



**Good Practices on Regional Research and
Innovation Strategies for Smart Specialisation**
BioMediTech

Tampere Region, Finland
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1 Basic Data of the Practice

1.1 Title of the practice

BioMediTech

BioMediTech is a joint institute of Tampere University of Technology and University of Tampere which brings together a powerful mix of multidisciplinary expertise in life sciences and medical technology.

1.2 Precise theme/issue/policy tackled by the practice

- Clusters
- Innovation friendly business environments for SMEs
- Research infrastructures, centers of competence and science parks
- Universities
- Digital Agenda for Europe
- Key enabling technologies
- Cultural and creative industries
- Internationalisation
- Financial engineering instruments
- Innovative public procurement
- Green growth
- Social innovation

Process of regional change initiated:

- transition
- modernisation
- diversification
- radical foundation of a new domain

1.3 Geographical range of the practice

Tampere Region (between NUTS level 2 and 3)
Finland

1.4 Contact details

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1.5 Sources of information

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2 Introduction: Regional Smart Specialisation Background

The Tampere Region is considered as a knowledge hub zone in OECD categorization. The key operators in the innovation process that produce new information in Tampere are the multidisciplinary Tampere University; Tampere University of Technology, specializing in technology and architecture; VTT Technical Research Centre of Finland; research units within companies; and the multidisciplinary Tampere University of Applied Sciences. Higher Education Institutions have some 40 000 students and several Centres of Excellence in research appointed by the Academy of Finland.

Work done the Tampere way is characterized by a practical attitude to challenges. In innovation work, this manifests itself in hassle-free co-operation that crosses boundaries between scientific disciplines, fields of business, and organizational units. The innovations born in the region typically combine in-depth scientific information and competence in diverse fields to form new products, methods, and services.

Typical for regional development in the Tampere region are strategic frameworks and quite long programming periods. Cluster-based development activities started as early as in the beginning of 1990's when Finland faced the vigorous economic crisis. So called Centre of Expertise Programme (OSKE) is a national development programme implemented in the regions. In OSKE-programme, Tampere Region has strong and focused business activities and research expertise in seven different fields: biotechnology, digibusiness, energy technology, health technology, intelligent machines, nanotechnology and ubiquitous computing. These activities are based on close cooperation between various research institutions, institutes of higher education, the business community and different financing organizations.

The Tampere region has successfully profiled itself as a versatile, strong, and fast growing centre of research, development, and business in biotechnology and biosciences. This has been helped by the universities of Tampere having devoted years to perfecting research and education in the field. However, the main thrust for the development of the region into an internationally leading and attractive research and innovation environment for the biosciences has been the determined, collaborative development work carried out by the stakeholders of the region. Biosciences have been identified as one of the key fields of expertise in the Tampere region, and the region is active in the HealthBIO Biotech Competence Cluster of the national Centre of Expertise Programme.

Work for the bioscience and biotechnology expertise of the region has long been goal oriented. A high-level network of research and education provides a strong support for the businesses in the region. Through the development work, the expert competencies of the Tampere region have been strengthened and forms of synergy between stakeholders have been sought actively. The operating environment has been improved e.g. through the establishment of new ways of conducting cooperation between research units in different universities in order to benefit from cross-disciplinary collaboration and thus from better, more unified operations. The foundation for the development work has been in part the identification of the existing strengths and specialization patterns of the region. The promotion of cross-industrial research, product development, and collaboration in the biosciences has resulted in growth, vitality, and competitiveness in this promising area of business.

Finnish research in biosciences is world-class, which is why it is only logical to apply this expertise also to the creation of new innovation and business. We are still only in early stages of the commercialization of bioscience research and the development of human wellbeing, and all the possibilities of the industry have hardly been grasped yet. Therefore, to ensure the continued advancement of the industry, resources must be secured, expertise must be developed, and collaboration networks between experts must be strengthened. Furthermore, new systems as well as new ways of thinking and doing are required. The establishment of BioMediTech in 2011 as a joint biosciences and medical technology institute of University of Tampere and Tampere University of Technology is one of the significant steps taken in deriving clinical and commercial benefits from research and innovation.

3 Description of the Practice

3.1 Executive summary

BioMediTech, a joint institute of Tampere University of Technology and University of Tampere, brings together a powerful mix of multidisciplinary expertise in life sciences and medical technology. The research units have existed already from the 1980's and early background cooperation has started early in the 21st century. The final agreement about BioMediTech between the two universities was signed in March 2011.

In BioMediTech over 250 scientists conduct research and education in the fields of cell and molecular biology, genetics, biomaterials, biosensors, computational systems, biotechnology, biomedical engineering, and regenerative medicine. The institute aims not only to integrate and strengthen the local tradition of excellence in basic life-science research and teaching, but also to create new platforms for discovery and innovation. BioMediTech conducts world-class basic and translational research in biomedicine and medical technology.

BioMediTech aims to nurture innovation and commercialization of research results via an active patenting policy, by providing expert advice to its scientists on the innovation potential of their discoveries, and by fostering spin-offs.

3.2 Key features of the practice

- A joint institute of Tampere University of Technology (TUT) and University of Tampere (UTA) which brings together a powerful mix of multidisciplinary expertise in life sciences and medical technology;
- Over 250 scientists conduct research and education in the fields of cell and molecular biology, genetics, biomaterials, biosensors, computational systems, biotechnology, biomedical engineering, and regenerative medicine;
- Pioneering discoveries and innovations in life sciences;
- Aims to create new platforms for discovery and innovation;
- Aims to increase the interest and proportion of applied science aiming to find concrete solutions to help people with medical issues.

