Universities of Applied Sciences as Regional Knowledge and Innovation Centres

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Introduction

An underlying assumption of research and development is the creation of innovations as the result of different parties and organisational units in a networked collaboration. The projects financed by external funding bodies therefore have many partners. The compactness and transformation of networks are favourable conditions for the creation of innovations (Burt, 2002). The utilisation of professional knowledge of working life helps the higher education institution to develop the innovative capabilities of the regional labour force.

Applied research and development of the Finnish universities of applied sciences respond to the development needs of their regions. The necessary knowledge is created in social environment as a result of efficient and multi-disciplinary activities (Freyens & Martin, 2007). The challenge facing the project manager and the personnel of the team is to create a positive atmosphere for development, which allows team members and their networks to use the knowledge to achieve the objectives of the project (Edmontson, 2003). The internal processes and structures of the institutions should also favour applied research and development.

The purpose of this study is to show that the administrators of the universities of applied sciences can successfully promote research and development with strategic management and organisational changes. This study argues that these institutions should create regional knowledge and establish innovation centres. The universities of applied sciences have closed down their branches and concentrated the activities in larger synergic units, but the central government should help institutions to build campuses where the institutions could continue their activities.

The Finnish government does not fund research and development in the universities of applied sciences, even though these institutions have a mandate to engage in applied research and development. Therefore external funding from the European Union and other national and regional sources has become essential. The internal processes and structures of the institution should support the acquisition of project funding from external bodies. An innovative element of the research and development is its integration with higher education. The students who participate in these projects benefit from learning environments and acquire better capabilities for working life.

The project plans of applied research and development are first evaluated internally. Then after the submission to funding bodies, they are externally evaluated against competitive tenders by the funding bodies before the final decision. The customer-orientation, expected valuable results and networked collaboration are important elements of the evaluation. Due to the evaluation, the projects of applied research and development nearly always provide satisfactory results. In successful cases, the explorative basic research typically produces applications only in the longer run.

Multi-field operation

Higher education institutions plan their processes and structures to support their operations and the achievement of strategic objectives. Each university of applied sciences plan its strategy for meeting the regional demand for skilled labour (Kettunen 2004a, b, 2005, 2006, 2007, 2008). Many studies emphasise that the multi-disciplinary operation and team learning are requirements for successful projects (Drucker, 1998; Dyer & Hatch, 2006; Koskinen et al., 2003; Ruuska & Vartiainen, 2005). The universities of applied sciences have a regional orientation, unlike traditional universities, which serve the entire country and humanity.

Higher education institutions are part of the Finnish national innovation system. That supports the argument that the institutions should design their internal and networked processes to promote innovations. The institutions should operate closely and networked with working life, anticipate changes and adjust their organisational structures to meet the needs of their operating environments. Korpelainen (2003) has highlighted the important role of the innovation system and pointed out that higher education institutions could also think about their organisational structures.

Since customers' needs do not typically follow a single subject, degree programme, or field of study, project teams include participants from many backgrounds. The faculties of the universities of applied sciences can be designed to promote applied research and development. The challenge for administration is to create an organisational structure which supports the regional development and adds value for customers. Multi-field faculties can be created based on the strengths of and synergies between degree programmes. In this way, each faculty represents a focus area of the institution.

The creation of new universal knowledge is an ideal of traditional science universities (Bender, 1998, OECD, 2007). The discipline-oriented structure is the best for basic research whose purpose is not to serve customers. This kind of reasoning leads to traditional departments which reflect the subjects of university. The faculties typically do not have strong shared functions to serve the region. The results of the research are published in journals, books, and other media and presented at scientific conferences in an explicit form.

Regional development is the ideal for the universities of applied sciences. Independent degree programmes have proven somewhat problematic when the institution aims to achieve external impact and to gain external income for the research and development. Multi-field operations across the faculties have shown their ability to co-operate with each other and with working life. Professional-oriented education includes plenty of tacit knowledge (Takeuchi & Nonaka, 2004) which can be shared only in close cooperation on compact campuses and in collaboration with working life.

