

IMPACT EVALUATION REPORT

HELIX VINN Excellence Centre
Year 2006–2015

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0. Executive Summary

This impact evaluation report concerns the activities of HELIX VINN Excellence Centre at Linköping University. HELIX is an established Centre within working life research, focusing specifically on sustainable development in organizations. This entails research and innovation activities that promote good working conditions, learning, health and gender equality in combination with an effective and innovative production system.

In the HELIX VINN Excellence Centre, the interactive collaboration between researchers from different disciplines and the partner organizations has enabled us to face the challenges and the complexity of contemporary working life. The research strategy contained three key elements. *Firstly*, research and innovation activities were carried out with the well-established interactive research approach. *Secondly*, a multidisciplinary, integrative research approach was used. Researchers from different disciplines within behavioral sciences, management, business and public administration, entrepreneurship and innovation, as well the health and work sciences, collaborate within the Centre. *Thirdly*, a partnership approach was used, engaging universities and private firms as well as actors within the public sector and labour market organizations. The problems and issues defined in dialogue between partner organizations and researchers enabled the research activities.

HELIX vision can be captured by the phrase Knowledge for Sustainable Development in Organizations. Our research programme has focused on organizational development across a broad front in working life, including attractive working environments, high welfare standards, and effective organizations, offering sustainable job opportunities.

The research at HELIX has advanced scientific knowledge about development of new types of work arrangements and development of sustainable working life in Sweden. The Centre has also strengthened the potential for Swedish organizations to be more sustainable in the long-term and to stimulate endeavors between public and private organisations. As expressed by the partner organizations, they have joined HELIX to get support in developing their organization towards better economical and social sustainability. Our overarching goal has been to contribute significantly to scientific knowledge and, at the same time, add value to practice – that is, to put working-life research to use.

The HELIX program has also had a considerable impact on partners and other organizations. Indeed, most partners report clear benefits from the research collaboration. These benefits may concern a direct, instrumental impact (e.g. changes in organizational policies and/or routines), an indirect impact (e.g. access to new knowledge and ideas or know-how), or impact in a broader sense (e.g. interactions with other participating companies, cross-fertilization of ideas). Participation in the HELIX partnership has also for many partners meant increased interaction with research and the university, and, thereby, a significantly increased access to research-based knowledge concerning issues covered by the HELIX research program.

In spite of the often-reported difficulties in reaching direct and instrumental types of knowledge use, that is, types where research results are used more or less directly as input or guidelines for action or organizational change, our analysis shows that more than half of the respondents report direct, instrumental benefits from their engagement in HELIX, and almost three quarters

of the respondents reported different forms of indirect impact. These findings are supported also by our impact cases.

A closer analysis of the HELIX program and the cases reported above, indicate a number of key success factors. First, the multi-disciplinary and interactive research approach has made it possible to reach a high degree of relevance in research questions and projects. Second, the partner organizations have had a high degree of joint ownership of the HELIX program and the projects through the HELIX partnership. Third, in the most successful cases with respect to research use and impact, we have been able to anchor the projects at the top management level and, thereby, to assure a high degree of management attention and support for the research and innovation efforts. Fourth, that there is one or more enthusiasts or “idea champions” within the organization that can promote a project or a new idea. Fifth, in the most successful cases we have also been able to create opportunities for individual and collective learning through different types of learning activities, for example, joint analysis seminars and workshops for dissemination and use of research results.

1. An Overview of HELIX

This impact evaluation builds on the 10 year of research and innovation program in the HELIX VINN Excellence Centre. As stated in the evaluation report from the evaluation of stage 3: “HELIX meets all requirements for a VINN Excellence Centre.” In this section, we give an overview of HELIX impact during the past 10 years, as well as its relation to other activities in the field.

The HELIX Research Program in Brief

The HELIX VINN Excellence Centre research program was carried out between 2006–2015. Our mission has been to carry out research and innovation activities that contribute significantly to scientific knowledge and, at the same time, add value to practice, that is, to strive for excellence with impact in our field of research. More specifically, we have focused on the following five research areas (knowledge clusters), which are assumed to represent important conditions and driving forces for sustainable development in organizations:

- Production and organization development
- Learning for change and innovation
- Health, competence and work ability
- New forms of organization
- Entrepreneurship and innovation.

Our research consisting of about 25 projects within these areas has been strongly interrelated, not least in terms of common theoretical concepts such as leadership, participation, mobility, gender equality and work organization. Given these common knowledge interests, an important part of our mission has been to strive for further integration and synergies between the research areas mentioned above, and also between:

- Research
- Education and training – a graduate programme (HELIX Graduate School), but also contributions to relevant undergraduate courses and programmes within the university
- Activities with respect to process and product innovations as well as commercial and public service development.

The HELIX Partnership

Throughout the HELIX process, there has been a high degree of participation and engagement by the partnership in the initiation planning and conduct of the research program and the projects. The vision and strategy as well as the research projects have been developed and in dialogue with representatives of the companies and organizations that were members of the partnership.

The members of the partnership have shown a broad spectrum of interest in the research and innovation activities of the Centre. All of the partners were involved in at least one of the ongoing projects, and several of the partners were involved in two or more projects. Our ambition has been that partners from companies, public sector organizations, and labour market organizations should collaborate in a number of projects, that is, establish projects that cut

across traditional boundaries between companies and public sector organizations. Furthermore, many of the projects involved representatives from management, employees, and local unions. In total we had 17 partners involved in the Centre (see appendix for an overview of our partners).

The partnership has been of outmost importance for the HELIX program: by being involved in the process of generating research questions and projects; by giving access to workplaces; by allocating resources, etc. The partnership met on a regular basis about four times a year. Furthermore, different constellations of partners co-operated in different research and innovation projects. As is clear from the description of the organization of the Centre below, the partnership accepted the responsibility for taking the ownership function/role in relation to the Centre. This means, among other things, that the partnership acted both as a driving force for strategic development of research and innovation activities, and as a driving force for an effective implementation and use of research-based knowledge in process and product innovations.

HELIX Operations and Progress of the Centre

The successful operations of HELIX have built on the interests and expectations of the different stakeholders that comprised the HELIX partnership. The partner organizations have had a high degree of joint ownership of the HELIX programme and projects through e.g. the HELIX Board. As manifested by the engagement and sustainability of the partnership, now for over a decade, we have developed strong linkages between research and practice, and a portfolio of research projects of direct relevance to our partners. This is, to a large extent, an effect of the interactive research approach. In line with this approach, the vision, research strategy and project portfolio were developed in dialogue with partner organizations. Key functions for conducting this strategic dialogue have been the Centre director, the HELIX management team, and an engaged and experienced board in which all partner organizations have been represented.

