Trinity Media Release

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Revolutionising biomedical data sharing and AI-driven healthcare solutions: SEARCH launches

The Synthetic hEalthcare dAta goveRnanCe Hub (SEARCH) aims to accelerate healthcare innovation by generating FAIRified synthetic data for use in AI/ML models

Today **[Tuesday, 1st October 2024]** sees the launch of the Synthetic hEalthcare dAta goveRnanCe Hub (SEARCH); a multi-disciplinary initiative focused on creating synthetic healthcare data and facilitating secure data sharing across the biomedical ecosystem. The launch marks a significant leap in healthcare research, driving advancements in digital health and AI-powered diagnostics through cutting-edge synthetic data generation and federated learning approaches.

SEARCH will address critical challenges in healthcare data access by creating a platform that enables secure, privacy-preserving searching, sharing and analysis of multimodal healthcare data. Co-ordinated by Trinity College Dublin, – via the Trinity Translational Medicine Institute (TTMI), based at St James's Hospital - this initiative brings together a consortium of 26 cross-sectoral partners across Europe, including synthetic data experts, healthcare providers, and solution developers, to unlock new opportunities in data-driven healthcare innovation. Funded under the Innovative Health Initiative Joint Undertaking (IHI JU), SEARCH boasts an initial budget of over €15.2 million.

SEARCH aims to accelerate healthcare innovation by generating FAIRified synthetic data for use in AI/ML models, enabling large-scale data collaborations while preserving privacy and compliance with regulatory standards.

SEARCH will deliver reliable methodologies for synthetic data generation (SDG) that meet the highest standards of accuracy and applicability, significantly increasing the availability of interoperable datasets. These datasets will be used to develop AI-based tools that support diagnostics, personalised treatment, and predictive health outcomes, improving patient care while reducing privacy risks.

Professor Dimitris Iakovidis, University of Thessaly, Greece, said:

"SEARCH represents a paradigm shift in healthcare by enabling the generation and sharing of robust synthetic data across diverse healthcare use cases. Our approach harnesses the power of federated learning and advanced SDG methods to create synthetic datasets that replicate the statistical properties of real-world data, while ensuring patient privacy. This will empower healthcare providers and researchers with high-quality data to fuel next-generation AI and precision medicine tools."

Combining data clean rooms and federated learning allows multiple institutions to collaborate, drawing insights from decentralised data sources, while ensuring that patient data remains securely stored at its source. SEARCH's innovative synthetic data generation techniques will not only democratise access to healthcare data but will also create a foundation for new diagnostic and therapeutic tools powered by AI/ML.

Professor Aideen Long, Director, Trinity Translational Medicine Institute (TTMI), said:

"SEARCH offers an unparalleled opportunity to accelerate research and clinical innovation. By providing high-quality, FAIR synthetic datasets that mimic real-world healthcare data, we can empower researchers, clinicians, and industry to collaborate like never before. This opens the door for faster drug discovery, more personalised treatments, and the ability to create new, evidence-based healthcare policies—all without compromising patient privacy."

Key Objectives and Innovations:

- Next-Generation Synthetic Data: SEARCH leverages deep generative models to create realistic synthetic replicas of healthcare data (EHRs, genomics, medical signals, and radiological imaging), replicating the performance of real-world data while maintaining privacy.

- Federated Learning and Data Clean Rooms for Privacy & Scale: By keeping patient data securely in its original location, SEARCH's privacy- preserving framework enhances collaboration across healthcare sectors while protecting sensitive information. This fosters AI model development and the wider adoption of new healthcare tools.

- Accelerating AI Innovation: SEARCH will enable the development of cutting-edge AI-powered decision-support tools by providing gold-standard synthetic datasets for benchmarking biomedical AI solutions, fuelling faster diagnostic tools, and creating new personalised healthcare approaches.

Groundbreaking Impact:

SEARCH will play a pivotal role in revolutionising healthcare, contributing to faster innovation, shorter time-to-market for new digital health interventions, and better personalised treatments. Through synthetic data methodologies, SEARCH will uncover insights into cardiovascular, gastrointestinal, and gynaecological diseases, while ensuring the protection of patient privacy.

SEARCH's efforts will complement real-world healthcare by validating synthetic datasets through clinical studies. This unique combination of synthetic data and privacy-preserving architecture has the potential to drive AI/ML innovations that enhance patient outcomes, improve diagnostics, and pave the way for new public-private collaborations in healthcare.

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Notes for the Editor

About the Synthetic hEalthcare dAta goveRnanCe Hub (SEARCH)

Funded under the Innovative Health Initiative Joint Undertaking (IHI JU), SEARCH boasts an initial budget of over €13.9 million. SEARCH is a multi-disciplinary initiative focused on creating synthetic healthcare data and facilitating secure data sharing across the biomedical ecosystem. With a consortium of 26 partners from across Europe, SEARCH aims to accelerate healthcare innovation by generating FAIRified synthetic data for use in AI/ML models, enabling large-scale data collaborations while preserving privacy and compliance with regulatory standards.

Consortium members

TRINITY COLLEGE DUBLIN
IQVIA RDS Ireland Ltd
DQ TECHNOLOGIES AG
MEDICALVALUES GMBH
CORSANO HEALTH BV
SYNTHETICUS AG
IBM IRELAND LIMITED
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BYTE SOLUTIONS UNLIMITED
ADAPTIT GMBH

About the Innovative Health Initiative

The Innovative Health Initiative (IHI) focuses on translating health research into tangible benefits for patients and society, while ensuring Europe remains a leader in patient-centred, sustainable health innovation. By fostering cross-sector collaboration, IHI supports projects spanning prevention, diagnosis, treatment, and disease management. This public-private partnership includes the European Union and key European industry associations in pharmaceuticals, biotech, medtech, and vaccines. The Innovative Health Initiative (IHI) is co-funded by the European Union, represented by the European Commission, and the life science industries, including COCIR, EFPIA/Vaccines Europe, EuropaBio, and MedTech Europe. For the 2021-2027 period, IHI has a total budget of €2.4 billion**.** €1.2 billion comes from Horizon Europe, the EU's research framework. €1 billion is contributed by IHI industry partners, while an additional €200 million may be provided by other life science industries and associations that choose to join as contributing partners.

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