

Ilkka Väänänen (ed.)

Research, Development and Innovation Activities at Lahti University of Applied Sciences

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LAHDEN AMMATTIKORKEAKOULU
Lahti University of Applied Sciences

Ilkka Väänänen (ed.)

**Research, Development
and Innovation Activities at
Lahti University of Applied Sciences**

The publication series of Lahti University of Applied Sciences

A Research reports

B Study material

C Articles, reports and other current publications

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Series C Articles, reports and other current publications, part 103

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Foreword

This publication creates an up-to-date and coherent picture of the research, development and innovation activities at Lahti University of Applied Sciences. It is produced as part of the evaluation material for the FINHEEC international evaluation of RDI activities at the Finnish Universities of Applied Sciences in 2012.

The context is divided into four sections. The first section describes the strategic background for RDI at LUAS. The definition of RDI is discussed as well as the links between the LUAS RDI strategy and external strategies. Also the role of RDI activities of UASS is explained as one of the central elements in the Finnish innovation system.

In the second section there are several central questions answered concerning management of RDI activities, e.g. the organization, leadership and administration of RDI activities as well as allocation of resources and staffing policy for RDI function.

The third section concentrates on the LUAS pedagogical solution and connections in RDI activities. Especially the role of the student in RDI activities is discussed from diverse perspectives, such as the nature of student participation and student involvement in RDI activities. Also the integration of RDI into students' learning processes is briefly described.

The fourth section is about the quality and impact of RDI at LUAS. There are short descriptions of the formal systems for internal and external evaluation of RDI activities as well as qualitative and quantitative results in a nutshell.

This publication will certainly create further discussion and enhance RDI development activities at LUAS. I would like to thank most warmly all the writers and data producers of this publication.

Outi Kallioinen

president

Ph.D., adjunct professor



STRATEGIC BACKGROUND FOR RDI

1. The definition of RDI at LUAS and its relation to the task stated in the Polytechnics Act

The mission of universities of applied sciences in Finland is to provide higher education instruction based on the requirements of working life and its development, and on research and artistic premises in preparation for professional expert tasks. In addition, the universities of applied sciences must support individual professional growth and the practice of research and development, which serves in university education as well as supporting working life and regional development, and applied research and development work that takes into account the structure of industry in the region (University of Applied Sciences Act 9.5.2003/351). In addressing this challenge, Lahti University of Applied Sciences (LUAS) carries out sustainable applied research, development and innovation (RDI) that is in tight collaboration with working life, supports regional development, and takes into account the structure of regional industry, and reaches high European and international standards.

At LUAS we have defined R&D according to the OECD's Proposed Standard Practice for Surveys on Research and Experimental Development (Frascati Manual 2002) as the following: "R&D comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications." The term R&D covers three activities: basic research, applied research and experimental development, including innovations. Basic research is experimental or theoretical work primarily undertaken to acquire new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view. Applied research is also original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective. Experimental development refers to systematic work, drawing on existing knowledge gained from research and/or practical experience, which is directed to producing new materials, products or devices, to installing new processes, systems and services, to innovations, or to substantially improving those already produced or installed. Four types of innovation can be identified: product innovation, process innovation, marketing innovation and organisational innovation. These innovations can be new to the firm/educational institution, new to the market/sector or new to the world. Our innovations are more based on open demand and user-driven doing, using, interacting (DUI) methods than science and technology (STI). In R&D applied research at LUAS, experimental development and innovations are the major activities and basic research has a minor role.

The goal of all LUAS operations, including RDI activities, is to increase the region's know-how and advance the development of individuals, culture, working life, and other societal factors in a changing and multifaceted operations environment. The support of small and mid-sized industry and service production, especially in traditional fields that undertake little or no research and development of their own, is emphasized in the RDI activities.

The central concepts of our RDI activities are efficacy, productivity and quality. The operational aim is to operate economically and with quality as a local and internationally known educational RDI institution, whose operations advance regional development.

LUAS is multidisciplinary higher education institution located in the city of Lahti in the southern part of Finland. There are 5 300 students aiming at the BSc or MSc level and 260 full-time teaching staff (including 30 with PhDs). The turnover is approximately 40 million euros. It is the largest institute of higher education in the region, and its share of the RDI contribution from the region's HEIs is over a half. LUAS is particularly recognized for its design and environmental know-how. Its goal is to develop the region's working life, entrepreneurship and regional learning and innovation environment and advance individual and the environmental well-being and internationalism in Päijät-Häme. The RDI activities have been profiled for three multidisciplinary foci, which are design, the environment, and user-driven innovations.

Our RDI comprises applied research and development leaning with a research orientation that targets innovations advancing industries and cultural life in Päijät-Häme and supports good learning. It aims at a systematic increase in knowledge and the use of knowledge to find new applications. The goal of RDI activities is to reach for something essentially new. At LUAS, RDI activities are combined with other basic tasks, such as higher education instruction. With this approach we counter the practical problems and challenges arising from working life. Otherwise, the features of RDI activities, such as their combination with other research activities, funding through separate research allocation funds, and the essential novelty value and wider publication of results are in line with the general features of research activities.

In applied research, the goal is to realize practical applications through new knowledge. We can strive, for example, to find applications for the results from basic research or create new methods and ways to solve a particular problem. By development work (product and process development) we mean using knowledge derived from research results and/or practical experience to realize new products, services, production processes or methods, or essentially improve existing ones. For example, the planning, construction and related design of prototypes or models are considered as RDI activities as long as the goal is the essential improvement of the product/service or production process. The following are not among our RDI activities, unless they are a part of a larger RDI project: developing the unit's administration and organization, education, the search for and transfer and receipt of scientific information, applicability and profitability reports, routine experimentation, verification, testing and quality control activities, the formulation and administration of standards, the formulation of forecasts, the acquisition of immaterial rights (e.g. patents, licenses), Internet applications (e.g. websites) without the development of a new product of service, system design, programming and web applications that are related to the production or administration of an information system. Method development that is connected with these operations is, however, part of our RDI activities.



