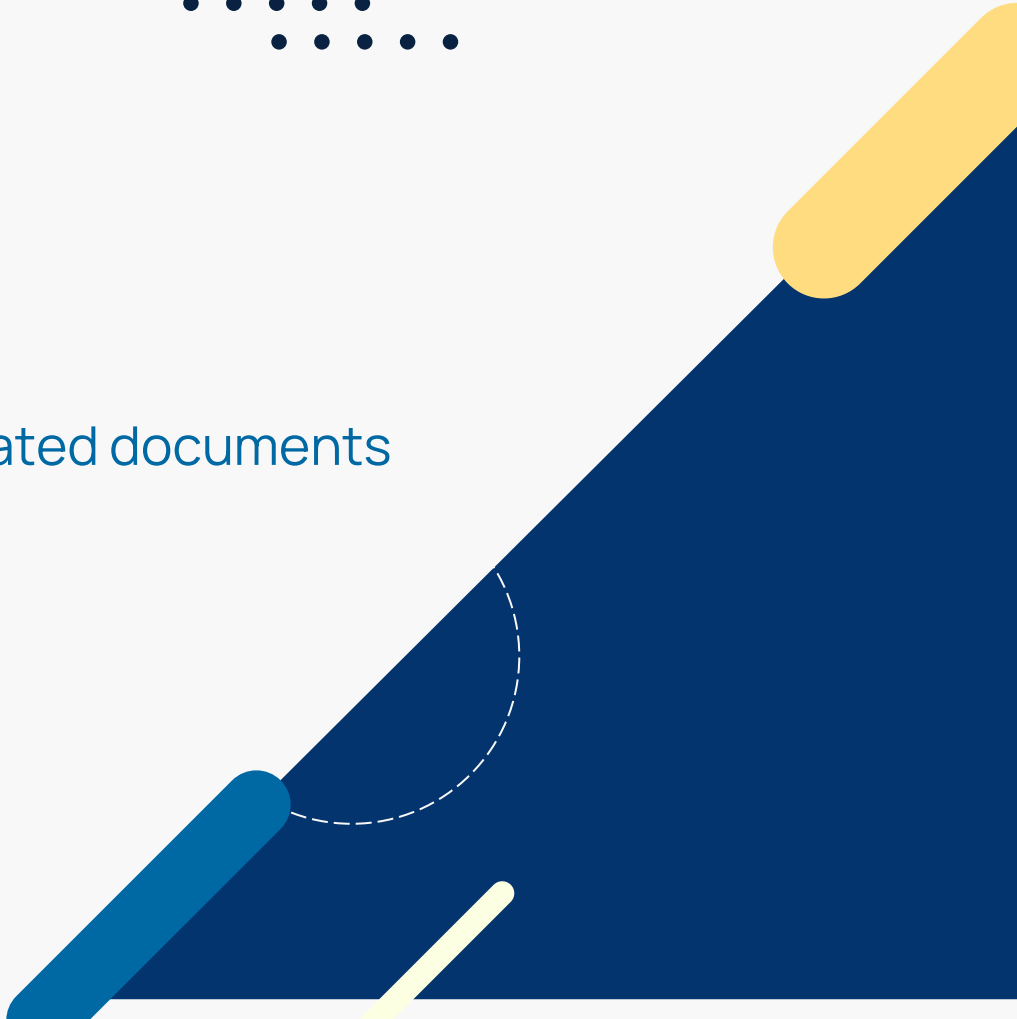
Deep Learning & Patient-centric approach





Lock Sign

Secure Signatures for all Health-related documents



The product

LockSign is a patented secure signature platform.

LockSign combines user and document information into an encrypted QR code which is embedded in every signature.

