

# INNOVATION AND EXPERTISE FOR WORKING LIFE

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RESEARCH, DEVELOPMENT AND  
INNOVATION ACTIVITIES IN  
FINNISH UNIVERSITIES OF APPLIED SCIENCES

The Rector's Conference of Finnish  
Universities of Applied Sciences Arene

MARCH 2019

# RESEARCH, DEVELOPMENT AND INNOVATION ACTIVITIES IN FINNISH UNIVERSITIES OF APPLIED SCIENCES

The mission of Finnish universities of applied sciences is to carry out research, development and innovation (RDI) activities that serve working life and regional development and help renew regional business structures. Finnish universities of applied sciences are the only Finnish institutions that have been issued a statutory task in innovation activities.

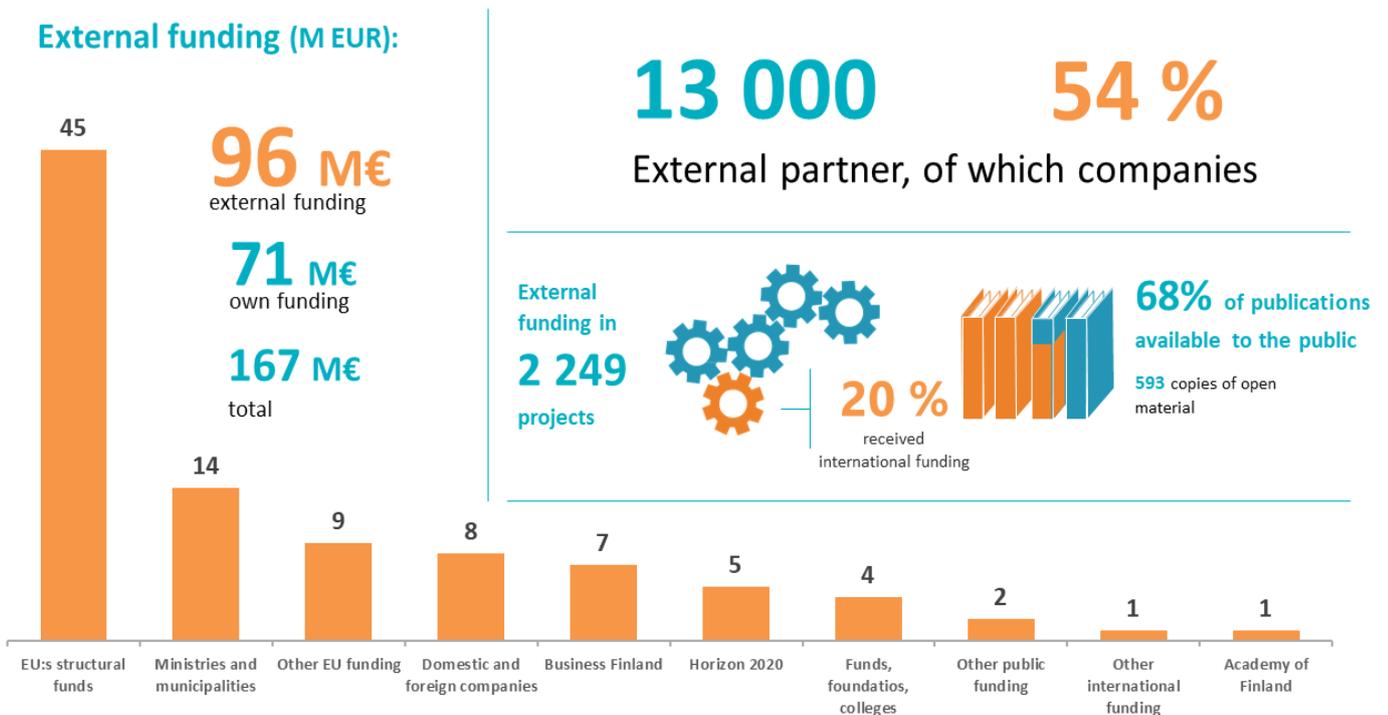
RDI is the second main task of universities of applied sciences, and it represents a key method for the development of working life. Universities of applied sciences transfer the new expertise that is created in RDI activities to their degree-based education.

RDI activities are very versatile, practical and meet the needs of working life partners and other beneficiaries. These activities aim to develop services, products and, increasingly often, new expertise in the workplace. Universities of applied sciences participate in regional and sectoral ecosystems. A significant part of these activities are conducted in projects that include external funding sought by higher education institutions.

