

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



ISO 9001



ISO 27001



Core Team



Panagiotis Katsaounis
Medical Geneticist,
Founder & CEO



Desislava Ivanova
Molecular Biologist,
CSO



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Engineering &
Informatics, CTO



Nektarios Gkiatas
BioMedical Business
Strategist, CBDO



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Engineering & Informatics,
Full stack developer



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Engineering & Informatics,
Senior Full stack developer



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Middle East & Asia Pacific
IT Business Development Lead



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Project & Service
Coordinator



Ioannis Ioannidis
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Business Development Lead



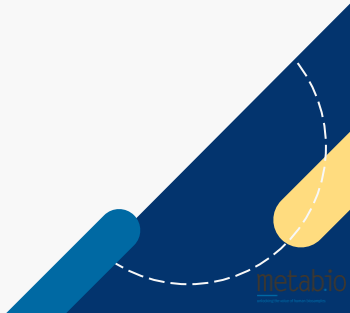
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Officer (ext)



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EU Projects Manager



Costas Constantacopoulos
Africa Business Development
Manager (ext)



Advisory



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UCL, ICONIC PM,
WHO-IARC
Former ISBER President



Patricia Grigoleit
Managing Director
TIGO, Coach &
Consultant



Dimitrios Tzovaras
Chairman of the
Board of Directors of
CERTH



Andreas Georgiou
Founder & President at AAnG
Holdings Group Limited

European Recognition

European Commission
Horizon Europe

SEAL of EXCELLENCE awarded in February 2025



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



Scientific Publications

Research Article

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

Desislava Ivanova,¹ Panagiotis Katsaounis,¹ Konstantinos Votis¹

¹Metabio, Thessaloniki, Greece

Address correspondence to Panagiotis Katsaounis (katsaounis-ceo@metab.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 Ivanova,¹ Panagiotis Katsaounis¹

¹Metabio, Thessaloniki, Greece

Address correspondence to Panagiotis Katsaounis (katsaounis-ceo@metab.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@metab.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 Votis,¹ Zisis Kozlakidis,² Panagiotis Katsaounis³

¹Metabio, Thessaloniki, Greece

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

³Metabio, Thessaloniki, Greece

Address correspondence to Panagiotis Katsaounis (katsaounis-ceo@metab.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://metab.io/>



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

Sandra Nanyonga, Plebeian B. Medina, Zisis Kozlakidis, Debra Leiolani 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."



e-MetaBio®

- Biobanking Systems
- Biomedical Research Systems
- Laboratory Information Systems