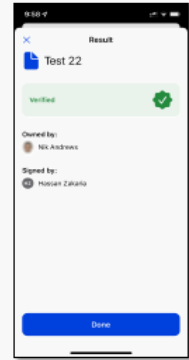
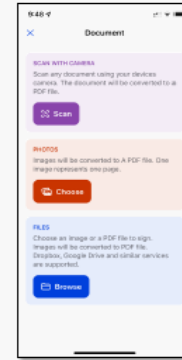
Allows for a signature that cannot be copied or forged as it is unique to the specific document/ user.

LockSign signatures are verified via the platform.



Key features

- ❖ Secure & Unique Signatures.
- ❖ Cannot be copied or forged.
- ❖ Easy Signature Verification in digital and paper form.
- ❖ No additional security tokens or certificated needed.
- ❖ Simple Document Workflow.





Services



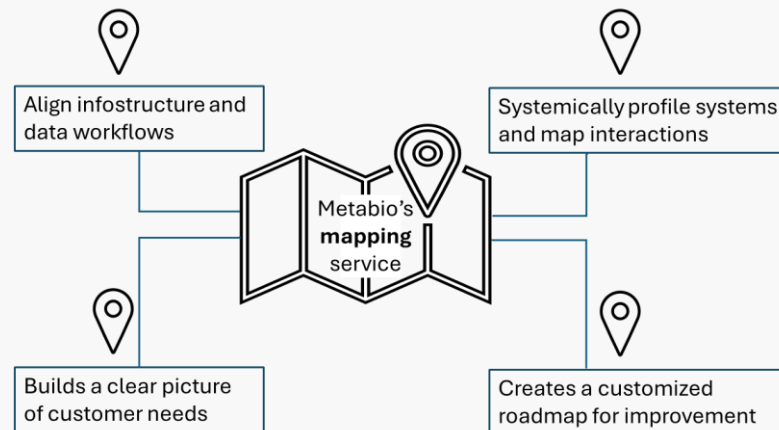
Mapping services



Mapping

Mapping of infrastructures and data workflows within your company and associated networks.

- on-site
- fit-for-the-purpose solution
- continuous monitoring
- iterative improvements
- adaptations according to market demands



- ★ automation
- ★ efficiency
- ★ scalability



Customer support



Customer
Support

Robust and reliable customer support to ensure your systems run smoothly and deliver maximum value over time.

24/7 Communication and support

by phone, videoconference, and email

- ✓ responsive
- ✓ reliable
- ✓ personalized



- ★ performance
- ★ continuity
- ★ sustainability



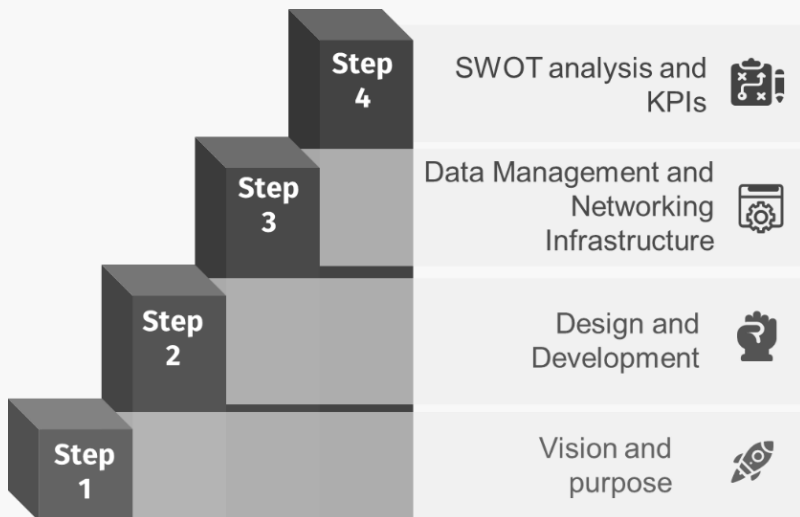
Consultancy & Brokerage



BioStrat
Consulting

4-step process that facilitates the design and development of biobanks:

- Long-Term Vision and Purpose
- Design and Development
- Data Management and Networking Infrastructure
- SWOT Analysis and Key Performance Indicators (KPIs)



Whether you are building a new biobank or optimizing an existing one, Metabio's consultancy services empower your organization with the expertise, tools, and processes needed to create a reliable and innovative biobanking environment.

