



## Revolutionising sustainable DNA-based data storage: PEARL-DNA successfully kicked-off

In a world driven by data, the need for innovative and sustainable data storage solutions has never been more pressing. PEARL-DNA, a 3-year research project recently funded under the EU's Horizon Europe programme, is set to revolutionise the way we handle data storage. With 5.04 million Euros in funding, this ambitious research initiative led by BioSistemika, promises to reshape the future of DNA-based data storage.

Data fuels the pulse of modern society - driving advancements in artificial intelligence, healthcare, astronomy, climate science, and countless other fields. The need to store massive data sets efficiently and sustainably has become a top priority for researchers and industries worldwide. Simultaneously, more than 6 billion smartphone users are generating constant streams of location data, photos and videos with data storage demand. The challenge: The world is running out of data storage. At the same time, current technologies for digital data storage have hit various technological and sustainability limits. A significant share of new data is not yet stored beyond the short term, and conventional storage media do not have the capacity, longevity, or data density to meet global demand.

6  
Partners

5.04m €  
Funding

1  
Mission

4  
Countries

36  
Months

Under the Horizon-EIC-2022-PATHFINDERCHALLENGES-01-05 call, PEARL-DNA emerged as one of the eight selected proposals, securing 5.04 million Euros in funding. Successfully kicked-off on October 1, 2023, this ambitious project aims to **develop and evaluate a complete end-to-end chain of innovative next generation solutions for DNA-based digital data storage, offering an environmentally sustainable solution to the data challenges of today and tomorrow.**

The overall goal of the PEARL-DNA project is to deliver a proof of concept (PoC, TRL4) for its end-to-end platform's systems and processes. With a focus on surpassing existing technologies in data recording throughput, speed, capacity, reliability, and data integrity, **PEARL-DNA harnesses DNA's inherently superior data density and longevity to establish DNA-based digital data storage as the ultimate archival storage medium for a sustainable future.** The platform will be developed in a fully modular and interoperable way, promoting seamless integration with other DNA-data storage solutions to accelerate the uptake and wide adoption of the PEARL-DNA technology.

PEARL-DNA pushes the technological boundaries in data recording technology and storage, aiming to make DNA-based data storage readily available - setting the stage for global adoption



Dr. Tomaz Karčnik, Project Coordinator  
BioSistemika

## Bringing together experts from research and technology to shape the future of DNA-based data storage.

Harnessing DNA as a commercially viable and globally applicable data storage medium requires the fusion of diverse expertise from fields such as life sciences, engineering, and information technology. PEARL-DNA brings together three esteemed research groups and three innovative SMEs, creating a synergy that cements the European innovation ecosystem's position in the global DNA-based digital data storage sphere.

Coordinated by **BioSistemika** (Slovenia), PEARL-DNA unites the Institute for Information Processing at the **Leibniz University Hannover** (Germany), DNA conservation technology provider **Imagene SA** (France), the Division of Molecular Biotechnology and Genomics at the **Technical University of Applied Sciences Wildau** (Germany), digital printing institution iPrint at HES-SO, the **University of Applied Sciences and Arts Western Switzerland** (Switzerland) and EU-project management, communication and dissemination expert **accelopment Schweiz AG** (Switzerland).

### Partners



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