Biolink

- Blockchain Based Marketplace
- Brokerage Services
- Biosample & data Exchange

metabio
Group

BioStrat

- Consulting Services in Biobanking
- Design & Development
- Biobank Management

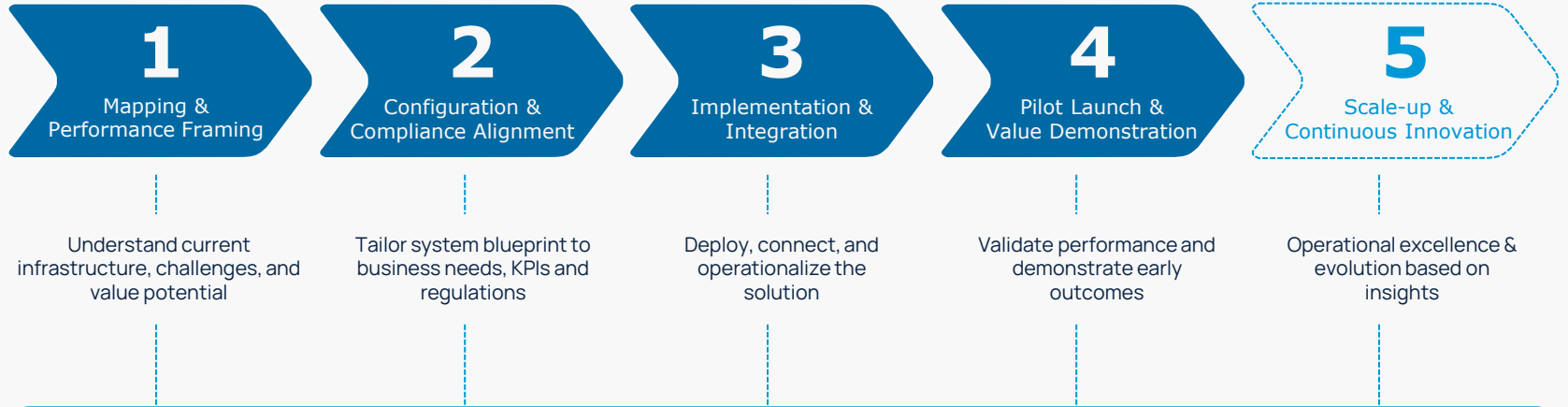
DRT e-consent

- Dynamic Real-time Tiered e-consent
- Patient empowering tool
- Biometric signature solution