As pointed out in the evaluation of HELIX stage 3, the productivity in terms of publication has been good. HELIX research has led to a large number of publications, presented in international journals, conference papers, books and reports. It is especially worth mentioning the two publications resulting from our international conference, held in Linköping in June 2013. The book *Sustainable Development in Organizations: Studies on Innovative Practices* edited by Elg, Ellström, Klofsten and Tillmar, and published by Edward Elgar in 2015, summarizes important themes and issues from the HELIX research programme and from some of our international affiliates. The HELIX conference also resulted in the special issue, *Innovative practices in work, organization and regional development: problems and prospects*, in the *Scandinavian Journal of Public Administration* (2014), edited by Högberg and Sundin. A summary of the volumes and patterns of our scientific publication is presented in Table 1. In addition, HELIX produced 26 PhD theses and hundreds of conference articles and reports.

Table 1: Volumes and Patterns of Publication

Type of Publication	Year					Total
	2011	2012	2013	2014	2015	
Articles	25	40	40	33	42	180
Books	2	4	3	6	8	23
Chapters in books	14	17	19	28	25	103
Total	41	61	62	67	75	303

Impact among the Stakeholders – A short Overview

Equally important is the considerable impact that our interactive research has had on the partner organizations and beyond. If we once more cite the evaluation of HELIX stage 3, it is stated that “the Centre has been very successful in getting its innovative ideas accepted and used by the partners”. Indeed, most partners report clear benefits from the research collaboration. Examples of impact include:

Improvements and development of new models, processes and innovations in public organizations

- Integration of processes for innovation support as part of the regular operations in several municipalities, for example, as part of the existing management system.
- New approaches and models for co-creation and learning with patients in healthcare service development that has been utilized in various healthcare environments.
- New strategies in order to improve work ability among long-term sick listed and young people on disability benefits in collaboration projects between the Social Insurance Agency, health care organizations, the Public Employment Service, and municipalities.
- Development of a new R&D Centre in the field of human resource development and management (HRD/HRM) at Region Östergötland.
- Improvements of “Customer-choice model” for public procurement within elderly care.

Development of work organisation and production processes in industry companies

- Several of our partners in the industry are working with continuous improvement, employee involvement and production development and we have actively contributed to this work.
- Research findings guided one of the industry partners when it was reorganized in response to the economic crisis during 2008–2009.
- Development and implementation of new HR strategies, and ongoing efforts to integrate the HR strategies with the overall business strategy of the company.
- Stimulation of innovation and entrepreneurship within the life science industry, for example, development of a new coaching module and improved guidelines for different project activities.

Development of leadership and Lean production across private and public sector organisations

- Contributing to the development of a Swedish model for Lean Production, both in industry and in the public sector.
- Collaboration in a management development programme for managers within elderly care in private and public organizations.
- Principles for leadership and managerial work have been included in job descriptions for managers at various levels of our partnership organisations, both in industry and in the public sector.

Intermediaries' and unions' utilization and dissemination of research

- Input to policy actions as well as changes in existing practices within the EU Structural Funds, for example, concerning the formulation of programme criteria, project calls, and recommendations to include learning evaluations in all larger projects that are funded.
- The union IF Metall has, both at a regional and a national level, systematically used our research to advance their knowledge in relation to employers and other actors (e.g. funders).

The HELIX partnership has for many partners also meant increased interaction with research and the university, significantly increasing access to research-based knowledge. In the most successful cases we have anchored the projects at the top management level in the partner organizations, assuring a high degree of management attention and support for the research and innovation efforts. The level of engagement in HELIX and perceived benefits and impact for their organizations is shown by the fact that a majority of the partner organizations are interested in continued participation in HELIX.

HELIX in Relation to Other Activities in the Research Field

As noted in the evaluation of HELIX stage 3, it was argued that: “From a wider European perspective HELIX is a potential role model for other universities where interactive research is a rarity”. We received ample evidence for the validity of this observation during the international conference we held in 2013, but also through our participation in other international conferences and network initiatives. Considering the national arena, HELIX has been and still is an important partner in the initiative Workplace-related R&D for sustainable working life mentioned above. Our interactive research approach already serves as a role model for this and other initiatives around Sweden. A continuation of HELIX is therefore vital for the progress of this network initiative.

The establishment of HELIX as a VINN Excellence Centre with prospects for long-term funding has meant a significant incentive for multidisciplinary collaboration across faculty and departmental borders within the university. An important consequence of the long-term funding is that this type of externally funded, interactive research also acquires a relatively high status within the university – a status comparable to that of traditional research funded by the faculties.

The HELIX partnership supported by interactive research is quite unique as a regional innovation system. Compared to research collaboration in individual separate projects, the partnership approach functions as a bridge between different workplaces, organizations and regions. Project initiation and planning, the conduct of research, and the implementation and dissemination of research results, thus becomes more integrated than is usually the case in traditional research. This approach makes it possible to disseminate research results and make use of research more effectively than is usually the case.

Value Added by Being a Centre

There are a number of advantages to being a Centre of our size and with long-term funding, compared to traditional forms of research collaboration.

First, through the concentration of resources within the Centre and the multi-disciplinary approach, it has been possible to initiate a portfolio of projects that can meet and satisfy a broad spectrum of research ideas and innovation interests among the partners.

Second, through the use of an interactive research approach we have been able to provide input in ongoing innovation processes. This research model provides the researchers with *access* to research objects and processes that otherwise would not be the case. In this way, we believe that both the relevance and the precision of the research questions have increased through the interactive research approach.

Third, the long-term funding creates incentives for multi-disciplinary collaboration across disciplinary, faculty, and departmental borders within the university. The long-term funding also means that the research program acquires a relatively high status within the university.

Fourth, the concentration of resources for work life research at HELIX has made it possible to successfully compete for external funding from relevant funding agencies. The total sum by far exceeds the expected total contributions from VINNOVA, Linköping University, and the partner organizations and it is more than three times the contribution from VINNOVA.

Fifth, the establishment of a Centre makes it possible to build a specific and vigorous “HELIX identity” that would otherwise be more difficult. An important means for building such an identity is to be able to establish a common “infrastructure” for research and innovation activities, including joint premises for the Centre.

Sixth, the creation of a regional partnership supported by interactive research is unique, at least by Swedish standards, and an embryo of a *regional innovation system*.

2. Impact on Partners – and other Organizations

In this section we will present an overview of how research results from the HELIX Centre have been utilized by partners and other organizations in society. We will also present current plans and partner strategies for the implementation of research results from the Centre.

Impact on Whom?

Although there will be a focus on impact on the 17 partners (companies, public sector organizations, e.g. municipalities and unions) that were formal members of the HELIX partnership, we will also consider the impact of the HELIX program on a number of other organizations at a national and/or European level having directly or indirectly been able to utilize results from the HELIX program. Examples of such organizations are: the European Structural Funds (ESF) in Sweden, the Swedish Association of Local Authorities and Regions (SKL), and the Swedish Agency for Economic and Regional Growth (Tillväxtverket).