KESKUS
KORTTELI

OPTIKKI

SAINT COLLEGE
STORE

← 12 TAMPERE
← LINJA-AUTOASEMA

↑ 24 JYVÄSKYLÄ
↑ SIBELIUSTALO

↑ 24 MIKKELI
→ 12 KOUVOLA
→ YLIOPISTOKESKUS

2. The links between the RDI strategy of LUAS and external strategies

Our RDI strategy is based on the innovation-promoting Blue Ocean Strategy (see Kim & Mauborgne, 2005). The direction is clear and it is closely linked to both the EU's and Finland's National Innovation Strategy. The improvement of regional productivity and pioneering innovation are our leading goals. The national strategy of Finland is based, to a great extent, on research, innovation and success in key policy areas: education, science, technology and innovation. The main principles in this development are the prioritisation of operations, national and international profile-building and selective decision-making based on foresight. Our strategic RDI vision is to increase the region's innovation ability, especially when it is seen as cooperation supporting the region's innovation policy, which will lead to strategic and regional alliances having a strong impact.

The connection with regional strategies is very direct. Our RDI strategy accomplishes the three same areas of strategic focus as Lahti region's competitiveness and trade strategy 2009–2015, and our RDI strategy is based on the goals presented in the Lahti urban region innovation environment development strategy, which seeks to make the region Finland's best practical innovation operations region and Finland's best region in public sector productivity and innovation.

Our role in knowledge transfer and the nature of co-operation between LUAS and regional universities has been described in the Lahti urban region innovation environment development strategy.

We focus on the new wider innovation environment, in which central concepts include related variety, user-driven innovation, creativity, communication, knowledge creation, expertise, and interaction between practice and science. Practice-based innovation processes are triggered by problem-setting in a practical context and conducted in non-linear processes utilising scientific and practical knowledge production and creation in cross-disciplinary innovation networks.

3. The role of RDI activities of the UAS sector as a whole within the national RDI system

The Finnish innovation system consists of the producers and users of knowledge and the various interactive relations between them. Central elements in the innovation system are education and training, RDI, and knowledge-intensive business. New knowledge is produced by higher education, research institutions and business, among others. Universities of Applied Sciences are located all over Finland, and the majority of them are multidisciplinary institutes. In the UAS sector, the biggest difference compared to research at academic universities is the premise and execution of operations. Our RDI starts from the standpoint of regional influence and is very close to working life, unlike substance/academic fields. Its premise is societal and cooperative, not individual action. Its goal is first and foremost to develop the region, not the scientific meritousness of the actor or research for research's sake. As distinguished from the traditional mode-1 type of knowledge production, which is investigator-initiated and discipline-based, mode-2 type knowledge production is problem-focused and multidisciplinary (Gibbons et al. 1994). The goal of knowledge production is shared and mutual in the UAS sector. RDI activities of the UAS sector complete the national RDI system. In addition, LUAS promotes and diffuses innovations by working together with local partners, such as public organizations and especially small and medium-sized enterprises. Our RDI comprises multidisciplinary problem solving with the commitment of external agencies and very clear user orientation. There is economic, cultural or social relevance in participation.

The basic elements in RDI-integrated learning are based on the vision and the mission of the Universities of Applied Sciences, the challenges of the region, and the disciplines faced today and in the future. RDI-integrated learning combines knowledge, skills and attitudes. It facilitates working life orientation and student-centeredness in curricula.

The UAS sector is interested in practical working-life issues and entrepreneurial objectives more than simply science and technology-based research. In particular, we are an essential actor in the regional innovation system that links different sectors and orchestrates developing networks. We are key partners of the Finnish innovation system with people and the private and public sectors. Our role is very important in the transfer of science-based knowledge and its practical application.





MANAGEMENT OF RDI ACTIVITIES

4. The organisation of RDI activities at LUAS, including the organisational structure of RDI activities

LUAS is governed by a board, the chairman of which is the president. At LUAS there are two vice presidents (one in the Welfare sector and one in the Business and Culture sector). The organisation of LUAS is illustrated in Figure 1.

RDI activities have been organized within the two sectors and in degree programmes, and in 2004 we established a specialized RDI assistance and service unit: the Innovation Centre. This leads, coordinates and develops RDI at LUAS and the promotion of entrepreneurship. For example, the Finnish Entrepreneurship and Innovation Network for Higher Education (FINPIN) is run by LUAS and administered by the Innovation Centre.

The director of the Innovation Centre is the research director's supervisor, and there are three research manager positions in LUAS, one for each sector (Welfare, Business and Culture, the Innovation Centre). RDI principal lecturers (n=6) work in degree programmes. The director of the Innovation Centre is a member of the LUAS steering group and the research director is the chairman of the RDI team, which consists of RDI managers, the head of project services, RDI principal lecturers, the manager of the development of international activities, the director of sustainable development / quality and assessment and the manager of the development of learning. The president, the director of the Innovation Centre, an information specialist and an assistant from the communication and marketing services are also members of the RDI team. In addition, there are RDI teams in faculties. The organisation of RDI teams is described in Figure 2.