Metabio Solutions in Life Sciences

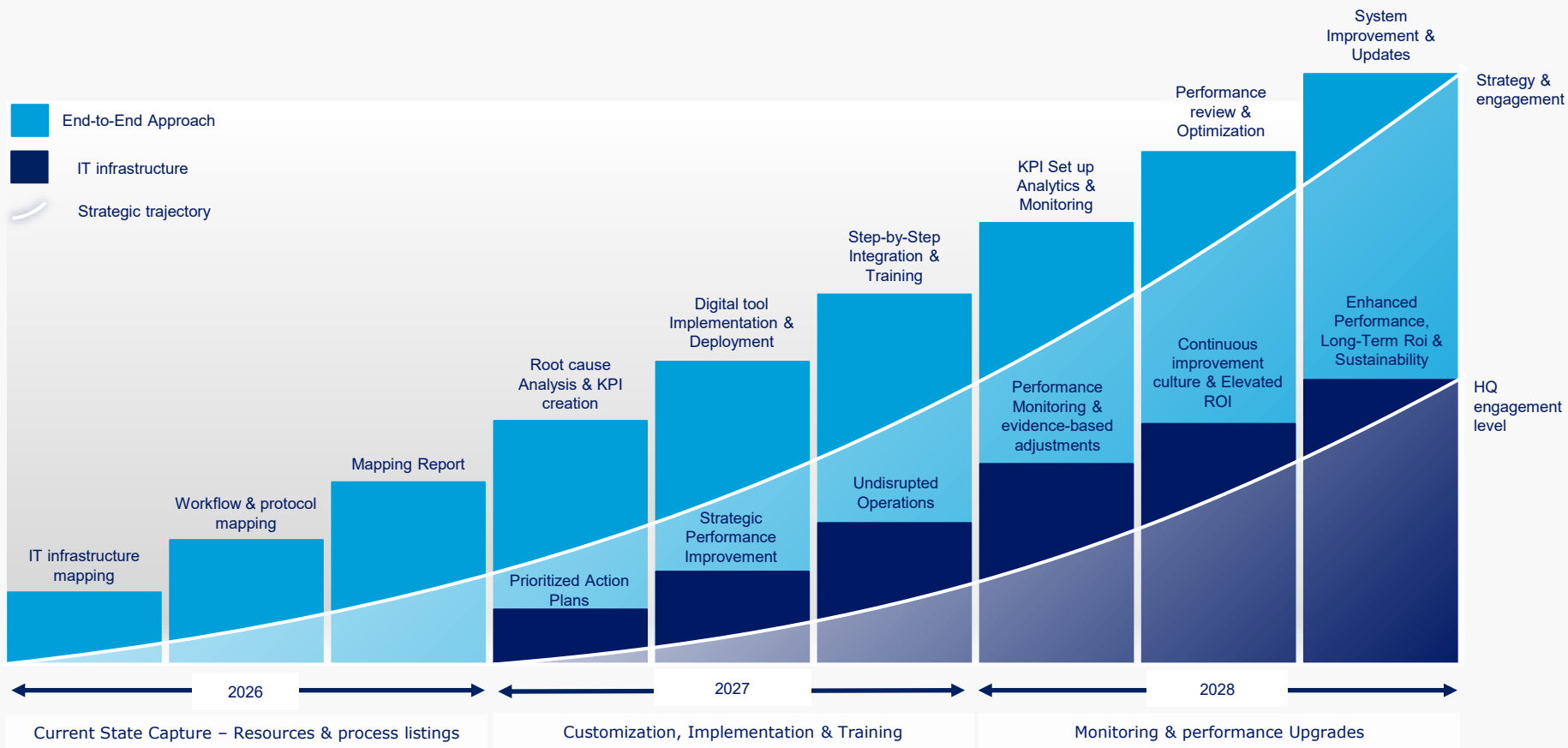
Implementation Process & Decision Flow

FIVE Step Approach



Metabio Modular Solutions are designed to scale FAST

Phased Approach





Metabio

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

Accelerates research for drug development

Elevates **patient engagement**

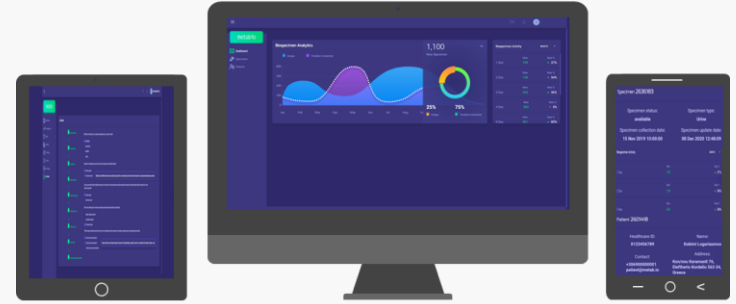
Standardizes & Harmonizes Healthcare data

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

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



SNEAK PEEK

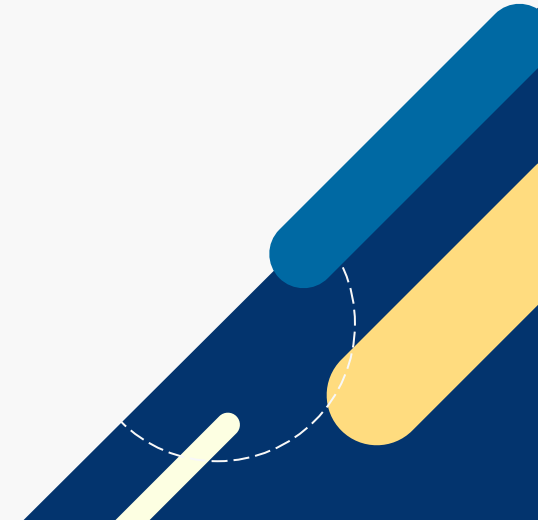


e-Metabio, the go to solution for biospecimen and patient data collection & management

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



Ad-hoc systems

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



Decreased cohort validation

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



Decreased off-site monitoring

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



Increased cost & time during basic research

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



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[®]