It should also be underlined from the beginning that although many of HELIX' partner organizations are represented in the HELIX partnership by local or regional representatives, outcomes of their participation in the HELIX program have in many cases been reported to and utilized in other parts of the organization, for example, the national head office of their organizations. This is for example the case if we consider the municipalities and the County Council, who have regular contacts with the employer association the Swedish Association of Local Authorities and Regions (SKL) and the unions (e.g. IF Metall, the Municipal Workers' Union (Kommunal) and the Swedish Association of White-Collar Employees (Unionen), who regularly reported to their head offices. At least some of the companies, for example Trygghetsrådet Inc. and Rimaster Inc., have also regularly reported outcomes of their participation in the HELIX program to their head office or to other parts of the company.

What do We mean by Impact?

As a point of departure for our analysis of knowledge utilization and impact of the HELIX research program, we have distinguished between three types of research use and impact:

- (a) *Direct or instrumental use*, where research results are used more or less directly as input or guidelines for policy action or the development of new products, processes (e.g. organizational changes), or services and, thus, in this sense is linked to concrete actions (or decisions).
- (b) *Indirect or conceptual use*, which means that research results, even if they cannot be linked to concrete actions or decisions, can have indirect forms of impact. For example, by providing new concepts, ideas or perspectives that might give an increased understanding of a certain process, program or activity, its strengths and weaknesses, and unintended consequences; ideas for improvements or more radical changes of products or processes; building competence in certain areas etc.
- (c) *Process-related use*, that is, uses that are related to participating in a research process rather than just from the research results. The idea is that participation and interacting with others in

projects or a program may lead to uses and impact in a broader sense. For example, individuals may get opportunities for learning, exchange of ideas, networking or building new coalitions that can be significant in relation to business initiatives, recruitment, etc. Organizations may also gain in credibility or status by engaging in a research partnership.

Considering empirical research on knowledge utilization in the past, a recurrent finding is that different forms of direct use of research results appear to be much less common than indirect forms of knowledge utilization (for an overview, see e.g. Nutley et al. 2012). Research evidence also indicates a range of barriers for reaching direct and instrumental forms of knowledge use. What seems to be needed in order to overcome these barriers is a broader view of knowledge transfer and innovation processes that presuppose *learning and competence-building* among users of research. Thus, in order to be able to implement research results, a potential user needs to learn to actively interpret and translate the results to fit the specific needs and challenges in the local context. Another implication is that an organization's capacity to use research is likely to improve over time through individual and collective learning, for example, learning through participation in relevant research projects and through interaction with researchers.

Designing Research for Knowledge Utilization and Long-term Impact

The HELIX program was from its start designed to carry out research that could contribute significantly to scientific knowledge and, at the same time, add value to practice through knowledge utilization and long-term impact on partners and other parts of society. More specifically, the following five elements (principles) have consciously been built into the design of the HELIX program assuming that they would be instrumental in facilitating effective knowledge utilization and impact:

1. *A partnership approach* – The partner organizations' active participation in and joint ownership of the HELIX program is assumed to be of vital importance for identifying research needs and objects and for carrying out projects, but also for facilitating absorption and use of research results.
2. *An intermediary function* – Through the development of the HELIX partnership we have been able to establish HELIX as an *active intermediary* between different interests and actors. This role means, firstly, that HELIX was as an attractive meeting place for its partners. Secondly, that HELIX had a mediator role (a broker role) linking, for example, companies with the university, or actors at the local, regional, national, and European level. Thirdly, that HELIX over time developed into being a motor for change and innovation in partner organizations. Thus, HELIX as an active intermediary had the tripartite function of *meeting place, mediator* and *motor*.
3. *A multi-disciplinary approach* – Through the multi-disciplinary basis of the research program it has been possible to initiate a portfolio of projects that can meet and satisfy a broad spectrum of research ideas and innovation interests among the partners, and, also in some cases to integrate ideas and interests of several partners within single bigger projects. In this way the multi-disciplinary approach has been instrumental in reaching a high degree of relevance of the research in relation to the interests and challenges experienced by the partners.
4. *An interactive research approach*: This approach means an “inbuilt” focus on the dual task of contributing both to long-term theory development and to innovation processes. A central element is also the strong emphasis on collaboration between researchers and practitioners throughout the research and innovation process, that is, from the definition of a problem, through data collection and analysis, to the feedback and implementation of results. In line with this, the research projects are developed in dialogue with one or more of the partner organizations, based on problems and opportunities identified in ongoing practice within the companies and organizations.

5. *A focus on learning*: The interactive research approach also means an emphasis on joint learning and knowledge development between researchers and participants from the partner organizations. Therefore, another central element in the HELIX approach was to arrange opportunities for individual and collective learning through different types of learning activities. Examples of such activities include state-of-the-art knowledge review seminars, project definition seminars, joint analysis seminars, and result and implementation seminars. HELIX has also so far arranged four university courses (7.5 credit points each) with a specific focus on issues of relevance to HELIX partners (e.g. courses in learning evaluation and organizational change and development) as well as open seminars and conferences as part of the HELIX Academy (e.g. the annual HELIX Day). Furthermore, HELIX researchers are regularly engaged as teachers in courses and programs at undergraduate, advanced, and graduate levels at Linköping University (LiU) and at the Royal Institute of Technology (KTH).

Our “working hypothesis” has been that the five design principles described above, if adequately implemented, are key factors for success with respect to effective knowledge utilization and creation of impact.

An Overview of the Use and Impact of Research Results from the HELIX Program

In this section, we will give an overview of the use and impact of results from the HELIX research program. This will be done in three steps. *First*, we will present the main results from a survey to representatives of all the partner organizations. *Second*, three case studies are presented where we have made in-depth analyses of the use and impact of research based on site visits, interviews with researchers and representatives of partner organizations and other relevant informants, and analyses of documents. *Third*, we will give a number of other examples of impact, based on information from the survey together with a more extensive review of knowledge utilization and impact of the HELIX program among partners and in other organizations, including the university.

Survey to Representatives of the Partner Organizations

A questionnaire was sent out in early spring 2013 to representatives of all 17 partner organizations. The items in the questionnaire concerned the respondents past, present and estimated future engagement in HELIX, level of engagement in HELIX projects or other activities, and perceived benefits and impact for their organization through their participation in the HELIX Centre.

The questionnaire was sent to 1–3 representatives in each organization, giving a total of 39 persons that received the questionnaire. The persons included in the sample were persons formally appointed by their organization as “HELIX contact persons” as well as persons who had in other ways been involved in HELIX activities under a longer period of time, for example, as participants in one or more projects or as members of the HELIX Board. Answers were received from 24 persons (62 %), representing 15 of the in total 17 partner organizations (88 %).

