

## BITS :: Call for Abstracts 2024 - Oral communication

<i>Type</i>	Oral communication
<i>Session</i>	Bioinformatics Core Facilities and Research Infrastructures
<i>Title</i>	The National Facility for Data Handling and Analysis at Human Technopole
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### *Motivation*

The National Facility for Data Handling and Analysis (NF-DaHa) is a newly established scientific support platform hosted at Human Technopole. In conjunction with the other National Facilities at HT, it will provide state-of-the-art data analysis services to the Italian research community, and will support the development of publicly available tools and resources.

NF-DaHa is structured on three infrastructural units, dealing with Image Analysis (IU1), Omics Analysis (IU2), and DevOps / Web Development (IU3) respectively. More specifically, IU1 will provide services and expertise on image QC, denoising and restoration, segmentation, and basic quantification. IU2 will perform standardized analysis of data from all common Next-Generation Sequencing assays, including single-cell and spatial transcriptomics methods. Finally, IU3 will support the activity of the other two units through the development of analysis pipelines, scientific software tools, and databases.

### *Methods*

NF-DaHa will operate in close conjunction with the other National Facilities at HT (in particular, the Genomics facility for NGS data and the Light Imaging facility for image data), but will also work on data generated outside of HT. In this case, we will perform in-depth quality-control analysis to ensure that the data meet the required standards, and we will provide the appropriate feedback and recommendations to the investigators.

Primary analysis of omics and image-based datasets will be performed through well-tested, automated pipelines, developed according to industry standards with an emphasis correctness, robustness, and reproducibility of results. The pipelines will be extensively documented and shared with the community, to ensure that the analysis processes are sound and meet the requirements of the research projects.

Training represents an essential component of all services provided. The facility's mission includes not only providing analysis results, but also disseminating knowledge and expertise to ensure that research groups that use its services can become independent. Therefore, members of the user community will be involved at every step of the analysis process through individualized training sessions, and the facility will share tools and pipelines developed in the context of each process. In addition, NF-DaHa will collaborate with other HT facilities to organize public workshops and courses.

A further service provided by NF-DaHa regards the development and long-term maintenance of scientific software. All too often, software developed in the context of a research project never goes past the prototype stage, and gets abandoned once the project terminates for lack of funding and resources, leading to the loss of valuable scientific resources. Through its DevOps unit, our facility will collaborate with scientists on the professional development of scientific software and databases, including the creation of web interfaces, and providing long-term support and maintenance to ensure that the resources remain available to the scientific community.

### *Results*

NF-DaHa is currently in its startup phase. We are planning to start offering a limited selection of services in the second half of 2023, and to become fully operative in 2025. Recruitment is underway, with several positions available for bioinformatics scientist, data scientists, image analysis specialists, and software developers at all levels.

In this presentation we will describe the structure and organization of the NF-DaHa facility, and we will provide an overview of the services it will provide. We will also discuss the innovative access model established for HT National Facilities, designed to maximize their impact on the Italian research community, with a special focus on highly deserving projects from young investigators or those lacking the resources for large-scale research efforts. Finally, we will outline plans for the integration of the facility with networks of bioinformatics centers at the national and European level.

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<i>Figure</i>	-
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<i>Availability</i>	<a href="https://humantechnopole.it/en/facilities/national-facility-for-data-handling-analysis/">https://humantechnopole.it/en/facilities/national-facility-for-data-handling-analysis/</a>
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**Dissemination Material***Social*

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*Summary*

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