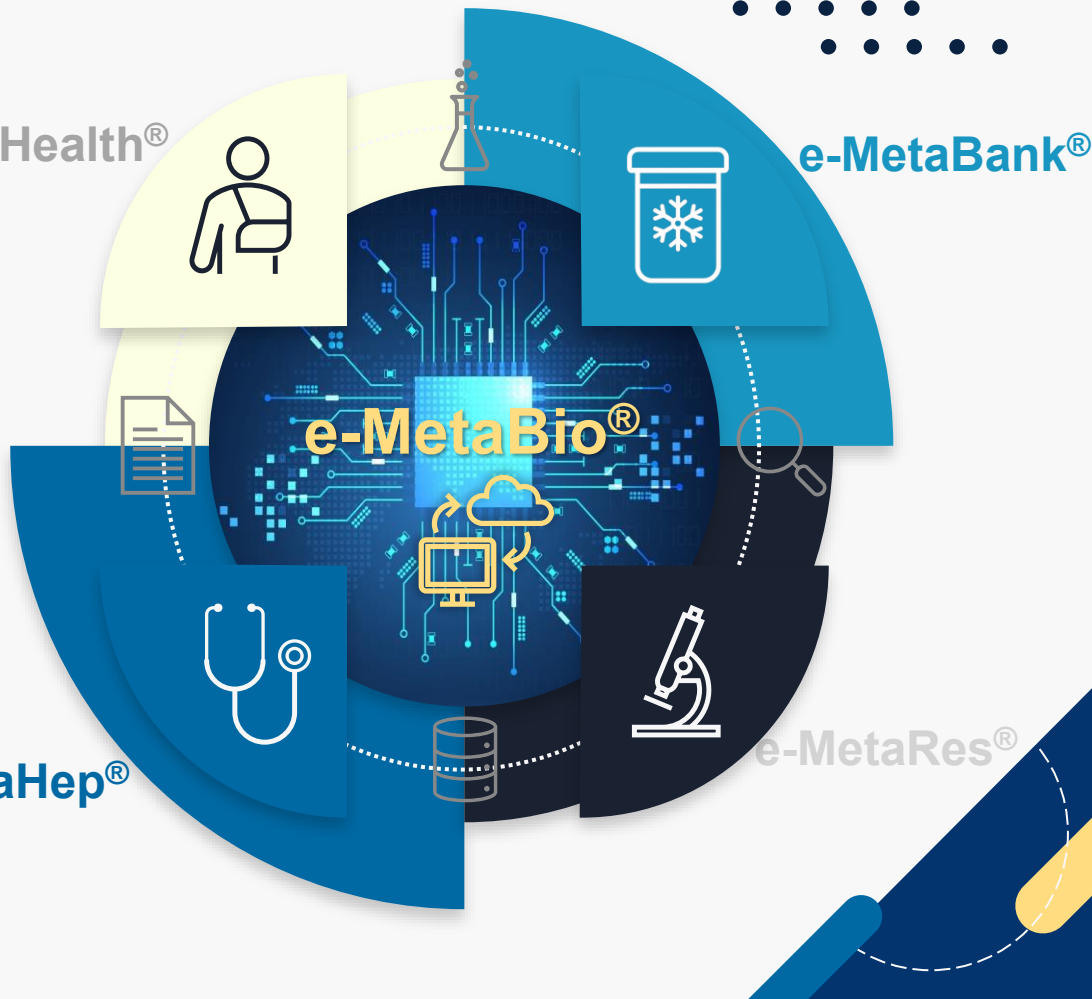
e-MetaBio[®]



e-MetaHep[®]



e-MetaRes[®]



e-MetaBio Platforms

Patients

e-MetaHealth®



✓ Platform for RWD & remote disease self-management

- Demographics
- Digital dynamic e-consent
- Clinical records
- Genealogy
- My health
- Physical
- Psychology
- Lifestyle

Biobanks & Repositories

e-MetaBank®



✓ Management and logistics of biological samples

- Storage / Monitoring
- Pre-analytical factors
- Shipment / Packaging
- Digital Dynamic Consent form
- Inventory / Query management
- Biospecimen annotation
- Processing / Analysis
- Acceptance / Collection

Healthcare professionals

Off-site patient management

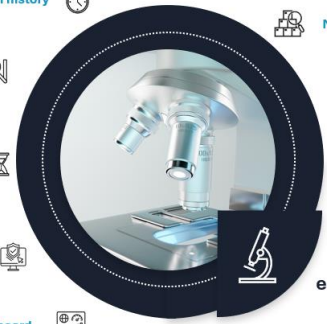


✓ Complete EHRs & remote disease monitoring

- Digital dynamic e-consent
- Screening & laboratory results
- Diagnostics & imaging results
- Medications & treatment plan
- Electronic health record
- Medical history