Considering the results of the survey with respect to perceived benefits and impact of the HELIX program, the findings can be summarized as follows:

1. A little more than half of the respondents (54 %) reported that participation in the HELIX program had resulted in *concrete changes* in their organizations, that is, in different types of *direct, instrumental use* of research. Examples of such changes include:
 - Start up of local developmental projects, e.g. lean projects
 - Development of the organization’s HR function

- Leadership and/or organization development
 - New methods for designing and carrying out training and development
 - Changes in organizational policies and/or routines
2. A majority of the respondents reported that their engagement in HELIX had contributed to inspiration and new ideas (74 %) or to an increased awareness and understanding of ongoing processes and important issues in their organizations (61 %), that is, to what we have called an *indirect* or *conceptual use* of research. Examples of such indirect use include:
- Increased awareness of relationships between leadership, organizational conditions and work-related health
 - Increased awareness of the importance of HR issues and new ideas concerning how to develop the HR function
 - New ideas about ways to better utilize employee knowledge and competencies, causes of work-related stress, methods for increasing employee participation and co-workership
 - Inspiration and new ideas for further development of the research and development (R&D) function
 - Valuable input for your own thinking and for questioning established thoughts and practices
3. More than half of the respondents (56 %) indicate that their engagement in HELIX had contributed to *process-related uses* of research, that is, uses in a broader sense. Examples of such research use include:
- Benefits of being a member of the regional HELIX network of organizations, for example, in terms of new contacts and cross-fertilization of ideas
 - Being a member of the HELIX partnership has strengthened the position of our organization in a national perspective
 - We are perceived as a more attractive employer through participation in the HELIX partnership
 - HELIX is an arena for exchange of ideas and learning from the experiences of other people

Considering the rating of the overall benefits of their participation in the HELIX Centre, a majority of the respondents (74 %) indicate that they are fairly or very satisfied. This positive valuation of the overall benefits of participation in HELIX is also attested to by the respondents' answers to the question whether they are positive to continued participation in the HELIX partnership. A majority of the respondents (72 %) indicate that they are interested in and prepared to recommend continued participation in HELIX. Thus, it seems safe to conclude that a majority of the members of the HELIX partnership are still – after nearly eight years as partners – quite satisfied by their participation in the HELIX Centre and the benefits that have been derived from this engagement.

Two Case Studies

Based on the survey to the partner organization and through discussions among the senior researchers in HELIX research group, three organizations (cases) were selected for in-depth, intensive case studies concerning the use and impact of the HELIX research program. Two cases selected and presented below are: (a) Leadership and organization development – the case of the Rimaster Group Inc.; (b) Innovation processes in public sector organizations – a long-term developmental work led by the East Sweden Regional Council (Regionförbundet Östsmå). A third case (c) Ongoing evaluation for sustainable change – the case of the European structural funds in Sweden is presented in the next section as it relates to HELIX impact in society.

Leadership and Organization Development – the Rimaster Case

Rimaster Inc. is a privately owned company with about 550 employees. The company is a leading supplier of cable harnesses, electrical cabinets, electronics and cabs for special vehicles. Rimaster has its origin and head quarter in Rimforsa, Sweden (a few kilometers south of

Linköping), but has during a couple of decades developed from a single unit company to a group of companies, the Rimaster Group. Today, Rimaster operates globally with units for sales, design, development and production in Sweden, Poland, Belgium, and China.

The research collaboration between Rimaster and HELIX started already during the build-up phase of HELIX in 2005, and has continued with varying intensity since then. Rimaster was from the beginning a member of the HELIX partnership and has remained so. The primary contact person at Rimaster has all time been the President (and former CEO) of the company, who has also personally, since the beginning, been very active and driving in the research collaboration with HELIX.

The research collaboration with Rimaster has centered around two major projects. First, during 2006–2008 a project concerning “Leadership and workplace learning” with a focus on how first-line managers deal with competence and learning issues in practice and the meaning of managerial support for learning at work. Second, during 2009–2013 a project, funded directly by VINNOVA on “Coordinating management – leadership and managerial work in a distributed and lean organization” with a focus on coordination, communication and collective learning in a management team. Both of these projects have used a highly interactive research approach, characterized by dialogue with company representatives (not least the President) during the whole research process from the choice of research objects and methods to the interpretation and analysis of results. There has also in both projects been a strong emphasis on carrying out activities for promoting learning and knowledge use: project definition seminars, joint analysis seminars, and result and implementation seminars.

Available evidence concerning knowledge utilization and impact – based primarily on interviews with company representatives, including the President, researchers, and analyses of documents – indicates a range of impacts, including all three forms of impact distinguished above.

Examples of *indirect knowledge use and impact*, include:

- New perspectives on and knowledge about leadership and managerial work among first-line managers as well as senior managers.
- An increased awareness of the importance of human resource (HR) issues related to, among other things, recruitment of employees and competence development.

Examples of *direct, instrumental knowledge use and impact*, include:

- Common guiding principles for leadership and managerial work at Rimaster Inc., which have been included in job descriptions for first-line managers.
- Development and implementation of informal leadership seminars for first-line managers as well as a leadership training program together with an external consultant.
- Development of the work processes in the management team, for example, with respect to an improved use of available time, an increasing focus on problem solving through exchange of ideas and dialogue rather than one-way communication, and more of coordinated work towards common goals.
- Recruitment of a HR manager, who has also become a member of the management team.
- Development and implementation of a new HR strategy, and ongoing efforts to integrate the HR strategy with the overall business strategy of the company.
- The implementation of special corporate groups as platforms for handling issues concerning economy and HR which are common to all business units within Rimaster.
- As argued by the President, findings from the research collaboration with HELIX were taken into consideration when the Rimaster Group was reorganized in response to the economic crisis during 2008–2009.

Besides there is also evidence of what we have called *process-related impacts*. More specifically, it is reported that the research collaboration with HELIX has contributed to:

- A stronger and more homogeneous corporate culture
- An increased the attractiveness of the company as an employer
- An increased credibility and status as perceived by customers and cooperating partners.

Supporting Innovations in Public Sector Organizations

– a Long-term Development Work led by the East Sweden Regional Council

The regional development project “Product innovation in health care” (PIMM) was initiated in 2006 and formally ended in 2010. After 2010, the regional development work has continued organized by East Sweden Regional Council in partly new and extended forms. The work has also continued and been developed at the local level, not least in the municipality of Motala, one of the partners in HELIX. The PIMM project had from the beginning the purpose to support innovations in health care organizations with a focus on identifying and supporting employees’ (e.g. doctors, nurses, assistant nurses) innovative ideas about possible improvements of the health care. From the start, there was a focus on products that could mean an increased quality for patients or that could improve the care process in some respect. Later on, the focus has been extended to include not only product innovations (i.e. goods and services), but also process innovations, that is, improvements of technical or organizational aspects of the care work. The key-actors in Motala have expanded the concept and included a variety of services outside the health care field. The translation to new areas has also – due to a number of factors (e.g. characteristics of individuals, groups and sector) – demanded modifications of the process of innovation support.