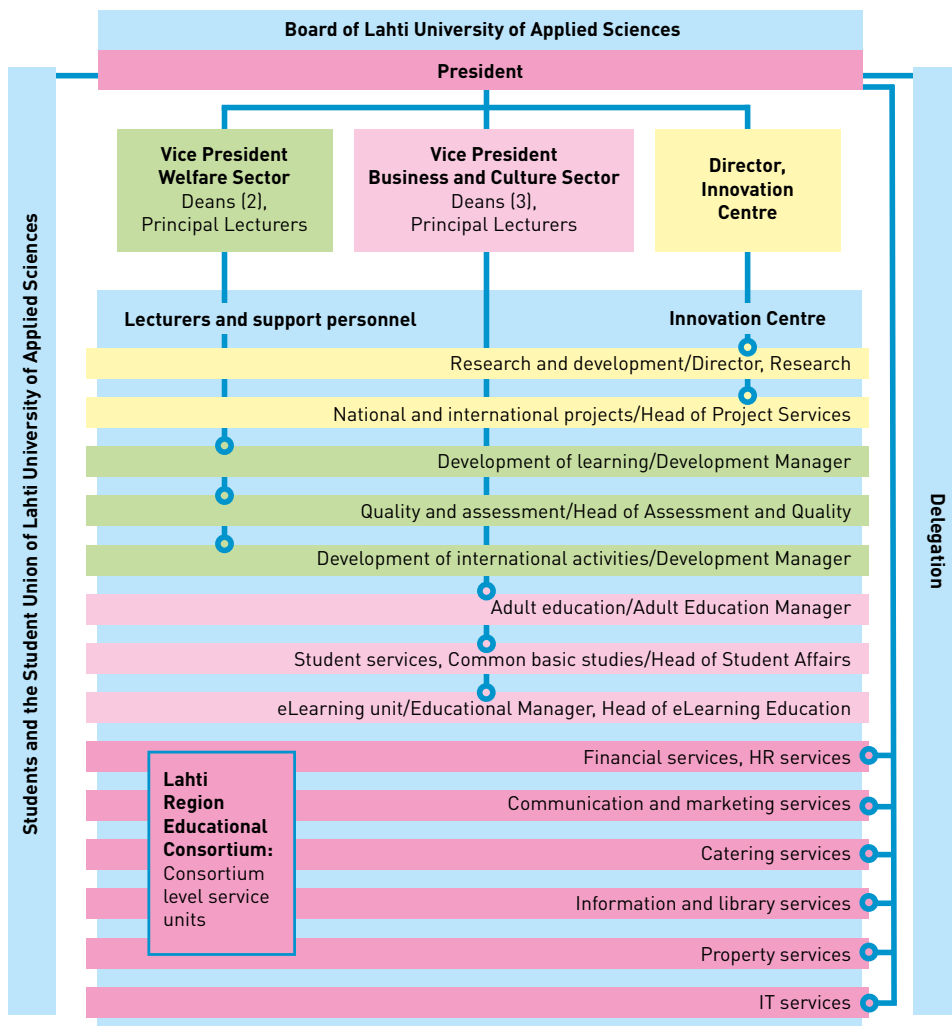


Figure 1. The organization of LUAS (Lahti University of Applied Sciences)

Half of the RDI projects are led and run by project managers working within the degree programmes and the rest by the Innovation Centre. Most of the projects aim to develop the know-how and skills of staff in companies, or education. The project categories include business development, competitiveness and internationalisation and establishment in new markets areas, entrepreneurship and business succession, tourism development, anticipating future needs of the labour force and education, and promoting RDI activities and education in disciplinary fields. They all are integrated with higher education instruction.

The basis for the RDI strategy of Lahti University of Applied Sciences comprises the values (trust, openness, customer orientation, respecting other people, innovation) that guide all our operations. We are committed in RDI activities to following research ethics guidelines drawn up by the National Advisory Board on Research Ethics. LUAS is part of the Lahti Region Educational Consortium and we have a collective Project Manual for RDI actions. This includes our main institutional rules and regulations (e.g. rights and responsibilities) with respect to the organisation of RDI. In addition, we have described our RDI processes that will be followed by RDI actors.



Figure 2. The LUAS (Lahti University of Applied Sciences) RDI teams

5. The leadership and administration of RDI activities at LUAS

The RDI activities are based on the LUAS RDI strategy, which has been accepted by the LUAS steering group. During the annual resource planning process, the degree programmes set their functional and quantitative goals from four standpoints (customer, process, personnel and finances) on a balanced scorecard to fulfil, for instance, the LUAS RDI goals.

The director of the Innovation Centre is responsible for the strategic management and steering of LUAS RDI and the research director is responsible for operational management of LUAS RDI, e.g. evaluation and development.

Our RDI activities and educational instruction are based on R&D-integrated pedagogy, e.g. the learning-by-innovating framework, where knowledge is a process of construction in which partners negotiate meanings and build knowledge together within a social context. RDI subjects work and innovate together as equal partners in an innovative ecosystem. This type of rewarding community of knowledge production includes more creativity, flow and spontaneous buzz than rules, order and linear processes. Leadership is shared. RDI projects are managed by project managers under the dean or the project director. They are supervised by the project's steering group, which includes members from different stakeholder groups.

The Project Services of LUAS have been established at the Innovation Centre, from where the unit provides a variety of RDI project-related services throughout the University and throughout the whole project cycle. The most important focus groups are university staff members working with publicly funded, such as EU-funded, RDI projects. The main goals of Project Services are: (1) to ensure the technical and administrative quality of projects, (2) risk management of the organization's project management, (3) efficient use of project resources and (4) management of centralized R&D project information in the organization.

Project Services is a group of 14 persons with the Head of Project Services as the superior. She is also responsible for the project operations processes of the organization. The services of the unit include increasing overall project management skills and know-how on EU funding through internal training and personal support. Technical support on the external promotion of RDI activities is also provided. Some of the services are targeted at the organization's top management (e.g. financial, general and thematic information, RDI statistics) and also at external co-operation networks and public authorities.



6. The allocation of resources with respect to RDI activities at LUAS

The allocation of resources for RDI activities is a part of the budget process of LUAS. RDI project funding provided by the Ministry of Education and Culture is (re)allocated to the Innovation Centre, the coordinator of which coordinates RDI activities at LUAS. This funding, combined with the required self-financing contribution, is directed to RDI support activities, such as the provision of project services, development of RDI and project competence, employment of the Research Director and research managers, preparation process and self-financing contributions of projects.