Strategic plans and organisational change

The Turku University of Applied Sciences is located in Southwest Finland. It has 9500 students and 800 full time members of the staff. It has 35 degree programmes at the Bachelor's level and 12 at the Master's level. The institution operates in seven fields of education: arts and media; business and administration; health care and social services; natural resources and the environment; natural sciences; technology, communication and transport; and tourism, catering and hospitality management. The fields of education are not equal in size and they have not been the basis for the organisational structure.

The strategic plan of the institution for 2002 - 2005 emphasised high quality education, research and development, external impact on the region and defined the focal areas of biotechnology, information and communication technology and metal and maritime technology. The vision statement defined the intention to intensify research and development: “Research and development comprises at least 10 % of the total funding”. This vision has come true.

The institution restructured its organisation in 2004 after the renewal of the Polytechnic Act in 2003. The aim of the organisational change was make applied research and development an integral part of education and to increase the external impact of the institution on the region. The new organisation stressed the importance of multi-field education.

The Balanced Scorecard approach by Kaplan and Norton (2001) was used to communicate and implement the strategic plan and frame the organisational change. The strategic objectives of the organisational change were defined according to four perspectives:

1. Customer. The customer perspective describes the value of the organisational change created for the region and customers. The objective in this perspective was “the support of working life and regional development”.

2. Finance. The financial perspective includes the financial objectives of the organisational change. The objective of this perspective was “the economic and efficient activities”. Its aim was to achieve cost-efficient education and support services to release resources for research and development.

3. Internal processes and structures. This perspective describes the objectives that are aligned with the financial objectives in budgeting and which are necessary to achieve the objectives of the customer perspective. Four objectives were defined: “potential for new innovative products”, “structure where research and development serve education”, “multi-field activities” and “the creation of synergies.”

4. Learning. The learning perspective includes the objectives that are drivers for future performance and necessary for internal processes. The objective of this per-

spective was defined as “strengthening the capabilities of research, development and management”.

The number of faculties was reduced from ten to six. That enabled the hiring of a research and development manager for each faculty. The clear responsibility of research and development had excellent results: the volume of research and development and the number of publications increased markedly following the organisational change.

The strategic plan of the institution approved for 2005 - 2009 emphasised the focus and external impact of the institution on the region, quality and cost efficiency, research and development, educational development and entrepreneurship. These concise strategic themes allow management to perceive and communicate all the essential elements of the strategic plan.

The strategic plan for 2010 - 2013 defined strategic themes as the innovation pedagogy and lifelong learning, structural changes to promote growth and regional development, international education and research and development, internationally recognised knowledge, partnerships to strengthen external funding, activities targeted to meet the needs of Southwest Finland, research and development to support the regional innovation system.

Organisation to promote innovations

The Turku University of Applied Sciences has a strong regional orientation. There are nearly 300 people on its 26 advisory boards which are used to develop education. The activities of the institution have focused on meeting regional needs. The results show that the institution has been successful, because about 75 % of the graduates become employed in Southwest Finland. This figure is clearly higher than the corresponding figures of the other higher education institutions in the region.

The faculties of the Turku University of Applied Sciences are:

- Life Sciences and Business
- Technology, Environment and Business
- Telecommunication and e-Business
- Well-being Services
- Arts Academy

- Health Care

The centralised functions of the institution provide support services, guidance and co-ordination for the faculties.

Life Sciences and Business, Technology, Environment and Business, Telecommunication and e-Business and Well-being Services are multi-field faculties which include degree programmes from many fields of education. They often combine technology and business in several synergic forms to create focal areas of knowledge. Arts Academy and Health Care are the only single-field faculties. The empirical results by Hautala, Kantola and Kettunen (2009) indicate that multi-field faculties are better able to promote the multi-field and innovative projects.

The profile of the Turku University of Applied Sciences was defined in the 2010 – 2013 strategic plan. The profile of the institution is the innovation pedagogy based on multi-field education, where entrepreneurship, applied research and development and international activities are combined with education to support the innovations created in the working places in Southwest Finland. These focus areas represented by the synergic multi-field faculties specify the profile of the institution.

Figure 2 depicts the volume of applied research and development at the Turku University of Applied Sciences in 2000-2009. The external income increased remarkably after the organisational change in 2004. This supports the argument that the renewal of the Act in 2003, the strategic plans and the organisational restructuring strongly increased the volume of research and development. During the last year the profitability of research and development increased. External income is expected to increase in the future.