Several of the HELIX partners were involved in the PIMM-project from its start, primarily the County Council as principally responsible for the regional health care system, but also the East Sweden Regional Council, and one municipality (Norrköping). In addition, ALMI Business Partner was involved to provide advisory services to the organizations participating in the project. As already mentioned, after 2010 a number of other municipalities in the region have been involved in different parts of the continued development work.

The research collaboration with HELIX started soon after the formal start of the PIMM project in 2006, and continued also in the new phase of the development work, initiated after the PIMM project was formally ended in 2010. Thus, the collaboration has been carried out during several years, although in somewhat different forms and with different intensity over the years. What has not changed, however, is the highly interactive character of the research process. An important role of the researchers have been to act as a sounding board to the project members and stakeholders, and also to act as brokers and translators to articulate differences in project setup and expectations. The researcher have also been involved in the planning and implementation in a large number of local, regional and national seminars on innovations in public sector organizations being arranged over the years. A primary partner in the research collaboration has been leading officials the East Sweden Regional Council.

Concerning knowledge use and impact on the actors in the development work over the years, there is evidence that the interactive research has contributed both to indirect and direct impact:

Examples of indirect knowledge use and impact, include:

- An increased awareness and knowledge about: (a) how to understand an organizational culture where innovations are welcomed and used; (b) how to spread innovations to new organizational contexts; and (c) about different aspects of the innovation concept; in particular, an expansion of the concept as used in the development work to include product as well as process innovations.
- An increased awareness of the innovative potential among a great number of co-workers.
- An increased awareness of the important role of managers at different levels for supporting innovative ideas among their coworkers, and the limitations in existing practices for identifying

and supporting innovative ideas in the participating organizations, in particular ideas concerning service and process innovations.

Examples of *direct, instrumental knowledge use and impact*, include:

- Changes of existing advisory practices in order to improve the handling of ideas concerning service and process innovations.
- Input to the work with development of guidelines for innovation support in public sector organizations resulting in a handbook produced by the East Sweden Regional Council and a series of workshops for supporting municipalities in their work with innovations.
- Integration of processes for innovation support as part of the regular operations in several municipalities, for example, as part of the existing management system.

The research collaboration with HELIX has also resulted in *process-related impacts*. One example of such an impact is:

- An increased legitimacy of projects for innovation support in many municipalities as well as an increased visibility of this work in the region and at a national level, and also in other Nordic countries. Specifically, this has meant that the work with innovation support in the East Sweden Region has been used as an example for inspiring similar efforts elsewhere, and not least the development work within the municipality of Motala has been used as a role model for others.

Other Examples of Impact of the HELIX Program

In addition to the more detailed case studies presented above, we will also, in order to present a more complete picture, shortly mention a few other examples of impact of the HELIX program.

1. One example concerns HELIX role in developing a Swedish model for Lean Production, both in industry and in the public sector. In a program called “Produktionslyftet” (the Production Lift), Lean Production has been introduced in 60 medium-sized manufacturing companies all over Sweden. HELIX has been assigned as interactive researchers in the evaluation of the program, through a learning and ongoing evaluation approach. Management of the program was strengthened by a broad national agreement and collaboration within the program steering group, including representatives from the Swedish Metal Workers Union (IF Metall) and the Confederation of Swedish Enterprises.
2. A second example concerns HELIX research on workplace learning and new strategies/methods for competence development in elderly care in co-operation with the Office of Elderly Care in the Municipality of Linköping. This research collaboration has, among other things, resulted in (and provided the main content for) a management development program targeted at managers and supervisors within municipal elderly care as well as in the private care companies (e.g. Carema Care) having been contracted as providers of elderly care. This program was also offered to managers and supervisors in other municipalities in the region. In addition, HELIX research in this area has also given direct input to a project application to the Leonardo da Vinci program on transfer of innovation. The main applicant was the R&D Center for Health Care and Social Work managed by the Municipality of Linköping, and the application involves a number of partners from four European countries. The project was approved by the Leonardo program in July 2010 and started during autumn 2010.
3. In a research project on commercialization of research and mobility during PhD education we are studying various initiatives within the academic context to support the mobility of researchers and inspire them to behave entrepreneurially. One case we

have studied is the AgoraLink project aimed to stimulate innovation and entrepreneurship within the life science technologies. There has been a continuous interaction with the management team of this project, contributing to new ideas and suggestions for improvements. Concrete examples of this include development of a new coaching module and improved guidelines for different project activities. We have also been invited to take part in board meetings to give input to the tactical and strategic development of the AgoraLink project. The formal project period of AgoraLink has now ended, but there are still ongoing activities, which have spun off the former project. A good example of this is the PhD course "Entrepreneurship in Theory and Practice (7.5 ETC). The course has been implemented throughout the whole University. So far around 100 PhD students have participated in the course. Worth mentioning is that 15 new firms have been started by former participants in the course.

4. Initiated by the Government and the Social Insurance Office in Sweden projects on sick leave and return to work among disabled are issues which are important political development areas. New strategies in order to improve work ability among long-term sick listed and young people on disability benefits in collaboration projects between the Social Insurance Office, Health Care, the Labor Office, and municipalities are evaluated continuously and fed back to the organizations, based on the interactive learning approach by HELIX. The evaluation process has already had considerable impact on the organization of the projects and how the processes are performed.
5. Research collaboration between HELIX and public partners (municipalities) has led to unique empirical studies of the reorganization of the public sector. Of special interest have been the studies of the outcomes of a so-called "Free-choice model" for public procurement of elderly care. One of the intentions of this model was to stimulate small local firms and entrepreneurs. However, the HELIX researchers found that big national and international companies were the winners. These results were discussed in municipal political boards as well as in local media, and caused modifications of the model. The results have also been widely distributed and discussed as an example in the report from NormaCare on elderly care in Sweden. Demands for cooperation have been presented to HELIX both from responsible authorities (Tillväxtverket), the Municipal Workers' Union (Kommunal) and municipalities in other parts of the country.
6. The union IF Metall has, both at a regional and a national level, systematically used our research to advance their positions in relation to employers and other actors (e.g. funders). Their leaders have taken part in two university courses arranged by HELIX and IF Metall has also been supported in applications to the structural funds.
7. The County Council of Östergötland, which is responsible for the organization and operations of the regional health care system, is in the process of developing, together with HELIX, a new R&D Centre in the field of human resource development and management (HRD/HRM). This center will be an important platform for dissemination and use of HELIX research in the HR field by HR specialists in the regional health care system.

3. University Impact

A Proposed New Centre for Working Life Research

HELIX has paved the way for the new strategic initiative in order to establish a new knowledge centre for working-life research (Nationellt kunskapscenter för arbetslivsforskning). HELIX is now strongly aligned to the long-term research strategy of LiU, both with respect to the Centre's approach and vision as well as with respect to its organization and research priorities. This is evident in the contribution and proposal to the government's bill for the Swedish research policy submitted by the University in October 2015, including its long-term research strategy. The LiU strategy is based on cooperation with the surrounding society, utilization and impact of research-based knowledge, and a strong focus on innovation.