The applied research that is conducted at universities of applied sciences is used to produce knowledge for the needs of working life and society at large. Out of the total available amount of RDI funding, 97 million (58 %) was allocated to development work, 67 million (40 %) to innovation activities and 3 million (2 %) to basic research. RDI represents around 18 per cent of the entire volume of the activities conducted by universities of applied sciences.

## RDI activities in Universities of Applied Sciences 2017

### External funding (M EUR):



## FOCUS AREAS

The strategies created by Finnish universities of applied sciences include focus areas that represent phenomenon-based areas of expertise that centre around knowledge and expertise. These focus areas enable long-term collaboration and the creation of partnerships.

The establishment of a focus area means that the university of applied sciences in question is ready to commit and focus its expertise around a chosen topic for the long term.

Higher education institutions that have been profiled by their areas of expertise can then complement one another through their expertise, which in turn helps maintain the diversity of Finnish working life and business. The selection of these focus areas is based on the needs of each university of applied sciences' operating area, which is described in regional strategies and operating plans.

## RESOURCES IN 2017

A total of 167 million euros was spent on RDI activities, of which 96 million euros represented external funding. The share of EU funding sources in external funding was around 60 per cent. The most important sources of funding were the EU's structural funds. The significance of the framework programme for research and innovations is increasing steadily.

Around a third of university of applied sciences staff participated in RDI activities, around 4,100 people in total. The people who participated in the activities are staff who work primarily in RDI or teaching.

## PARTNERSHIPS

Finnish universities of applied sciences implement their RDI activities together with companies and working life, other higher education institutions and research centres, public development organisations as well as actors from the third sector. In 2017, the RDI activities of universities of applied sciences included over 13,000 partners, over half of which were companies. This number of partners is increased by various research and expertise-based clusters that Finnish universities of applied sciences are actively involved in.

## STUDENT PARTICIPATION

The RDI activities of universities of applied sciences are characterised by the participation of students as part of their studies, practical on-the-job training and final projects. Out of all the credits accrued by basic degree students, 15 per cent were earned in studies that were related to RDI activities. Students who participate in project activities are provided with the opportunity to increase their professional competence and learn the skills necessary for working life. Student participation increases their expertise and readiness to act in development-oriented tasks in working life.

## VERSATILE INNOVATION ACTIVITIES

During the last few years, Finnish universities of applied sciences have studied for example inter-EU waste transportation crime, automated bus traffic operations and the utilisation of secondary agricultural bio flows as a source of food for edible crickets.

Universities of applied sciences are participating in the development of new products, services and operating methods for working life. Some examples of the new products developed in these RDI activities include underground shelters in mines, mobile games that help teach English and mathematics in Brazil as well as technological solutions that affect sensory perceptions and that can be used to enrich restaurant and tourism-related experiences.

Universities of applied sciences have created societal services such as an operating model for communal dining for senior citizens, a rescue and location signal system that is set to be deployed in every outdoor fitness trail across Finland, as well as a virtual dentist's waiting room that can be utilised by customers, employees and dental students in various different ways.

Research, development and innovation activities have also begun to increasingly feature the development of expertise, where universities of applied sciences create new models and tools that can be used in educational and expertise-related development activities at the workplace. The themes that are most often represented in these activities include entrepreneurship, sales and export skills, digitalisation, social and health service reform and occupational safety.

Universities of applied sciences have helped facilitate changes of ownership in SMEs, supported the internationalisation of Finnish online stores, implemented a series of lectures and hackathons that have helped increase the expertise of different actors in the social and health care industry, and developed educational tools that utilise gamification and simulators.

Universities of applied sciences participate in the activities of regional and national research and expertise clusters, the most typical of which are ecosystems that aim for the establishment of long-term networks and development work. These are characterised by their participants' wide-ranging collaboration and various projects and other development entities that help realise the common goals of each cluster.

Universities of applied sciences are involved in expertise clusters that focus on for example cybersecurity, 3D printing, robotics and precision technology.

Universities of applied sciences inhabit many roles in research and expertise clusters. They conduct development and innovation projects and provide educational and support services. As extensively networked actors, they also play an important role as matchmakers for different actors. New partnerships enhance the RDI activities conducted in expertise clusters and enable the deployment and dissemination of their results at the regional, national and international level.

RDI activities are intrinsically linked to the research, development, simulation, laboratory and digital environments employed by Finnish universities of applied sciences. Universities of applied sciences both provide their operating environments for the use of expertise clusters and utilise them when offering their service design and testing services expertise to support the innovation processes of their partners.