



**UNIVERSITY  
OF TURKU**

# **RESEARCH INFRA- STRUCTURE POLICY OF THE UNIVERSITY OF TURKU**

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**2020**

**University of Turku**

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# INTRODUCTION

**Research infrastructures refer to the reserve of equipment, devices, materials, and services that enable research and development at different stages of innovation activities, support organised research, research training and teaching, and maintain and develop research and innovation capacity (Finland’s Strategy and Roadmap for Research Infrastructures 2014–2020, Academy of Finland).**

In its Strategy, the University of Turku emphasises the significance of up-to-date research infrastructure as a prerequisite for top research and teaching based on it. High-quality and up-to-date research infrastructures also support innovation activities, international collaboration and networking, mobility, and societal interaction.

The Research Infrastructure Policy of the University of Turku has a central role in the multidisciplinary University’s strategic decision-making and the implementation of the decisions. The Research Infrastructure Policy 1) outlines the principles of research infrastructure management and development and 2) describes the measures of practical implementation and their responsible parties.

The Research Infrastructure Policy of the University of Turku has been prepared utilising the research infrastructure policies of the University of Helsinki and the University of Eastern Finland, the University of Jyväskylä Research, Innovation and Infrastructure Policy, the “Aalto Handbook” of the Aalto University, the research infrastructure reports of NordForsk, the “Roadmap for Transnational Utilisation of Existing and Planned R&I Infrastructure” report of the Baltic Science Network, the infrastructure policies of the Chalmers University of Technology and the University of Göteborg, the “Finland’s roadmap for research infrastructures” publication by the Academy of Finland, and the policies outlined in the “European Charter for Access to Research Infrastructures” (2016). The Rector of the University of Turku approved the Policy on 16 March 2020.

The Research Infrastructure Policy of the University of Turku is based on the preparations made by the steering and project groups in charge of developing the research infrastructures, discussions with the representatives of the most significant research infrastructures of the University of Turku, and the discussions of the Research Council. The Research Infrastructure Policy has been prepared openly, the community has been informed about it on the intranet pages of the University of Turku, and it has been presented for the University community and the interest groups. The University community and the interest groups have had an opportunity to comment on the Programme.

The Research Infrastructure Policy of the University of Turku includes matters related to the management of physical research materials (samples, collections etc.). The so-called non-infrastructures and text and photo materials (including unstructured free texts) are also included in the Research Infrastructure Policy, as well as the printed and electronic materials offered by the University Library for the research community. The IT infrastructure produced by the IT Services and included in the basic services as well as educational technology are not included in the Research Infrastructure Policy. The Policy only includes facilities insofar as they are related to research equipment or materials.

The Rector has approved the research infrastructure policy on March 16<sup>th</sup> 2020.



# OBJECTIVES AND MEASURES OF THE RESEARCH INFRASTRUC- TURE POLICY OF THE UNIVER- SITY OF TURKU

## The development of the research infrastructures at the University of Turku: strategic planning and responsibilities

Up-to-date research infrastructures are a basic prerequisite for high-quality scientific research and teaching based on it. The University allocates considerable annual funding to research infrastructures. The maintenance and development of the research infrastructures of the University of Turku are among the central areas of the strategic management of the University.

The development of the research infrastructures at the University level and ensuring cooperation between faculties are the responsibilities of the Vice Rector responsible for research and the Research Council as well as the Research Development unit of the Development Services included in the University Central Services.

The practical research and development work takes place in the faculties and independent units. In the faculties, the responsibilities of developing the research infrastructures has been agreed on by the deans. The research infrastructure operators of the faculties and/or departments must take into account the University-level guidelines on research infrastructures as well as the research-related needs and new initiatives of the departments. Correspondingly, the University management and the Central Services pay attention to the needs of the units and take them into account when developing the operations.