All fields of study at LUAS earmark a specified amount of their core funding for RDI activities. This money is allocated to wages for RDI activities via work/ timetable scheduling of teaching staff, and to the self-financing contributions of RDI projects. Currently, there is no incentive system for RDI activities at LUAS.

The project procedures follow the LUAS project process and guidelines for project consortium activities. The process and the guidelines are structured according Project Cycle Management, including all stages from identification to evaluation. In addition to these overall guidelines and instructions, several more specific guidelines support project management and the acquisition of external funding. These include numerous example forms and instructions for completing them such as the Project Idea form, the guidebook on LUAS internal project work, and internal technical evaluation procedures and forms. All the supporting publications, instructions, processes and guidelines are available for all staff members in the consortium intranet system.

The Project Services Unit also provides a regular newsletter including information on the upcoming Open Calls. The Unit additionally organises a few events each year presenting new funding calls and networking project ideas for staff members.

7. The staffing policy with respect to RDI activities at LUAS

In recruitment, the requirements for degree and work experience are determined on the basis of the duties and position applied for. The research director and research managers are expected to have a postgraduate education and applied work experience or demonstration of competence in RDI activities in the particular field of study. Other working life experience is considered an advantage. RDI project managers are required to have an academic degree (preferably a Master's degree). However, some project managers with upper secondary level qualifications have been recruited, in cases where work experience and skills were especially appropriate and the person was completing an academic degree. Competence in project management is extremely important as regards all persons in charge of the implementation of a project. RDI competence is also considered an advantage in the recruitment of teaching staff.

The development of RDI competence is a part of competence development among LUAS personnel. Planned development of competence is included in the performance appraisal process of LUAS. Both the employee and superior compile a development plan, the realisation of which is jointly monitored.

The number of the institutional academic staff members who have an RDI-related function has only been between 12 and 15 during 2008 and 2009.





PEDAGOGICAL SOLUTIONS AND CONNECTIONS IN RDI ACTIVITIES

8. The nature of student participation in RDI activities of LUAS

Our pedagogical strategy is based on an integrated pedagogy that utilizes learning by exploring and combines various sub-sections of knowledge and expertise. The sub-sections are conceptual and practical knowledge. The outcome is the development of self-regulation of student performance. Furthermore, focal points of the strategy include counseling, developing assessment, and organizing flexible and authentic learning environments. Learning emphasizes both the learning of individuals within communities and the learning of communities.

The basic elements of RDI-integrated learning are represented in Figure 3. After setting the aims, the working and study methods are selected, followed by the different outcomes, which represent the increased know-how of the region. This facilitates working life orientation and student-centeredness in the curricula. Therefore, it is highly challenging and motivating at the same time. This new type of studying and learning model implies a transfer from teaching to learning. The guiding principle in teaching and learning is competence-driven. In addition, learning environments such as RDI projects that facilitate student participation are encouraged. Furthermore, the RDI-integrated learning model challenges lecturers to develop their RDI project skills and skills to supervise students in conducting the projects.

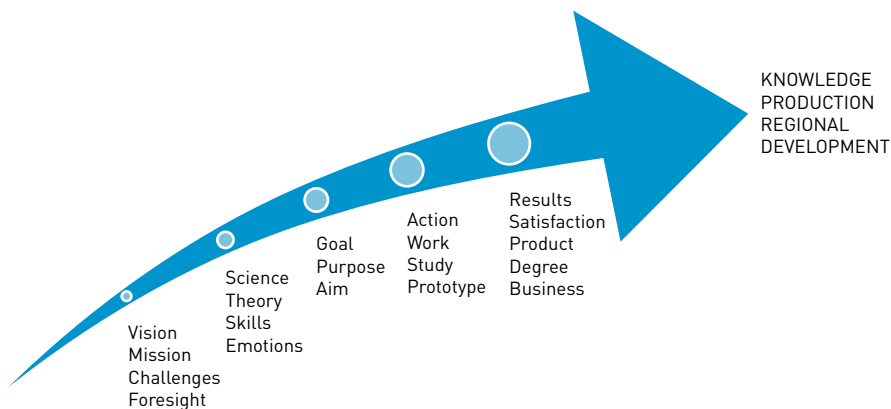


Figure 3. The basic elements in the RDI-integrated learning (Väänänen & Laitinen-Väänänen 2011)

Furthermore, we have developed the student-driven Network and Innovation Integrated Learning model (NIL), where students work and innovate as an equal partner in an innovative ecosystem, with diverse partners such as higher education institutions, businesses and the public sector. Previously, we offered separate learning environments for theoretical and practical studies. Today, we have bridged this gap and enhanced the interface between education and workplaces. Study modules such as internships and projects have been seen as forums for this type of encounter. Participation in RDI activities offers students a chance to step outside their studies and into real life to meet potential employers and clients. At best, students have the opportunity to participate in RDI projects so that they may integrate theoretical and practical knowledge, test ideas, work together on specific problems and contribute to the mode-2 type of labeled knowledge production in multidisciplinary teams and in authentic learning environments.