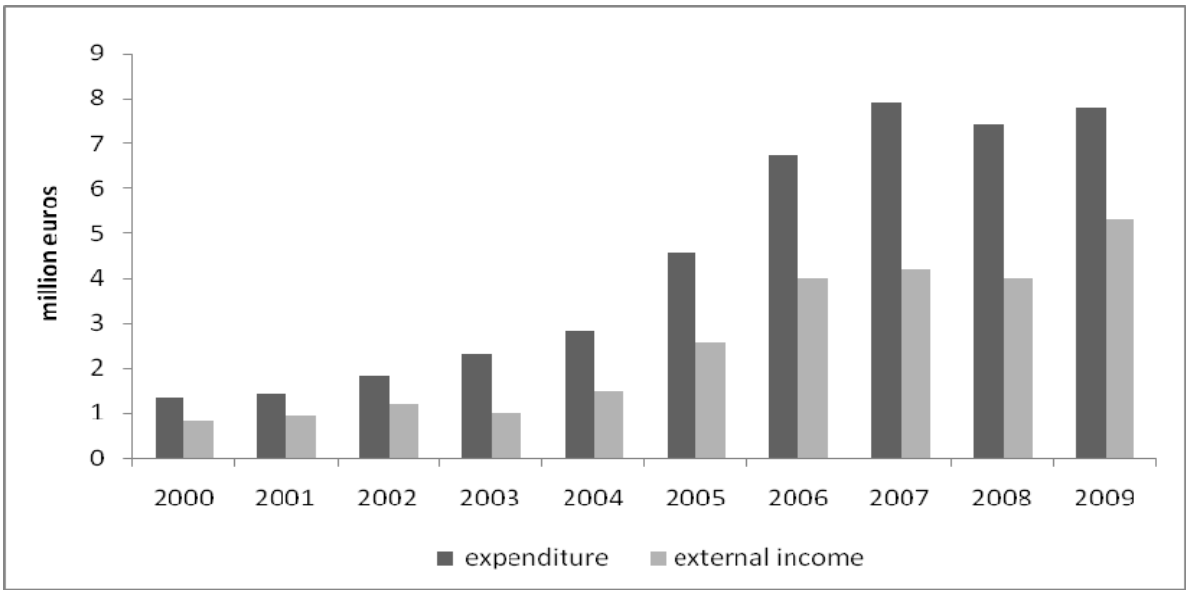

Figure 2. The expenditure and external income of research and development at the Turku University of Applied Sciences

Figure 3 depicts the funding of applied research and development of the Finnish universities of applied sciences in 2008. The external funding of research and development at the Turku University of Applied Sciences is the highest, but the Laurea University of Applied Sciences spends the highest amount of internal resources for research and development. The internal funding is high in locations which have competing traditional science universities. On the other hand, especially the internal funding of Kymeenlaakso, Kajaani, Keski-Pohjanmaa, Kemi-Tornio, Mikkeli and HAMK is small, because they do not have competing science universities.