**Measures and responsibilities:**

- The University of Turku both follows and actively participates in the development of the different parts of research infrastructures on a national and international level and ensures that the research infrastructure activities of the University of Turku and the operational models related to them are up-to-date. (Research Council, Vice Rector responsible for research, Research Development unit of the Development Services)
- Identifying the University's internal as well as national and international good practices and successful initiatives related to the operations of research infrastructures and sharing them to the whole University community. (Research Development unit of the Development Services)
- Defining the most appropriate ways of defining responsibilities for developing research infrastructures in each faculty or independent unit. Faculties and large independent units may need to establish working groups responsible for research infrastructures and their development as well as compiling the Research Infrastructure Plan as an annex to the Annual Plan. The units are encouraged to also engage in discipline-specific collaboration crossing the unit boundaries. Together with the directors of the units, these parties are responsible for the strategic development of the research infrastructures and they also coordinate the infrastructure purchases determined in the units' Annual Plan, taking into account the University-level guidelines, discipline-specific collaboration crossing the unit boundaries, and the needs of the units' focus areas of research and new research initiatives. (Faculties and units)

- Open seminar is organised annually for the personnel of the University of Turku, presenting the state of research infrastructures both in the University of Turku and nationally and internationally. The event gives the University community an opportunity to discuss research infrastructures together with the University management. The seminar also includes information about applying for FIRI funding or other supplementary research infrastructure funding. (Research Development unit and Research Funding unit of the Development Services)

## Roadmap for Research Infrastructures of the University of Turku

The thematic focus areas of the Strategy of the University of Turku emphasise multidisciplinary. The scope and multidisciplinary of the University as well as its strong ties with the other higher education institutions in the region, especially with the Åbo Akademi University, and the Hospital District of Southwest Finland, business life, and other interest groups also reflect on the multitude of research infrastructures and their development.

To secure high-quality research infrastructures, the most significant research infrastructures of the University are defined. Automatically, these include partnerships in European infrastructure projects (ESFRI, ERIC) that are represented in the University, international memberships, research infrastructures in the national research infrastructure roadmap (FIRI), and, additionally, significant local research infrastructures. Together these form the Roadmap for Research Infrastructures of the University of Turku.

When choosing the significant local research infrastructures, the disciplines represented in the University as well as the thematic research collaborations are taken into account. The selection process considers the quality of the research and other impact of the research infrastructures. The research infrastructures selected for the Roadmap are required to have professional leadership, scientifically successful operations, and good financial planning. The research infrastructures selected for the Roadmap for Research Infrastructures of the University of Turku and not included on the international and/or national roadmaps compile a plan for maintenance and development. The operations of the research infrastructures on the roadmaps is followed and assessed on a regular basis, and the Roadmap for Research Infrastructures of the University of Turku is updated regularly.

Appropriate visibility and provision of information are a prerequisite for open and optimal use of the research infrastructures of the University of Turku. The information about the research devices is collected into an equipment database where it can be easily found using different search functions. The research infrastructures on the roadmaps for research infrastructures (international roadmaps, the national roadmaps, and the Roadmap for Research Infrastructures of the University of Turku) are linked with the publications and materials of the UTUCris Research Information System and, on a national level, the Research Information Hub (previously The Finnish research infrastructures databank).

#### **Measures and responsibilities:**

- A Roadmap for Research Infrastructures is compiled for the University of Turku, automatically including the research infrastructures included on national and international roadmaps, but where the units can also suggest other research infrastructures that are significant for the University. The research infrastructures applying to be included on the roadmap must include in their application a maintenance and development plan which describes the research infrastructure's scientific significance, life cycle, necessary personnel and facility resources, openness and other policy of usage, visibility, communications, data management, and planned development measures. (Research Development unit of the Development Services)
- Improving the visibility of the research infrastructures by establishing an up-to-date internet page on research infrastructures on the University's web pages (the ESFRI and ERIC research infrastructures represented in the University of Turku, the research infrastructures on Finland's Roadmap, the research infrastructures of the Research Infrastructure Policy of the University of Turku). The usage policy and conditions of shared use and other utilisation are described for each research infrastructure. (Research Development unit of the Development Services, University Communications, faculties and independent units)
- Offering support for internalisation of research infrastructures (e.g. building networks, support in the ERIC process). (Research Development unit and Research Funding unit of the Development Services)
- Establishing a database for research equipment with the usage policy of the equipment also presented. Assessing how the research infrastructures would be best visible in the Research Information System (UTUCris) and on a national level (IT Services for research, Research Development unit of Development Services, Library)