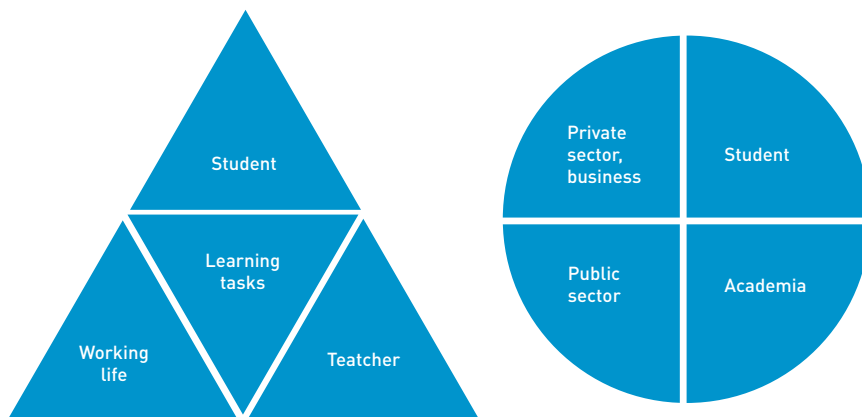


Figure 4. The traditional “Student and Learning task centric” (left) and the new “Network and Innovation Integrated Learning” (right) models (Väänänen & Laitinen-Väänänen 2011)

9. RDI activities without student involvement

At LUAS, all RDI activities are either directly or indirectly engaged with students. The student's role is included in the description of the RDI processes, and RDI competence is one of the generic competences of LUAS graduates. The RDI activities of students build competences for varying circumstances. In these situations, students are required to search data, experiment and test the utility of new practices, processes, products and services. RDI activities at LUAS are characteristic of each professional area. The goals are increasing collaboration with different partners locally, nationally and internationally, and more practical experience of authentic working life. The main types of learning RDI activities include project work in authentic working places, the organization of seminars, conducting research projects and writing theses. Productions and music/dance theater/art exhibitions are characteristic of the cultural professions.

The aim of RDI activities is founded on curriculum-based learning outcomes. Hence, RDI activities are tightly integrated into the study units. Occasionally there are challenges in integrating working life projects into learning processes due to the different mode of action in universities and other organizations (e.g. time schedules).

10. The nature of co-operation between LUAS and research universities

The nature of co-operation between LUAS and the universities operating in the region has been described in the development strategy for the Lahti urban region innovation environment, and we have a cooperation agreement with Lahti University Consortium. The Consortium consists of seven units representing three Finnish universities: Aalto University School of Engineering, Lahti Center; University of Helsinki, Open University, Lahti; University of Helsinki, Palmenia Center for Research and Continuing Education; University of Helsinki, Department Environmental Sciences; Lappeenranta University of Technology, Lahti School of Innovation; Lahti Science Library, and the Coordination Unit of Lahti University Consortium.

Co-operation is most intensive in the fields of strategic focus: design, the environment and user-driven innovations. There is also a strong tradition of co-operation in the health sciences. The most common form of co-operation is an RDI project partnership; additionally, we co-arrange several events, seminars and congresses, e.g. the EU Researcher's Night and Lahti Science Day. International RDI co-operation at LUAS is focused on project activities: LUAS is a coordinator or partner in several EU-funded projects on regional development. The project consortia include universities and research units in Estonia, Sweden, Poland, Ireland, Spain, Austria, and the UK. The projects are focusing on topics such as innovations, structural change, foresight, service design, entrepreneurship, technology and the environment.

11. The nature of the co-operation of LUAS with private and public sector stakeholders in RDI

The most significant partners (of cooperation) are determined in the LUAS strategy. Finnish Universities of Applied Sciences Federation (Häme UAS, Laurea UAS, LUAS) brings advantage to the entire operating area. This is beneficial for students as well as owners, companies, the public sector and the Helsinki metropolitan area. The broad-based federation is an influential operator also in the context of national policy preparation (FUAS Strategy 2011–2015, p. 28). The strategic intent of FUAS for 2020 is an internationally respected federation of independent higher education institutions that strengthens the international competitiveness of the Helsinki metropolitan area, offering all the higher education, research and regional development functions required by the metropolitan area's industry, commerce and population (FUAS Strategy 2011–2015, p. 34). The educational profile of is focused on being an international pioneer in workplaceoriented pedagogical solutions integrated into RDI (FUAS Strategy 2011–2015, p. 35).

In cooperation with domestic and international operators, FUAS generates partial solutions for major global challenges. It addresses global challenges by forming multidisciplinary RDI consortiums and high quality degree programmes that merge creatively FUAS focus areas, which are Ensuring welfare, Technological competence and entrepreneurship, Societal security and integrity, and Environment and energy efficiency (FUAS Strategy 2011–2015, pp. 36–37).

In 2011–2015, FUAS RDI will be targeting its strategic measures. FUAS significantly fortifies international, practical RDI, which also generates new, internationally competitive content for education. FUAS is an engine for renewing the foundations of the innovation system in the wider metropolitan area, emphasising the joining of forces in the merge of research, innovation and practical development. RDI of FUAS is closely linked to EU-level R&D programmes, increasing and diversifying the funding sources. RDI of FUAS is established on international consortia, which serve as the framework for implementing multidisciplinary joint projects that cover the entire innovation chain and are connected to authentic development environments. The RDI profile of FUAS is established on the production of partial services for global challenges. (FUAS Strategy 2011–2015, p. 43)

The nature of the RDI co-operation with private companies and communities is RDI- and student projects. With public organisations e.g. The Regional Council of Päijät-Häme we implement the Regional Development Strategy through RDI projects. The Centre for Economic Development Transport and the Environment it is financial co-operation (EU programmes) and promoting student entrepreneurship. With LAKES – Lahti Regional Development Company the nature of the RDI co-operation is RDI and student projects according to the Lahti region business strategy, and cluster development. The Lahti Region Mechatronics Cluster co-operates with us in RDI projects, business and organization development, foresight development and co-operation.

With Lahti University Consortium which includes following units: Aalto University School of Engineering, Lahti Center, University of Helsinki, Open University, Lahti, University of Helsinki, Palmenia Center for Research and Continuing Education, University of Helsinki, Department Environmental Sciences, Lappeenranta University of Technology, Lahti School of Innovation, Lahti Science Library and Coordination Unit of the Lahti University Consortium, we organize scientific events e.g. Lahti Science Day and Researcher's Day together and have co-operation with infrastructure, RDI-projects, education and support services.

Together with Lahti Science and Business Park Ltd we promote the establishment of growth companies and development in the Lahti region, and cultivate innovative activity in the area.