In line with this strategy, Linköping University is willing to establish and manage a new centre for research on "The Working life of Tomorrow". The university management urges the government to place such an assignment at LiU, where the proposed Centre can make substantial contributions. This new LiU research strategy is a significant recognition of the research at HELIX and thus there is a strong support for continuing to make important contributions also in coming years.

HELIX Graduate School

The HELIX Graduate School was the postgraduate program organized by the HELIX Centre. The Graduate School started in February 2007 and the final examination of PhD students will take place during 2016. HELIX Graduate School has been able to attract students from different Swedish universities as well as from other European universities, as well as externally funded PhDs ("industridoktorander"). During the period 2007–2016 a total of 30 PhD students will have completed their research training at HELIX Graduate School.

The HELIX Graduate Program has been planned and carried out on a multi-disciplinary basis in line with the HELIX research program, but also in close cooperation with concerned disciplines and departments within the university. This is important as the students were formally admitted to different disciplinary PhD programs (e.g. programs in business administration, education, health sciences, quality technology and management, sociology, and work science) and thus have obtained degrees in the discipline to which they have been admitted. This design has proved to be very well-functioning, and a good way to support and increase the co-operation between different departments within the Linköping University. Throughout the research process the students not only engage with researchers and colleagues within their own department/discipline, but also with colleagues and researchers from other disciplines, contributing to improved conditions for multi-disciplinary research.

In December 2015 an internal evaluation was made concerning different aspects of the PhD theses and the further career of students admitted to HELIX Graduate School. The results from this evaluation (based on 25 PhD students who had completed their dissertation, and a prognosis of the remaining five) show several interesting things:

- Disciplinary distribution: business administration (7), education (9), health sciences (5), quality technology and management (3), sociology (4) and work sciences (2)
- Format: compilation thesis (18), monograph (12)
- Language: Swedish (11), English (19)
- Source of empirical data: companies (9), public organisations (16), labour market organisations (4), both companies and public organisations (8), others (3)
- Three had qualifications and had been appointed as associate professor (docent).

Regarding the doctoral students further career (n=25), the evaluation showed that 11 PhDs are employed as senior or junior lectures at Linköping University, three (3) as senior/junior lectures at Jönköping University, two (2) as senior/junior lectures at Örebro University, and one (1) as senior lecturer at Macquarie University, Sydney. The remaining 8 PhD students are employed in public organisations, a major part of this group were engaged in R&D issues. We find these figures as a strong support for the conclusion that PhD students graduated from HELIX Graduate School show a high level of employability, both within the university sector, as well as in other sectors.

Advancement in Academic Positions and Roles

There are a number of HELIX researchers that have made advancements in their academic positions.

The following individuals have a position as professor:

- Mattias Elg
- Maria Gustavsson
- Henrik Kock
- Per Nilsen
- Bonnie Poksinska
- Malin Tillmar

The following individuals have advanced to a position as associate professor:

- Martin Klinthäll
- Christian Ståhl
- Andreas Wallo
- Daniel Persson Thunkvist

Participation and Development of Educational Programs

The researchers at HELIX are involved on a regular basis as teachers, examiners, course directors and are responsible for course development in educational programmes at the undergraduate, graduate, and post-graduate levels within LiU and KTH Royal Institute of Technology. More specifically, the HELIX researchers are involved in several educational programs within the subject areas Business Administration, Education, Human Resource Management and Development, Ergonomics, Entrepreneurship, Public Health, Sociology, and Quality Technology and Management. In this way, the HELIX researchers in total reach over 4000 undergraduate students, over 500 graduate students and over 130 post-graduate students each year. This integration of HELIX researchers within university teaching provides one of the most powerful dissemination channels and also has an important impact on the university

system. In addition, HELIX has a central role in developing partnership interaction in education at the university. In addition, the researchers participate as teachers in adult education for professionals and regularly give talks at meetings and other public events. Furthermore, HELIX teaching enriches different forms of collaboration with the partnership and other organizations.

From the very start of HELIX Vinn Excellence Centre in 2006, researchers and teachers expressed ideas of forming a master's programme in close connection to Helix and to a high degree based on research emanated from HELIX. An important point of departure is the notion that a closer integration of researchers within university teaching provides one of the most powerful dissemination channels and also has an important impact on the university system. The formation of the masters programme in Human Resource Management (HRM) and Human Resource Development (HRD) was from the start in 2007 a success and in 2008 it was already the biggest (in terms of number of students) masters programme within the Faculty of Arts and Sciences. The programme was designed in close co-operation between the department for Management and Engineering (IEI) and the department for Behavioural Sciences and Learning (IBL) and also in close co-operation with members of HELIX Partnership (e.g. companies and public organisations). The programme is run jointly by the two co-operating departments and the majority of the courses were (and still is) developed in cooperation with members of HELIX partnership. Examples of courses include: workplace learning (7.5 ects), management, leadership and HRM (7.5 ects), organizational change and development (15 ects). During different courses the students meet and interact with representatives from partner organisations, and the partners also take more active role in courses, e.g. giving guest lectures, participating in conferences organized by the programme. Many students from the programme get their first job with a company or organization within the partnership.

In addition, HELIX has arranged a number of university courses (7.5 credit points each) with a specific focus on issues of relevance to HELIX partners (e.g. courses in learning evaluation and organizational change and development). Specifically one type of course can be mentioned, namely contract education offered to representatives of labour market unions. Based from findings from HELIX large portfolio of projects studying different aspects of Lean Production, several representatives from the unions in the HELIX partnership made us pay attention to the need of increased competence concerning Lean Production and its possible effects concerning work tasks and working environment. This resulted in two different courses, offered to unions' representatives in IF Metall, Kommunal and Unionen. Both courses offered corresponded to 7.5 ects, one of the courses was aimed towards new challenges for union representatives in the "globalized workplace", the other course was targeted on challenges for union representatives when Lean Production is implemented. A total of three courses (20 participants in each course) was conducted with representatives from the three unions, and the result was very satisfactory. This is typically pronounced in this quote from one of the participants: *Before this course I saw myself as inferior and less knowledgeable concerning Lean than my employer. Now I am on the same level, or perhaps have even got a bit ahead.*

Another example, in line with the courses previously described, is the course on Lean Leadership (7.5 ects). The background stems from questions regarding why and how leadership in an organization is affected, or should be affected, when Lean Production is implemented. In this case the target group was persons with leadership responsibilities in our partner organisations. So far two courses have been accomplished, with representation of about 40 leaders/managers. The results are likewise very good.