- Providing information and training for units on the University-level guidelines on the pricing of the internal shared use of equipment. (Research Development unit of the Development Services, Financial Services)
- Assessing the need to map out the databases, research programmes, and special facilities used in research (e.g. radiation laboratories) and possibly include them in the research equipment database. (IT Services for research, Research Development unit of the Development Services)

## Systematic development of research infrastructures

The University of Turku maintains and develops its research infrastructures both with the basic funding of the University and with supplementary funding. Research infrastructure purchases are supported based on the level of the scientific research in the research project or unit and the profiling areas of research as defined in the strategy of the University of Turku.

Generally, the basic funding allocated for purchasing and significant updating of research infrastructures is distributed by organising internal calls for applications for research equipment and materials. The objective is that the above-mentioned calls for application are organised on a regular basis to secure continuity and predictability. Call for applications open for the entire University community promotes transparency and the comparability of the applications. Internal funding calls take into account not only the purchases of new research equipment and materials, but also the needs of already existing research infrastructures for maintenance and updating as well as personnel resources. When assessing internal applications, the significance of the research equipment or materials for research will be considered as well as its potential for shared use both inside the University of Turku and outside it (regional, national, or international shared use). The assessment also considers the assumed utilisation period of the research infrastructure, the resources it requires during different stages of its life cycle (personnel, facility, updating needs), and the topicality of the purchase. The research infrastructures included on the Roadmap for Research Infrastructures of the University of Turku are prioritised when allocating the internal funding. Furthermore, University-level calls for research equipment and materials map the needs of the units' research and education concerning research infrastructures.



In the case of significant changes to a unit's facilities (e.g. moving to new buildings), it is justifiable to assess the unit's research infrastructure and the purchase and updating needs related to it as a single unit and allocate basic funding for them directly and non-recurrently without an internal application process.

In equipment-intensive research fields, adequate and up-to-date reserve of small devices is an essential prerequisite for efficient research. In addition to the internal calls for funding related to research equipment, the funding model of the University also ensures adequate funding for the faculties to cover the purchases and life cycle expenses of small equipment. The faculties are responsible for allocating the funding to the units.

Support is offered for applying for supplementary research infrastructure funding. The most important mode of supplementary funding for research infrastructures is the FIRI call for applications of the Academy of Finland. The University encourages the researchers to apply for the research infrastructure funding of the European Union and improves the support services offered for this. The University encourages the researchers to participate in national and international research infrastructure projects and to apply for research infrastructure funding in collaboration with essential interest groups.

#### **Measures and responsibilities:**

- Organising internal funding calls for research equipment and materials. Assessing the possibility of linking the funding calls with updating of the Infrastructure Plan in relation to the Annual Plans and updating of forecasts (Research Development unit of the Development Services, Financial Services)
- Analysing the applications of internal research infrastructure calls and utilising the information in developing the research infrastructures. (Research Development unit of the Development Services, Research Council)
- Supporting the researchers in the FIRI call for applications of the Academy of Finland: providing information, giving advice, supporting the applicants, organising internal prioritisation, preparing decisions on own funding share. (Research Development unit of the Development Services, Financial Services)
- Offering support for the researchers and research projects for applying research infrastructure funding from the European Union and other international funders: providing information, offering support in the application and implementation stages. (Research Funding and Research Development units of the Development Services)

- Ensuring up-to-date and adequate reserve of small devices for research, promoting joint purchases of small devices. Acknowledging and securing the operational requirements of “mobile infrastructures” (e.g. research on the field) and research stations. (Faculties, Research Development unit of the Development Services)
- Supporting the researchers and the units in their joint purchases of research infrastructures together with the main (regional) interest groups. (Research Development unit and Innovations, Entrepreneurship and Transnational Education unit of the Development Services)
- Evaluating the need to emphasise the research infrastructures in the University’s fund-raising and the means to achieve this. (Engagement and Impact unit and Research Development unit of the Development Services)
- Supporting the researchers and the technical personnel in taking advantage of the broad national and international science community in their research infrastructure needs by e.g. supporting mobility. (Faculties, units)
- Offering support for the researchers and the units in the practical implementation of funding decisions granted for research infrastructures and the execution of purchases. (Financial Services, Research Development unit and Legal Affairs unit of the Development Services)