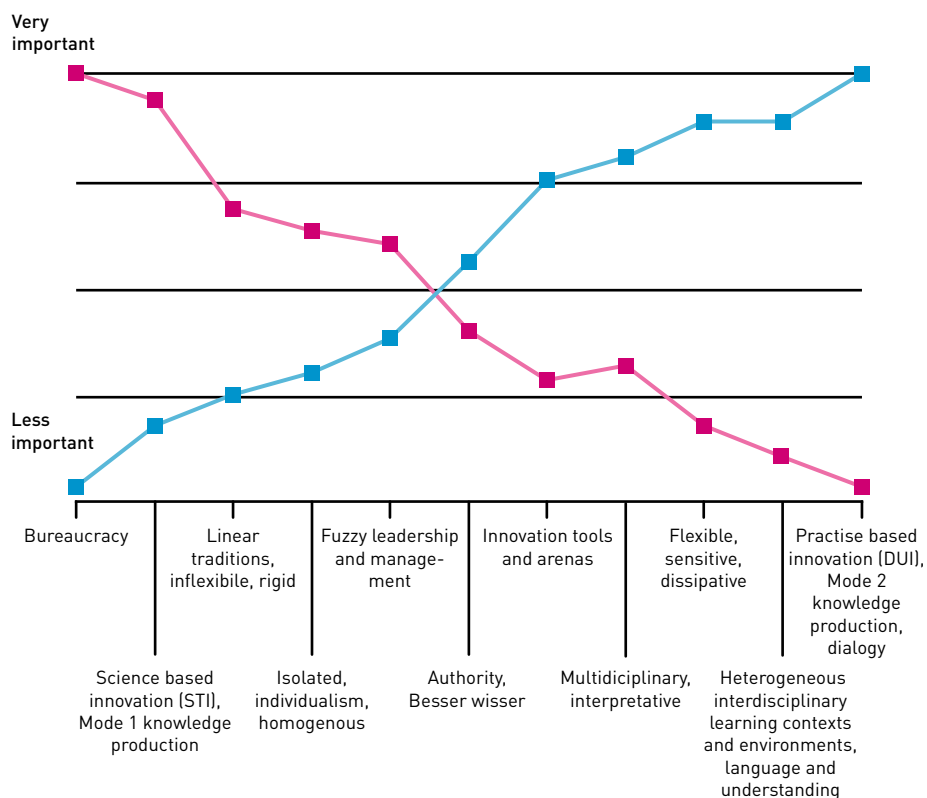


Figure 5. Old (red) and new (blue) innovation strategy profile of higher education institutes and SMEs (Väänänen 2011)

In Innobrokers project we have done the Blue Ocean Strategy profile of HE and SME (Fig. 5) with the students, teachers, researchers and SME-sector (Väänänen 2011) by answering four decisive questions: what operations are created, what are emphasized, what are reduced, and what are eliminated (Kim & Mauborgne 2005, 52).

Stakeholder	The nature of the co-operation
Private companies and communities, public organisations	<ul style="list-style-type: none"> • Research and development projects • innovation projects • student projects
The Regional Council of Päijät-Häme	<ul style="list-style-type: none"> • Implementing the Regional Development Strategy through RDI projects • financial co-operation (EU programmes)
Centre for Economic Development, Transport and the Environment	<ul style="list-style-type: none"> • Financial co-operation (EU programmes) • promoting student entrepreneurship
LAKES - Lahti Regional Development Company	<ul style="list-style-type: none"> • Research and development projects according to the Lahti region business strategy • innovation projects • student projects • cluster development
Lahti Science and Business Park Ltd	<ul style="list-style-type: none"> • Research and development projects according to the Lahti region business strategy business incubation (student entrepreneurship) • RDI project co-operation • regional innovation system development
Lahti University Consortium	<ul style="list-style-type: none"> • Research and development projects • innovation projects • student projects • researcher co-operation
Finnish Universities of Applied Sciences Consortium (HUAS, Laurea UAS, LUAS)	<ul style="list-style-type: none"> • Research and development projects • innovation projects • student projects
The Lahti Region Mechatronics Cluster	<ul style="list-style-type: none"> • Research and development projects • innovation projects • business and organization development • foresight development and co-operation

The most significant partners (of cooperation) are determined in the LUAS strategy. Each of the organisational levels and their personnel administer their partnerships according to their responsibilities. A customer relationship management system will be introduced in the spring of 2012 to facilitate stakeholder contacts.



QUALITY AND IMPACT OF RDI



12. The formal system for internally evaluating of RDI activities in LUAS

The systemic evaluation of RDI activities is carried out annually by using the Plan-Do-Check-Act model. This includes several evaluation focuses and methods. The RDI processes are evaluated by using specific formulae with the actors, while the results of RDI activities are evaluated separately and together by degree programmes, sectors and at the whole university level. The efficiency of the projects is also evaluated. The quantity of strategic goals is followed in real time and evaluated quarterly, and the quality of RDI activities is evaluated annually.



13. The external evaluation of RDI activities during the last three years, a summary of the main conclusions of the evaluation and the plans for an external evaluation within the next 12 months

LUAS was one of the first universities of applied sciences in Finland in which audits of quality assurance systems were carried out by FINHEEC in 2007. RDI activities as a part of the assurance systems were evaluated at the same time. The main conclusions of the evaluation were that as a whole, the quality assurance system is comprehensively documented and that the Quality Pyramid is a well-functioning tool to manage the documentation. Moreover, the LUAS development strategy focuses to a great extent on client and societal impacts. The balanced scorecard associated with the strategy includes versatile qualitative and quantitative measures and objective levels for the assessment of regional impacts. The current developmental stage of the LUAS quality assurance system clearly shows that the HEI strongly intends to link the information produced by the quality assurance system to other fields of management and resource planning. The only development recommendation that was presented for RDI was the following: “LUAS should develop tools to measure and follow the impacts of R&D on positive learning not only quantitatively, but also in other ways.” (Karppanen et al. 2007)

Next year (2012) we will use the same research review system as other FUAS universities (Häme and Laurea) for an external RDI evaluation.