- ★ sustainability
- ★ compliance
- ★ optimization
- ★ efficiency



Training



Training

Tailored training programs ensure your team is fully equipped to **maximize the benefits of the newly implemented system.**

- Customized Content
- Role-Specific Training
- Flexible Delivery Modes

Follow-up support, including refresher sessions, documentation, and on-demand assistance to address any questions or challenges.



- ★ trust
- ★ efficiency
- ★ optimization



Regulation and control of the security sector

DATA PROTECTION

- A.** Adoption of methods to control access and restrict users (principle of least privilege)
- B.** Encryption of data within the system
- C.** Anonymous and/or distinctive data is not accessible after anonymization /distinction is complete
- D.** Implement data integrity procedures
- F.** Consideration of data deletion methods (where required)



Blockchain technology and end-to-end encryption

SOFTWARE PROTECTION

- A.** SSL encrypted connection requests and responses
- B.** Firewall to allow only certain ports for communication to and from the server
- C.** Token-based JWT authentication for all requests to the server

Modus Operandi



Mapping needs

We work on-site to customize towards the ideal architecture and solution.

We implement e-MetaBio®, either as a cloud-based solution or locally into an in-situ white box.

Implementation

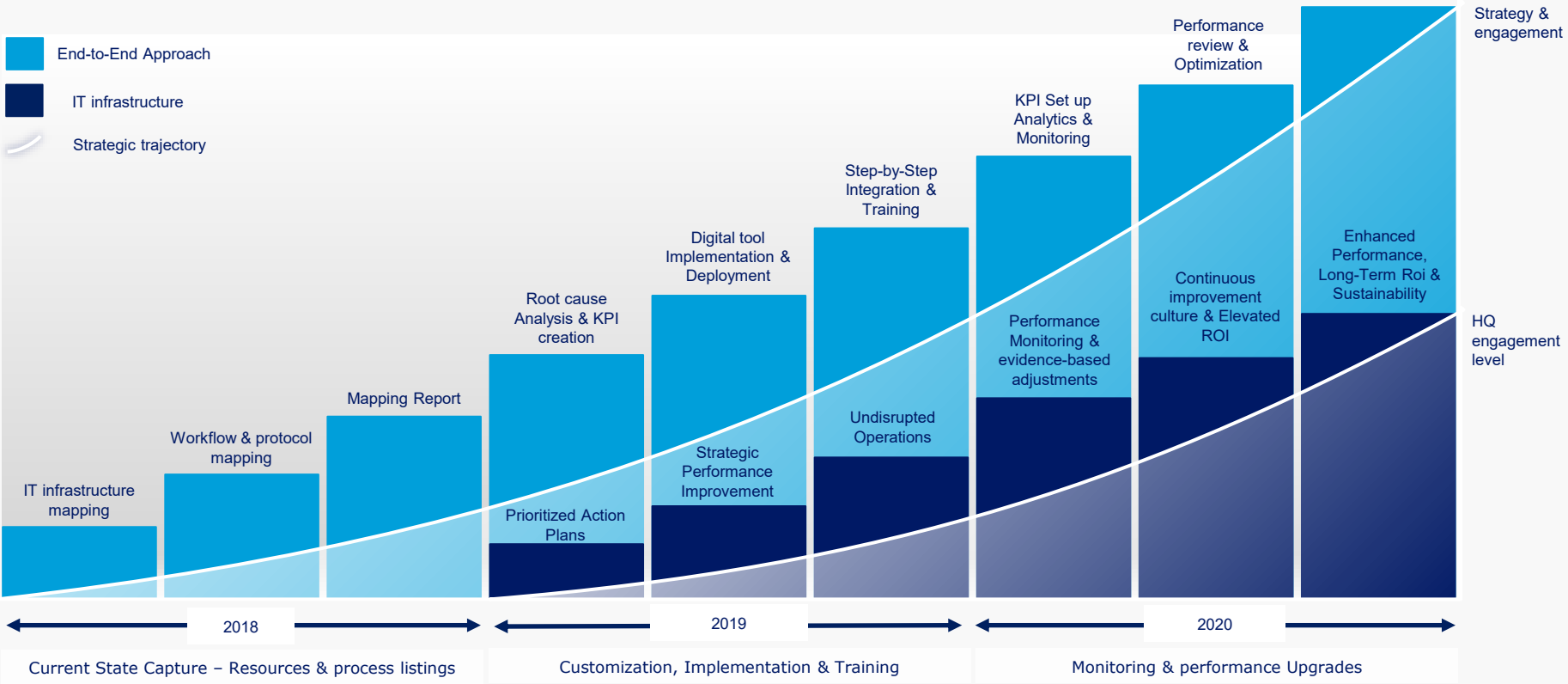


Services

We are always with there to accelerate business and customize our platforms with a fit for purpose mentality, raising your KPIs.