## The University of Turku has significant data resources

According to the established definition of research infrastructure, it refers to research equipment, devices, and data as well as the services related to all of these. This also includes the printed and electronic data of the Library as well as other data consisting of text and images. As a new form of research infrastructures, these have been supplemented by the so-called e-infrastructures, referring to ICT-based resources related to e.g. calculation capacity, data control, and analytics.

The University of Turku is a multidisciplinary university consisting of seven faculties and several independent units. The University’s strategic focus areas of research include both device-intensive and data-intensive research infrastructures. The versatility and multidis-

ciplinarity of the University are taken into account in the management and development of the research infrastructures.

Lately, research materials, especially research data, have strongly emerged alongside device-intensive research infrastructures, both nationally and internationally. Research materials include both research data and physical research materials. The University of Turku has long traditions in implementing high-quality cohort studies and other data-intensive longitudinal studies. The University of Turku will pay special attention to research data also in the future, especially on its openness and the development of data management, including the possible potential for commercial utilisation of data.

Physical research materials include e.g. biological samples, records, photos, and other physical materials. The appropriate storage of the physical research materials is important for the quality and repeatability of research, and the collection and storage of the materials is often also regulated by legislation. The appropriate storage of research materials takes a significant amount of space, equipment, and even personnel resources especially in laboratory-intensive units and units with archives. The University supports the units in the appropriate storage of research materials and promotes storage-related collaboration between units.

Equipment-intensive and data-intensive research infrastructures are considered as equals in the allocation of internal research infrastructure funding and the prioritisation decisions of complementary funding allocated to research infrastructures.

#### **Measures and responsibilities:**

- Supporting researchers in collecting and managing data by offering them training and support related to e.g. metadata, data saving solutions and (long term) storage, data protection, and utilisation of research data. (Library, IT Services for research, Research Development unit, Research Career unit, Innovations, Entrepreneurship and Transnational Education unit, and Legal Affairs unit of the Development Services)
- Mapping the University's valid authorisations related to research materials (e.g. GMO authorisations) and supporting researchers and technical personnel in the measures required by the authorisations. (Legal Affairs unit and Research Development unit of the Development Services, Personnel Development Services)

- Assessing possibilities for renting inexpensive shared storage facilities within a reasonable distance from the campus area and joint hiring of a person to enable the usage of the storage facilities. (Maintenance Services, Research Development unit of the Development Services)
- Assessing the requirements of publishers, funders, and possibly also legislation for the long-term storage of physical research materials. Supporting the units in acquiring and maintaining storage facilities and devices. Training the researchers and technical personnel in appropriate management of materials. (Research Development unit of the Development Services, IT Services for research, Maintenance Services)
- Highlighting internally and externally the strong investments of the University of Turku in developing research materials as well as its profile as having significant data resources. (University Communications, Library, Research Development unit and Engagement and Impact unit of the Development Services)

## High-quality expertise in enabling development of research infrastructures

Competent personnel is an indisputable prerequisite for the scientific and technical operations of research infrastructures, and they include researchers, teaching personnel, and the representatives of technical personnel. The researchers and technical personnel of the University of Turku have excellent scientific and technical expertise related to research equipment and materials. Developing the expertise of the personnel is a prerequisite for developing the research infrastructures.

The University ensures that sufficient amount of personnel can be engaged in the operations of the research infrastructures and that sufficient amount of resources and incentives are allocated to developing the expertise of the personnel. The personnel's expertise related to research equipment is acknowledged as a merit. Professional management and coordination of large research infrastructures is acknowledged as a work duty, and the University offers support for it.