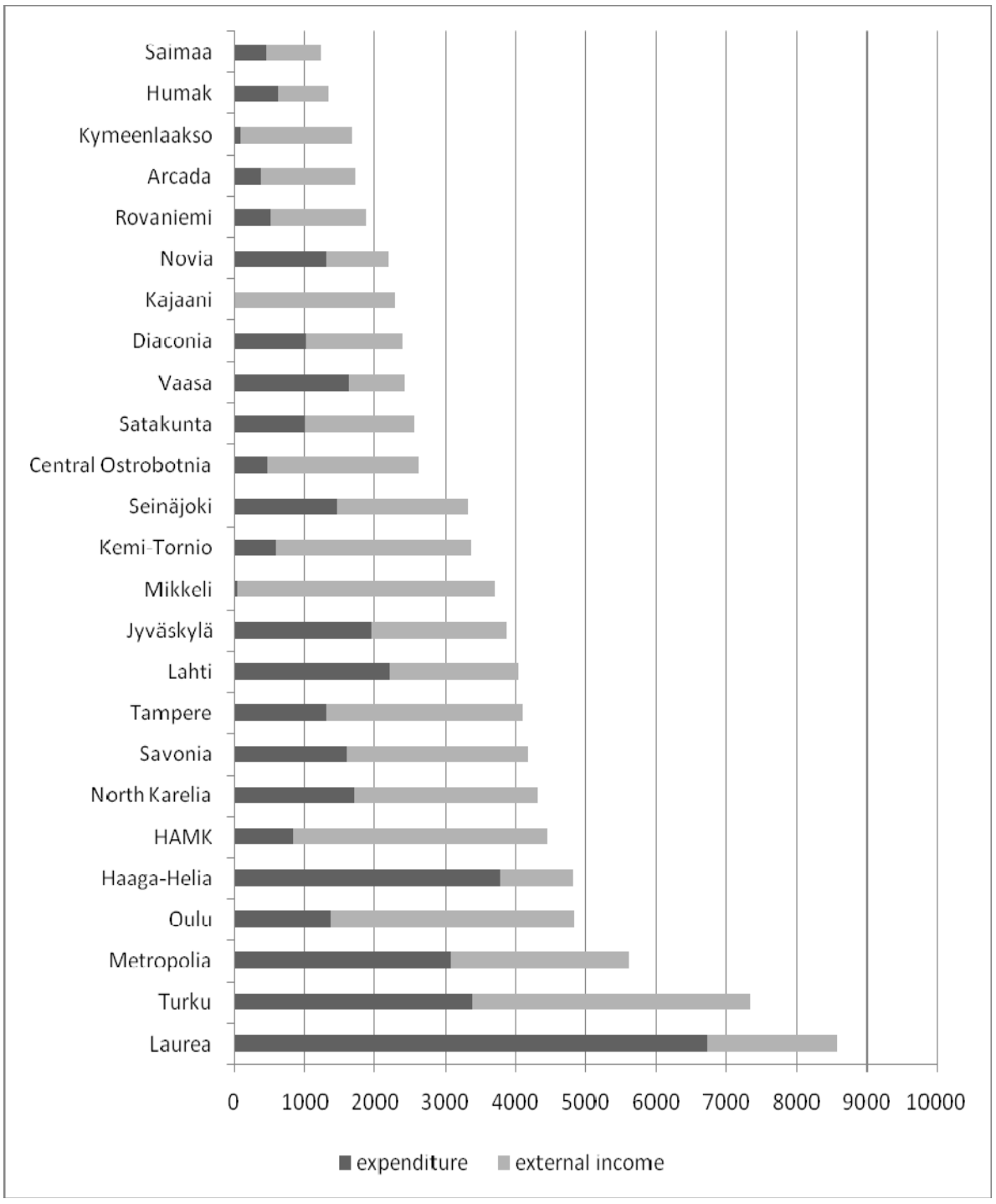

Figure 3. The funding of research and development of Finnish universities of applied sciences in 2008 (1000 euro)

Concluding remarks

The regional concentration of resources to promote customer-oriented and multi-field co-operation provides an excellent platform for innovations. The results from the Turku University of Applied Sciences support the argument that the multi-field faculties are

suitable for promoting regional value added and the external funding of an institution. Another finding of the study is that the hiring of a research and development manager for each faculty was an excellent decision.

Most of the Finnish universities of applied sciences are still in the situation where their activities are carried at separate campus locations even though branches have been closed down and consolidated into larger units. There are still great challenges in larger towns to cluster their activities on major campuses. The education policy has not so far encouraged or supported the building of campuses. The building of campuses is extremely important and should be funded by the central government, because the campuses support the sharing of tacit knowledge and the creation of innovations.

Finland has competing networked approaches to support the innovations. There are six Finnish Strategic Centres for Science, Technology and Innovation to create the world-class expertise to collaborate in research and development (Strategisen huippuosaamisen keskittymät). The aim of these centres is to deepen the cooperation among companies, universities and research institutes in top-quality research. A similar approach has been adopted by the Centre of Expertise Programme (Osaamiskeskukset). An obvious outcome of these approaches is to share only explicit knowledge. Even that is not possible in many cases due to the protection of the intellectual property. On the other hand, the regional knowledge and innovation centres enable the successful sharing of professional tacit knowledge.

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