3.3 Detailed content of the practice

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BioMediTech, a joint institute of Tampere University of Technology (TUT) and University of Tampere (UTA), brings together a powerful mix of multidisciplinary expertise in life sciences and medical technology. Over 250 scientists conduct research and education in the fields of cell and molecular biology, genetics, biomaterials, biosensors, computational systems, biotechnology, biomedical engineering, and regenerative medicine. The institute aims not only to integrate and strengthen the local tradition of excellence in basic life-science research and teaching, but also to create new platforms for discovery and innovation.

BioMediTech conducts world-class basic and translational research in biomedicine and medical technology. Its research activities cover diverse fields, including biomaterials, stem cells, cancer, immunology, biosensors, imaging, and computational methods, with a common aim of developing personalized medicine via new diagnostic and treatment methods. The groups are pioneering discoveries and innovations in many fields, such as genetic alterations in prostate cancer, gene-therapy to mitochondrial disorders, bio-absorbable implants such as screws and plates for bone fixation and cranial bone derived from patients' own fat tissue. During the last ten years the research groups of BioMediTech have produced close to 1500 publications in international peer-reviewed journals.

BioMediTech aims to nurture innovation and commercialization of research results via an active patenting policy, by providing expert advice to its scientists on the innovation potential of their discoveries, and by fostering spin-offs. During the last ten years research groups have produced nearly 100 patents and over 10 commercial spin-offs.

BioMediTech is also pioneering a unique educational environment by combining UTA-based biosciences and TUT-based technology into a single degree programme, which is planned to start in the autumn of 2012. The main objective of the new degree programme will be to educate top-level experts with multidisciplinary skills in life sciences for the demands of both academia and industry.

3.4 Bodies and stakeholders involved

The stakeholders involved in the practise are mainly University of Tampere, Tampere University of Technology, City of Tampere and Council of Tampere Region. The first two are dealing with the practise itself, the latter two have been involved at the strategic level and as financiers.

3.5 Timescale and maturity

The research units have existed already from the 1980's and early background cooperation has started early in the 21st century. The final agreement about BioMediTech between the two universities was signed in March 2011. Even though the practise is fairly recently established, it has stabilised its position in the region's innovation environment and is regarded as an important asset for the region.

3.6 Legal framework

BioMediTech does not have its own legal status, but is a joint institute of University of Tampere and Tampere University of Technology. They have a joint steering committee for all four ERDF funded innovation projects which aim to develop also the practise itself. The members of the steering committee represent the City of Tampere; Centre for Economic Development, Transport and the Environment; The Pirkanmaa Hospital District; Council of Tampere Region; and the principals of both universities involved.

3.7 Financial framework

The research is funded by the two universities themselves together with The City of Tampere, Council of Tampere Region, and research grants from national and international agencies and foundations such as the Finnish Funding Agency for Technology and Innovation (TEKES), Academy of Finland and ERDF.

It is not likely they will engage private investments in the practise in the near future as this would mean losing the research and academic status and research funding.

4 Monitoring and Evaluation

As the practise is fairly new, there is no well-established monitoring system or measurable goals set up yet. They are trying to keep their strategy flexible enough to be able to react to changes, problems etc. However, they are doing both quantitative and qualitative monitoring and evaluation, qualitative being the more important one. The effectiveness of the practise is fairly complex and somewhat difficult to measure.

Indicators used to evaluate the practise are e.g.:

- Number of national and international visitors;
- Number of applications to open vacancies;
- The amount of EU funding and requests for partnership;
- Number of granted patents; and
- Number of followers in LinkedIn.

There have been many organisations that have shown interest in this collaboration and the number of national and international visitors is increasing all the time. The number of applicants for open vacancies also measures the interest in the practise. The number of applicants is usually high and significant amount of these applicants are of foreign background.

BioMediTech has a profile in LinkedIn and the number of followers and where these followers are from and which organisations they represent is also under monitoring. At the moment 42% of the followers are Finnish, and 70% of all followers are outside their own organisation or the universities. They also keep an eye on their visibility in the media and how their own articles etc. spread out.

5 Lessons Learnt

The backgrounds and cultures of the two universities are very different. Having two different administrative backgrounds and approaches and trying to create something new which does not conflict too much with either one does make the working challenging. It is very important to have a very good level of communication between the two original organisations from the beginning and keep in mind that their needs and terminology used can be very different. The evaluation of the working environment needs to be continuous to be able to avoid conflicts as much as possible.

When creating a new organisation between existing ones, it is important to keep the period of constructing the new practise manageable and not too long. If the constructing period is too long, it is possible that other changes may affect and complicate building the new one. However, the longer period will get everyone involved more time to adjust if needed. It would also be beneficial if both original organisations were in a stable position not having any organisational changes in themselves. In the case of BioMediTech, there was an organisational change in University of Tampere in 2011 and there will be changes in Tampere University of Technology in 2013. The latter change will not likely affect the practise as much because the situation in BioMediTech is already more stable itself.

It is important to have supporting functions, e.g. patenting functions, close enough to the research projects. Having concrete support in innovation issues is extremely important for the projects as it promotes the concretisation of the results. This is also cost efficient because there is no need to buy these services from outside. If possible, it would be the best to have specialised supporting functions integrated into the projects themselves.

It is also important to believe in what you are doing and keep your own mind, not taking on board everyone willing to join along the way. Building the new practise your own ways and taking possible cooperating partners after the completion, makes it more manageable.

International cooperation has not played any role in building the practise itself, but is important from the research groups' point of view. In this field it is important to share the best practises and contacts with the international research community.