Phased Approach

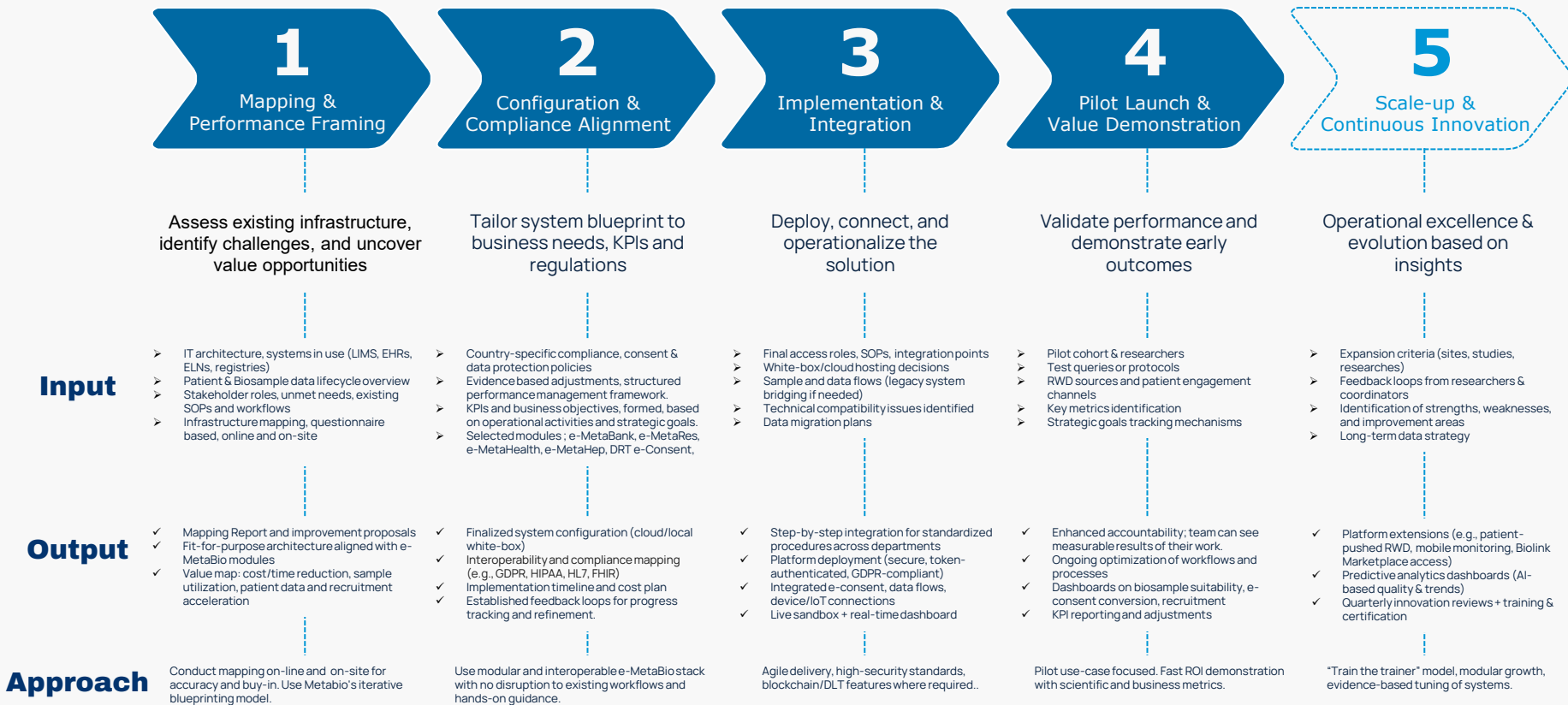
EXAMPLE



Metabio Solutions in Life Sciences

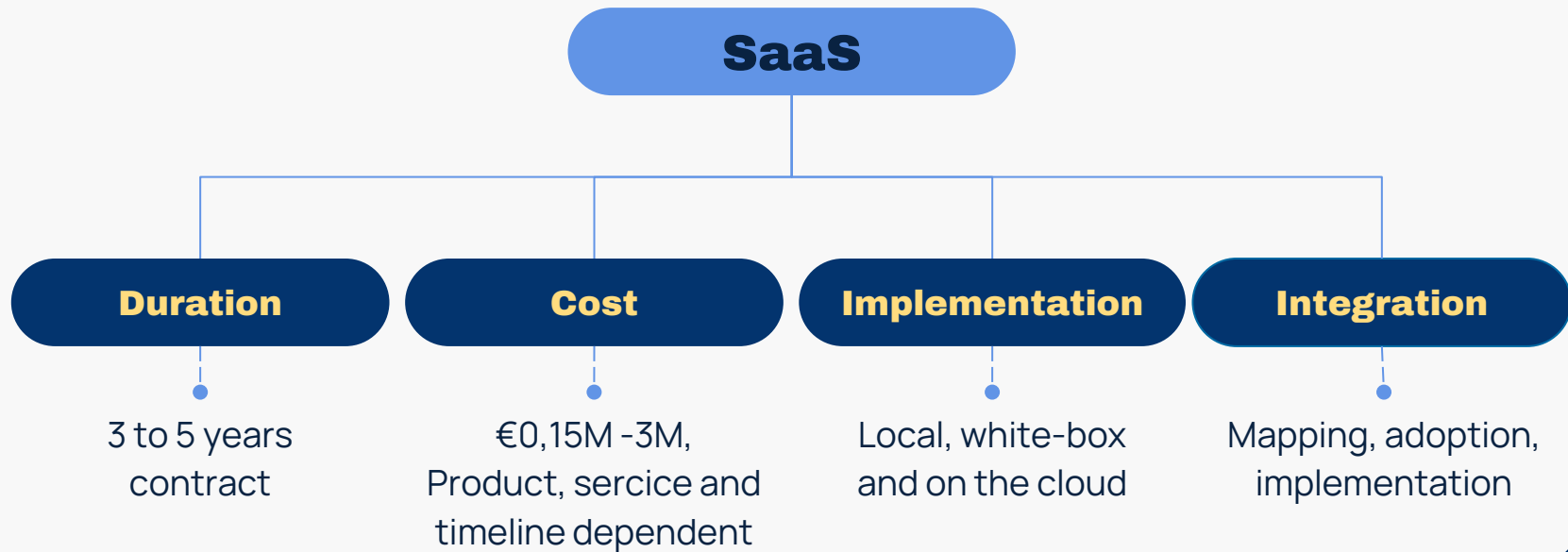
Implementation Process & Decision Flow

FIVE-Step Approach





Business model



THANK YOU!

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<https://metab.io>

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