Researchers / Industry

Search history



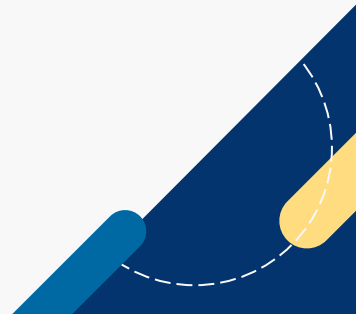
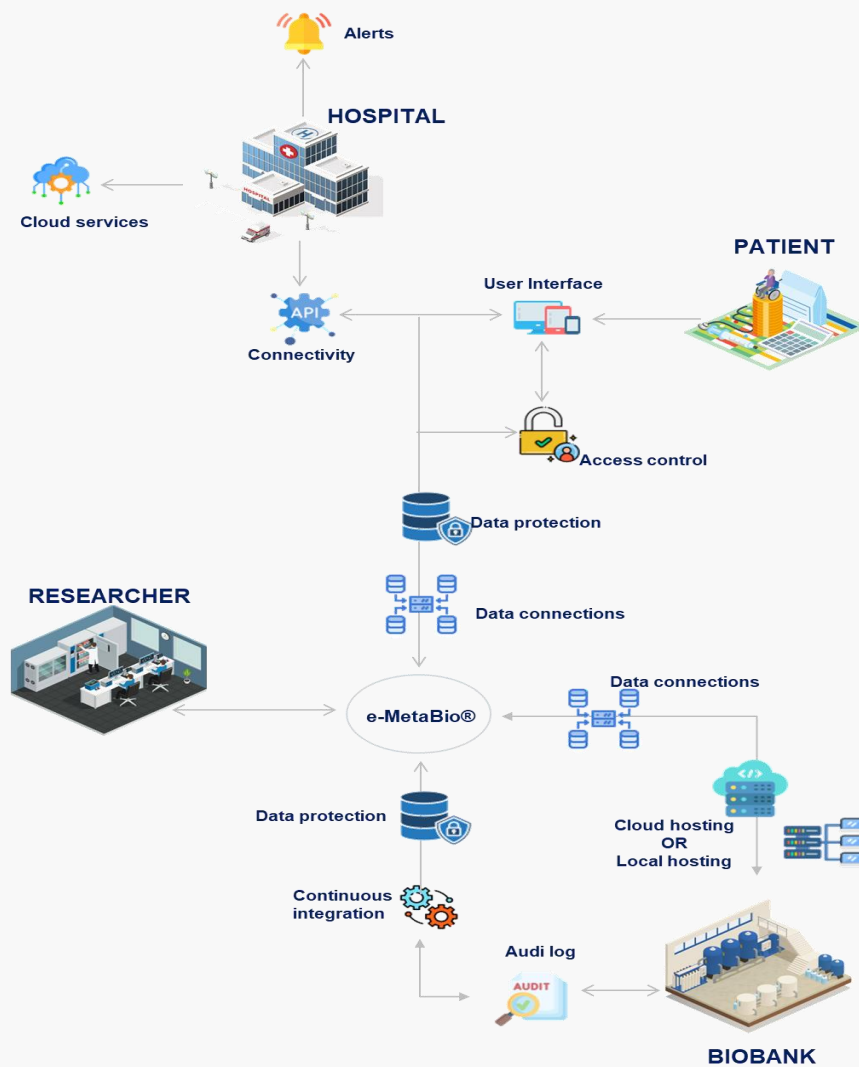
✓ Real-time collaboration tool & access to multi-source data cohorts