This engagement from HELIX within the university system and with our partners has provided effective opportunities for sustainable dissemination and impact of research results through partners and students at different levels. This arrangement provided one of the most effective opportunities for sustainable dissemination. It has also provided opportunities to identify and recruit excellent students for project work within ongoing HELIX projects and as masters or PhD students. In this way, a considerable number of students have been exposed to our research results, and also to the interactive and multi-disciplinary research conducted within the HELIX

Centre. The impact on the university system concerns the inclusion of research results from HELIX in courses and educational programs, but also an increased awareness of the interactive research approach developed and used by HELIX researchers and its potential as an effective model for university-industry collaboration. Not least is this conclusion supported by the new strategy launched by the university management in 2015, to take on the challenge and establish LiU as a national Centre for work life research.

Helix researchers have taken active part in the European, National and local initiatives to expand collaboration with the surrounding society also in the research area. Linköping University has for example worked together with Malmö högskola and Umeå Univeristy within a Vinnova-funded project with the purpose of developing methods for documentation of external collaboration in education. One of the issues has been if such collaboration increases the quality of education. Apart from being a role model and participate in workshops and seminars, contribution from Helix in this process has been a literature review in this field. The literature review indicates that this research theme is rather unexplored. Conclusions points to the importance of context based quality assessment, since the effects are conditioned by the relation, situation and the context of the collaborations. Helix continue to be a major speaking partner to the leadership of LiU in these respects.

International Research Collaborations

HELIX has broad and extensive international collaboration with 38 universities all over the world. The collaboration is mostly based on individual research contacts, but we also have collaborations with international research centres like HELIX conduct research in collaboration with partners in the field of working life. Centres with which we have established strategic collaboration are presented below:

- Centre for Research in Learning and Change at University of Technology Sydney (UTS). As HELIX, the centre is committed to working life research in collaboration with a wide variety of partners, including small and medium-sized enterprises; large multinational companies; local, state, federal, and international government agencies; NGOs; and charities.
- EM Lyon Business School. This entrepreneurship research centre is headed by Professor Alain Fayolle. They have over the last 25 years developed an interactive entrepreneurship ecosystem composed of stakeholders from different sectors in a context where there previously was no tradition of such interaction.
- Tranzo centre at Tilburg University in the Netherlands. This centre has a long tradition of interactive research with partners in the field of work and health. Our collaboration is focused on exchange of knowledge and data that enable European comparative studies.
- The Center for Quality and Productivity Improvement (CQPI) at University of Wisconsin-Madison's College of Engineering, in the US. This is an interdisciplinary research centre for human factors and systems engineering focused on the quality and safety of work processes, working life, and health care.

National Research Collaborations

HELIX participate in several networks and collaborate with other research organisations in Sweden. Important collaborations are:

- A network of researchers and employers based in Uppsala, focusing on prevention of sick leave. The network's goal is to organize meetings between research and practice, and by research-based support facilitate development activities. Among the research groups in Uppsala, a notable participant is Professor Sandblad, focusing on interactions between humans and computers, and psychosocial work environment.
- EMBLA, an excellence programme within gender studies and entrepreneurship funded by the Swedish Research foundation. Professor Tillmar is one of the four researchers in the program, which is headed by Professor Ahl of Encell, a centre for lifelong learning.

- FALF, Forum for work life research in Sweden (Forum för Arbetslivsforskning), which organizes yearly conferences in the working life research field. In this arena, research leaders within HELIX participate and discuss relevant contemporary issues.
- Jönköping Academy for Improvement of Health and Welfare at Jönköping University, headed by Professor Boel Andersson Gäre, with a research focus on clinical quality improvement, learning, and process innovations within the health care and welfare sectors.
- Stockholm Center for Civil Society Studies (SCCSS), headed by Associate Professor Wijkström at the Stockholm School of Economics is a centre for the organizational field of civil society organizations.
- The National platform for sustainable working life in Horizon 2020, a cooperative initiative from Swedish universities promoting working life research in the EU research funding system.

Collaborations with Other Organizations at Linköping University

HELIX also has collaborations with other organizations and research teams at Linköping University. Important collaborators are:

- Division of Political Science. This close collaboration with Professor Elin Wihlborg and Dr. Bo Persson strengthens our expertise especially regarding policy development.
- REMESO (Institute for Research on Migration, Ethnicity and Society), a 'Forte Centre of Excellence', with which HELIX has collaboration in research on entrepreneurship among different ethnic groups, as well as women's entrepreneurship. A number of HELIX researchers are also related to REMESO, and the head of REMESO collaborates on HELIX projects. REMESO pursues interdisciplinary research and education on transnational migration, ethnic diversity, and citizenship in relation to changes in the labour market.
- The Centre for Municipality Studies (CKS). The centre focuses on questions and challenges of major importance for municipalities. The main purpose is to generate knowledge through research, support, evaluation and seminars.
- The Medical Education Research Group at the Department of Medical and Health Sciences headed by Professor Abrandt Dahlgren. This collaboration strengthens our expertise especially regarding professional learning, interprofessional learning and simulation-based learning and education in health care.
- The National Institute for the Study of Ageing and Later Life (NISAL). Our close contacts and collaboration with NISAL is of course a strength in our work for a sustainable working life.

4. Societal Impact

The main issues that were the focus of the HELIX research program are of high priority in the field of work life research as well as in policy debates, such as those involving most governments, the EU Commission, and the OECD. In line with this, an overall objective of the research at HELIX was to contribute to the development of new types of work and ways of organizing and developing work in Europe. Our research so far points to the possibility of reaching a balance between interests of employees and employers in terms of how good conditions for learning, health, entrepreneurship and gender equality can be combined with an effective production system.

Although these and related issues are of a high priority at the policy level and in large parts of the research community, it is also clear that many of these issues are of considerably lower priority to many employers in the private as well as the public sector. A major result of the HELIX program so far is, however, that we have been able to successfully meet this challenge. We have been able to do so by establishing and carrying out a large number of research and innovation projects in collaboration with our partner organizations. Several of these projects involve private companies together with public sector organizations and unions, which makes it possible to consider and establish a dialogue between different knowledge interests within these projects.

Building a Regional Innovation System

Through the development of the HELIX partnership we have been able to establish HELIX as an active intermediary between different interests and actors. This role as an intermediary means, firstly, that HELIX was an attractive meeting place for its partners. Secondly, that HELIX also had a mediator role (a broker role) linking, for example, companies with the university, or actors at the local, regional, national, and European level. Thirdly, it also means that HELIX has over time developed into being a motor or vehicle for change and innovation in partner organizations.

Expanding the Partnership

In our application for HELIX Competence Centre 2016 (VINNOVA Competence Centre) we have expanded our partnership. In our new proposal we organize the Centre in line with a Penta-HELIX partnership approach. This means that we engage universities and private firms as well as actors within the public sector, labour market, and civil society organizations. The expanded academic constellation in HELIX consists of Linköping University as a coordinator together with two academic partners: KTH Royal Institute of Technology in the Stockholm/Södertälje area and Swerea IVF in the Gothenburg/West Sweden region, in connection with existing and new partner organizations. In line with previous evaluation we expand our work nationally. Our initiative Workplace-related R&D presented below is another similar initiative.