### **Measures and responsibilities:**

- Assessing the job descriptions of the technical personnel and highlighting the possible duties that have been left unnoticed and without sufficient amount of personnel to take care of them. Assessing whether the distribution of technical personnel in different units corresponds with the personnel needs of their research infrastructures. Assessing whether there is a need and possibility to create centralised laboratory services and what they would include. (Research Development unit of the Development Services, faculties and units)
- Assessing how much personnel resources are spent for management and/or coordination of large research infrastructures and what kind of expertise this work requires. (Research Development unit of the Development Services)
- Organising training on research infrastructures and research methods when needed. Paying special attention to safety and occupational health and safety perspectives and organising a training event focusing on managing research infrastructures. Supporting and encouraging the personnel to make (international) visits related to developing research infrastructures. (Human Resources Development, Research Career unit and Research Development unit of the Development Services)
- Ensuring that the technical personnel of the University has opportunities to network and share the good practices of their units and their expertise with each other. (Research Development unit of the Development Services, IT Services for research)
- Advancing the development of the technical personnel's expertise on an international level by improving their opportunities in mobility. (Research Development unit of the Development Services)
- Ensuring that the expertise related to research infrastructures is made visible e.g. as a merit in the Research Information System. (Research Development unit of the Development Services)

## Impact of research infrastructures in teaching and innovation activities

A foundation in top research is the prerequisite for high-quality university teaching. To achieve good working life skills, the graduates and doctoral graduates of the University of Turku should also have adequate knowledge of and skills in the central research infrastructures of their field as well as the research methods related to them. To secure the continuity of the high quality of research, it is important that the researchers actively follow the development of their field's research infrastructures and methods and acquire the expertise related to them.

The research infrastructures of the University of Turku promote the research, development, and innovation activities at the University as well as at other higher education institutions and in the business life of the whole region. The research infrastructures and the related expertise in the University of Turku create new business ideas, jobs, and competent work force regionally, nationally, and internationally.

Creating connections with business life and other interest groups is taken into account already when planning significant research infrastructure projects. The objective is close collaboration with all potential partners in acquiring (including funding collaboration), sharing, and developing the research infrastructure.

High-quality research infrastructure not only enables top research, but also improves the prerequisites of (regional) innovation ecosystems, thus advancing the competitiveness of business life. When developing the research infrastructures, the collaboration with different higher education institutions, research centres, the Hospital District of Southwest Finland, business life, and other interest groups is taken into consideration. The possibilities for joint funding are considered both when acquiring research infrastructures and in their maintenance. Securing the prerequisites for collaboration with different actors is taken into consideration in the maintenance of research infrastructures (openness, information, service concepts).

### **Measures and responsibilities:**

- Ensuring in the curricula planning that the students receive sufficient knowledge about the central research methods of their field as well as the required research materials and equipment. Paying special attention to the amount of laboratory, field, or other practical courses and is up-to-date teaching. (Educational Affairs, Research Career unit of the Development Services, faculties, units)

- Encouraging and supporting especially doctoral candidates and postdoctoral researchers to make research visits (abroad) with the objective of learning about new methods and/or equipment, and sharing the expertise in their home unit after the visit. (Research Career unit of the Development Services)
- Highlighting the significant research infrastructures of the University of Turku for the larger audience in different media and e.g. by organising open days. (University Communications, Engagement and Impact unit and Research Development unit of the Development Services)
- Assessing the needs related to the Proto Workshop and the possibilities of establishing a “shared workshop”, so-called makerspace or FabLab. (Maintenance Services, Research Development unit of the Development Services)
- Promoting shared use of research infrastructures as one example of collaboration between the University of Turku and the (regional) companies. Formulating University-level guidelines for the pricing of research infrastructure use and providing information about them for the external users. (Research Development unit and Innovations, Entrepreneurship and Transnational Education unit of the Development Services, Financial Services)
- Assessing the need for common training organised for higher education institutions and companies on research infrastructures. (Innovations, Entrepreneurship and Transnational Education unit and Research Development unit of the Development Services)
- Identifying and supporting the innovations and spin-off business ideas originating from the research infrastructures. (Innovations, Entrepreneurship and Transnational Education unit of the Development Services)