- Research protocol annotation
- Multi-criteria query tool
- Analytics
- Dynamic real-time environment
- Digital dynamic e-consent
- Universal dashboard

e-MetaRes®



The Network





e-Metabio offers the ability to:



Enhance
Recruitment
Procedures

use of DRT 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%

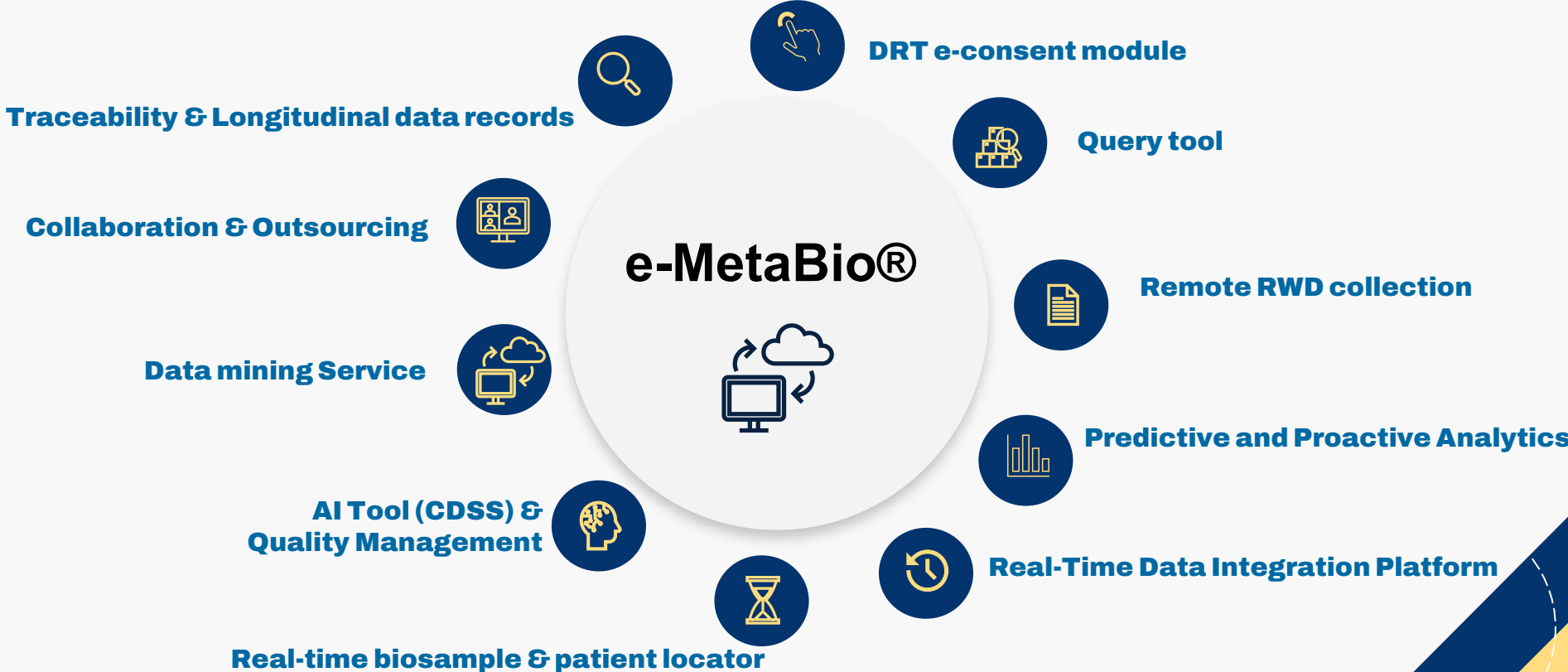


Increase Value

biosample scientific and
market raised up to
250%



we provide:





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

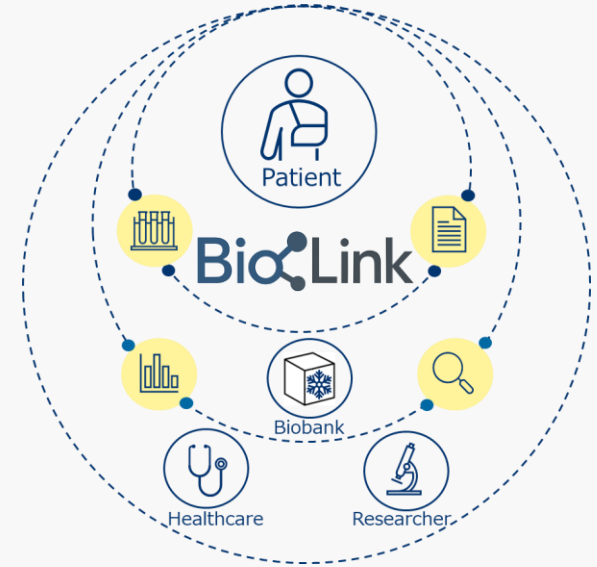
Endless Possibilities in Biospecimen Usage



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





Services



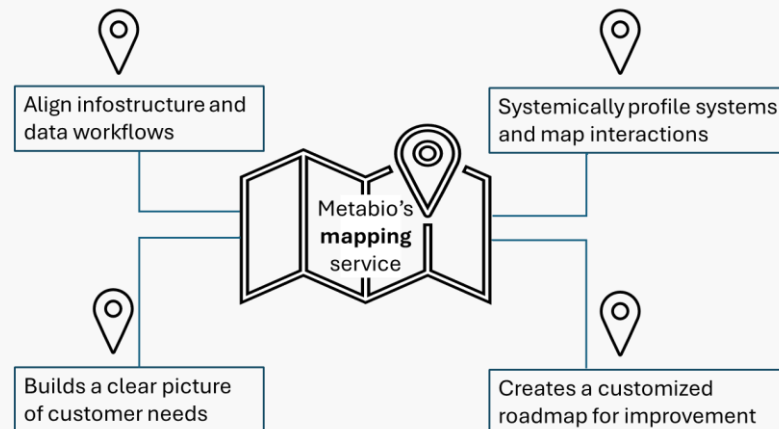
Mapping services



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

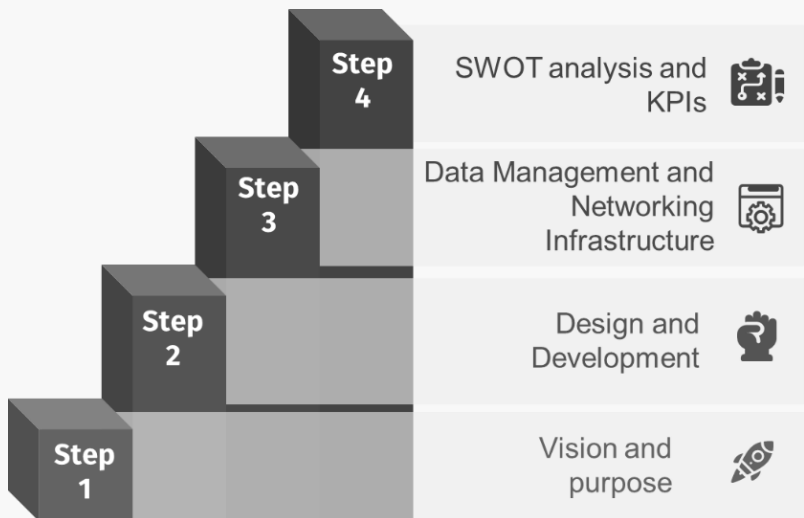


Consultancy & Brokerage



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

Membership-Collaboration-Support

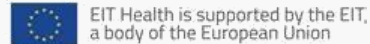
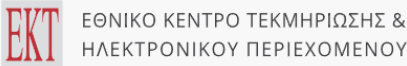
Certification



Funding



Projects



THANK YOU!

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