14. Dissemination of the results of the RDI activities

In every RDI project we have a dissemination plan, which includes seminars, publications and social media. At LUAS we have three publication series (Research reports, Study material, Articles, reports and other current publications). Our staff also publish articles in many international and national journals. In addition, all the Bachelor's and Master's theses are published in an electronic library, Theseus, on the Internet, from which there have been over 400 000 downloads during the last year.

Once a year, together with the other regional universities, we arrange an EU Researcher's Night and Lahti Science Day, events where RDI results are disseminated.

15. The information that LUAS collects regularly on the external impact and quality of its RDI activities and some examples of the external appreciation of our RDI activities

During recent years we have developed a coherent working life and stakeholder feedback system. We enquire into the co-operation between universities of applied sciences and regional companies from alumni, who as former students have a very close connection with LUAS, although they currently represent the work sector. The web-based questionnaire includes structured questions concerning the content (Fig. 6) and usefulness of the co-operation, and open-ended question about the argumentation of the benefits (Fig. 7). In addition, together with the other FUAS universities (Häme and Laurea), we have ordered a stakeholder research survey from Taloustutkimus Oy, which is an independent full service market research house in Finland.

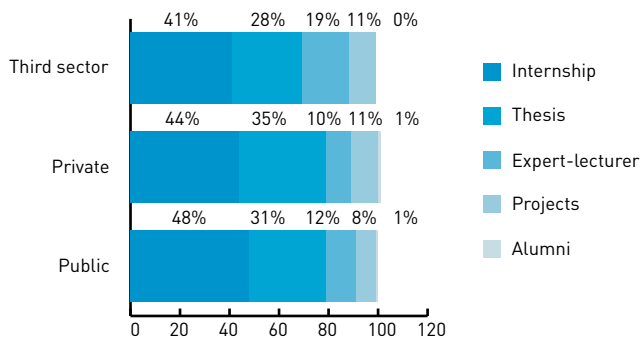


Figure 6. The content of co-operation

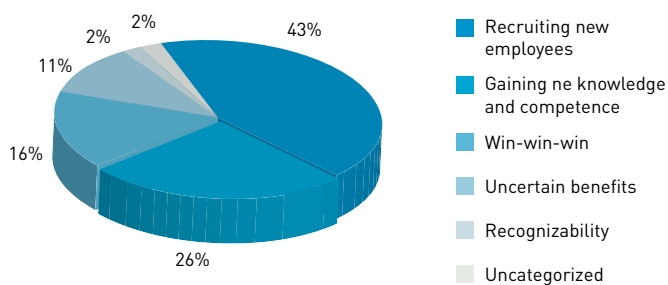


Figure 7. The argumentation of the benefits of co-operation



16. The most important results that LUAS can demonstrate with respect to its RDI activities in the last three years related to our institutional RDI objectives

The institutional RDI objectives in LUAS are to be clearly profiled, customer oriented, nationally and internationally networked and user-driven RDI activator.

During the last three years we have focused our RDI to the three multidisciplinary foci, which are design, the environment, and user-driven innovations. Our RDI volume has increased annually 22–27% and the student's participation is in very high level: over 7 credits per student per year (together 35 255 credits during year 2010).

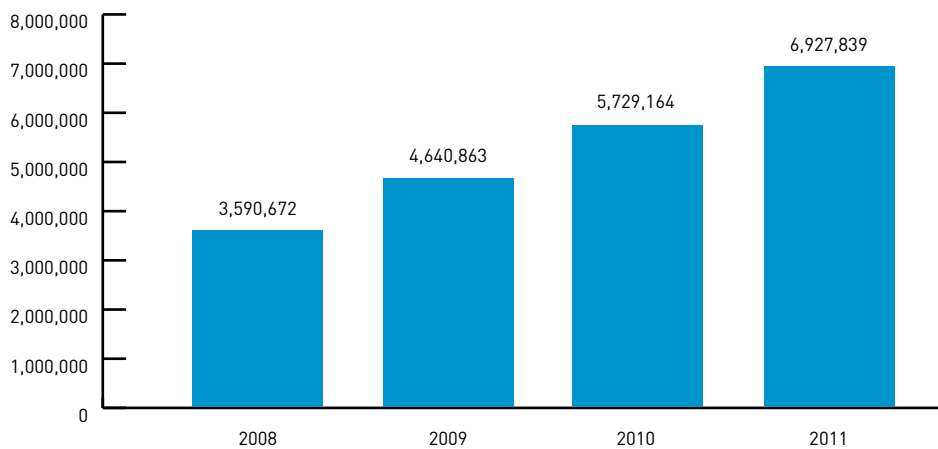


Figure 8. The LUAS RDI volume (€) 2008–2011

APPENDICES

a) RDI project example (Ice Event)

The Ice Event project aimed to utilize Finland's image as a cold travel destination in order to give a positive boost to the event tourism sector by increasing product development and by systematically and profitably researching the organization of cold temperature-related events.

A brief description of the project

Partners:

- Tekes – the Finnish Funding Agency for Technology and Innovation, Lahti University of Applied Sciences – Faculty of Tourism and Hospitality, Levin Matkailu Oy, Lahti Travel Oy, Casseli Oy, Messilän Maailma Oy, and HAAGA-HELIA Oy Ab – Vierumäki Unit

Contact person:

- Tiina Seikkula, Principal Lecturer, +358 44 708 0077, tiina.seikkula@lamk.fi, www.lamk.fi/iceevent

Funding 344 425 €:

- Tekes – the Finnish Funding Agency for Technology and Innovation 206 000 € (60%); LUAS 80 425 € (23%); other partners 58 000 € (17%)

Duration:

- 1.5.2008–30.4.2010

Staff and student involvement:

- LUAS staff contributed to the project by guiding students in their theses, reports, events, data gathering etc. Staff-written articles were published in project publications.
- Over 200 students were involved. They gathered data and observations for research reports by conducting interviews and preparing study reports. Students also planned and carried out new types of events for the winter season. During the project, eight Bachelor's theses were completed. Students had a very essential role in the project. They found the rehearsal of practical skills in fieldwork important and necessary. The work in the project was brisk compared to the theoretical studies.

Project objectives

- To create an event concept with which it is possible to recreate an event systematically and cost-efficiently, independent of the location
- To map out the attractiveness factors of event tourism in Finland
- To find ways to prolong the tourism season in Finland
- To develop different aspects of events, such as catering and event services, taking into account the conditions created by cold temperatures
- To utilize cold temperature know-how in different sectors of event production, and make this into an attractiveness factor for tourism
- To create an interesting, cold-themed event that especially concentrates on customer satisfaction

What substantive results did the project yield that could be of importance to society?

- The “Tapahtumantekijän työkalupakki” electronic guide (“Tool kit”) for event organizers, especially for cold temperature events
- Up-to-date research-based information on the objectives mentioned above
- Event concepts for cold temperature-related events

How has the knowledge been disseminated among societal stakeholders?

Publications

- “Kasvirekkestä kokouspalveluihin” article collection, published in the publication series of LUAS
 - Do-it-yourself guide for building from ice
 - 8 Bachelor’s theses related to the project
 - Final report, electronic publication available (in Finnish)
<http://www.tekes.fi/ohjelmat/Vapaa-aika/Aineistot/Projektien+tuloksia>
- “Cool Tour” seminar, circa 150 attendees
- By organizing events to test “cold events” in practice
- Web site, www.lamk.fi/iceevent
- Press releases
- Steering group meetings involving members and partner representatives

What evidence is there of interest and appreciation on the part of societal stakeholders?

- Active participation of the stakeholders, who invested resources (money and time) in the project, and for example the commitment of steering group members to active dialogue, even between meetings.

What examples of effects of the RDI project results could you provide?

- Some of the catering products for cold temperature-related events that were developed and tested during the project are now in production and, for example, served at winter sport events.
- Event concepts developed in the project are in use and being developed further by other organizations.



Building the Ice Bar at Lahti Sport Center



Levi FIS Alpine Ski World Cup

b) A good practice of institutional RDI activity at LUAS

We have focused our RDI activities on three multidisciplinary foci (design, the environment, and user-driven innovations), which programmes are good practices of institutional RDI activity at LUAS.

The LUAS Creative Industries programme combines the design RDI activities. These include the following: The Arts as a Medium for Cultural Innovations, Bridge Builders, Towards Creative Entrepreneurship Intensive Programme (IP), the ServiceDesign project, the DESTHI and Baltic Arts Go For Business Innovation projects, together with foresight and the development of new business opportunities in the creative industries SME cluster.

The environment programme operates in the fields of sustainable design, manufacturing and service process planning and management, environmental and energy technology, green ICT, environmental business, customer relationship management (CRM), corporate social responsibility (CSR) and corporate governance. Through RDI projects with collaborating companies and organizations, the programme has reflected on the customer interface as added value for people, business and the environment in the forms of a field-related survey and market research, the creation of ecoinnovation processes, collaboration platforms and events. These RDI projects have developed international collaboration. They address out how to balance profit goals with the principles of sustainable development, how to convince companies about the strategic importance of managing environmental issues for their future success, how to create and manage profitable ecoinnovations, and how to forecast environmental business opportunities and proact at the right time. The RDI projects have sought partners with similar interests, and have included the following: Ecomill, Sustainable Logistics Solutions through International Networking, Public Energy Alternatives, Algae from Waste for Combined Biodiesel and Biogas Production, and Local Action to Prevent Climate Change.

The InnoBrokers programme has enhanced the regional innovation system and innovation capability by developing an innovation brokerage network. The essential building blocks in this process are broker training for teachers, students and business representatives, and business pilots that are run in intensive cooperation with the training. The training and projects are implemented in the spirit of practice-based innovation thinking. As an outcome, a network of innovation experts, i.e. Innobrokers, is established. Innobrokers are contributors, executors and brokers of innovation activities, who know the needs of the SME sector as well as the possibilities of EIS. They have a central role as creative actors and sculptors of organizations as well as transcendents of borders. By combining the resources of SMEs, teachers and students to develop the capability for innovation, an actual environment reflecting reality is attained and innovation development platforms are formulated. A genuine win-win-win situation is achieved by providing an opportunity for all three stakeholder groups to participate in the development process of the innovation system. The seamless connection with entrepreneurship also supports student entrepreneurship. The IB programme includes following projects: DYNA – a multi-disciplinary entrepreneurship and preincubation forum in the Lahti Region Educational Consortium, AMK TULI – From Research to Business, P-H Health Activity Living Lab, Promoting women's entrepreneurship in social and health care, Towards a cooperative business in welfare sector – the future professionals who are acting entrepreneurially, and Entre Akatemia.

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This publication creates an up-to-date and coherent picture of the research, development and innovation activities at Lahti University of Applied Sciences. It is produced as part of the evaluation material for the FINHEEC international evaluation of RDI activities at the Finnish Universities of Applied Sciences in 2012.

The context is divided into four sections. The first section describes the strategic background for RDI at LUAS. In the second section there are several central questions answered concerning management of RDI activities, e.g. the organization, leadership and administration of RDI activities as well as allocation of resources and staffing policy for RDI function. The third section concentrates on the LUAS pedagogical solution and connections in RDI activities. The last section is about the quality and impact of RDI at LUAS. This publication will certainly create further discussion and enhance RDI development activities at LUAS.

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