The national network Workplace-related R&D constitutes a national arena bringing together researchers, practitioners, labour market parties and financiers, having the same interest of creating a sustainable working life. HELIX initiated this network during 2015, and along with Swerea IVF led this dynamic effort in placing working life research and innovation at the forefront of public and policy practice. This network collaboration gives important input to the design of HELIX research projects with a high relevance for practice. The network is also a vital distribution channel for our research results. Workplace-related R&D consists of more than 150 working life researchers at eight (8) universities and research institutes in Sweden.

Swerea IVF and FALF (the Forum for Work Life Research in Sweden) are among our active collaborators in this network. The network's focus is on research that creates a sustainable working life. The overarching objectives are to generate knowledge, which then implemented would lead to competitiveness and innovation through good working conditions, to create a stronger interaction between workplaces and researchers, and to combine high-quality research with practical use.

Creating Sustainable Effects of Projects and Programs – the Case of the European Structural Funds in Sweden

The Structural Funds are supporting a wide range of projects in Sweden designed to benefit the regional or local economy through, for example, creating employment, innovation and renewal, or increasing skills and training. Below we will focus on the two major Structural Funds, that is, the European Regional Development Fund (ERDF) and the European Social Fund (ESF). Creating sustainable effects of projects and programs is of course of the highest priority, which also makes evaluation a top priority. In preparation for the program period 2007–2013, the EU member states were recommended to develop a new approach to project and program evaluation, called ongoing evaluation, with a focus not only on results or effects, but also on processes and project support. The member states were expected to develop their own evaluation approach in line with these general recommendations.

This was the background and point of departure for the research collaboration initiated in 2007 between HELIX and representatives of the Social (ESF) and Regional Development Funds (ERDF) in Sweden. The main contact persons and cooperating research partners were leading officials responsible for program development and evaluation within ESF and ERDF. However, researchers from HELIX cooperated also with a number of other officials at regional and national level, and were involved in strategic dialogues concerning, for example, program criteria and project calls. The research collaboration has expanded over the years and is still ongoing. Roughly, it is possible to distinguish between three phases in this collaboration. In the *first* phase, there was a focus on developing an evaluation approach in line with the concept of ongoing evaluation. With inspiration from the HELIX model of interactive research and research on learning, an approach called learning evaluation was developed and presented in a book on evaluation published in Swedish and English (Svensson et al., 2009).

In the *second* phase, there was a focus on key success factors for sustainable change through projects and programs, and implications for project and program management. This phase resulted among other things in a model for sustainable change, called the “sustainability chain”, emphasizing active ownership and collaborative learning between different project/program actors and stakeholders through learning evaluations. The *third* and latest phase in the research collaboration, has concerned how to understand and capture long-term effects of projects and programs through different types of evaluation approach. Also research results from the second and third phase have been published in books published in Swedish and English (Brulin & Svensson, 2011; Svensson et al., 2013).

The research collaboration has to large extent been based on different kinds of learning activities. During all three phases quite a large number of seminars on learning evaluation and project management has been carried out both with participants from the Structural Funds (e.g. officials at the regional and central level) and from other organizations (e.g. project owners and project leaders). Furthermore, two courses on learning evaluation (7.5 credit points) have been carried out at Linköping University with several of the HELIX researchers as teachers. Later on seven other universities (Halmstad University, Malmö University, Mid Sweden University, Mälardalen University, Dalarna University, the Swedish National Defence College, and Luleå Technical University) have carried out one or more courses based on the same concept and with a similar syllabus the first courses at Linköping University.

Available evidence concerning knowledge utilization and impact indicates a range of indirect and direct impacts.

Examples of *indirect knowledge use and impact*, include:

- Awareness among officials at different levels of the Structural Funds, including the EU-level, of the concept of learning evaluation and the research on project management and evaluation conducted at HELIX. Officials at the EU level have also explicitly pointed to the development of the concept of learning evaluation in Sweden as an example that could inspire work on evaluation in other member states.
- An increased knowledge and understanding of the steering, management and evaluation of projects and programs among: (a) officials at the regional and national levels of the Structural Funds; (b) evaluation practitioners, e.g. consultants that are active on the “evaluation market”; and (c) other groups (e.g. university teachers, officials from Governmental agencies and interested public) that have participated in the university courses on learning evaluation that have been carried out at the six Swedish universities mentioned above.

Examples of *direct, instrumental knowledge use and impact*, include:

- Input to policy actions within the Structural Funds, for example, concerning the formulation of program criteria, project calls, and recommendations to include learning evaluations in all larger projects and programs that are funded.
- Changes in existing practices in the evaluation of projects funded by the Structural Funds in Sweden in accordance with ideas about learning evaluation.
- Changes in practices among officers within the Structural Funds towards more interactive relations with project managers, communication of demands and expectations, and a more active support of projects that get funding.

HELIX Industrial and Public Sector Partners

	Organization No.	Employees
Industrial Partners		
<i>Toyota Material Handling, Europe Inc.</i> Mjölby (Former BT Products)	556198-2868	7 500
<i>Industrial Competence Inc.</i> <i>Industrikompetens AB</i> , Linköping. Owned by 21 major companies in the in the region	556060-5478	60
<i>IUC Östergötland</i> , Finspång One of 21 Industrial Development Centres (IDC) in Sweden	556540-4638	20
<i>Rimaster Inc.</i> , Rimforsa south of Linköping	556255-0862	580
<i>SAAB, Inc.</i> Linköping	556036-0793	13 970
<i>Siemens Industrial Turbomachinery Inc.</i>	556606-6048	2 740
Partners from Public Sector Organizations		
<i>The East Sweden Regional Council</i> , Linköping	222000-1495	60
<i>The National Insurance Office</i> , Stockholm	202100-5521	650
<i>The County of Council of Östergötland</i> , Education, public health, social services	232100-0040	11 950
<i>The Municipality of Finspång</i> Education, public health, social services	212000-0423	2 325
<i>The Municipality of Linköping</i> Education, public health, social services	212000-0449	6 825
<i>The Municipality of Mjölby</i> Education, public health, social services	212000-0480	2 525
<i>The Municipality of Motala</i> Education, public health, social services	212000-2817	4 225
<i>The Municipality of Norrköping</i> Education, public health, social services	212000-0456	8 775
Partners from Labor Market Organizations		
<i>IF Metall</i> Östergötland, regional organization	802002-2896	20 000
<i>The Swedish Municipal Workers Union</i> Östergötland, regional organization	822003-0897	26 500
<i>UNIONEN</i>	802001-5759	15 000
<i>TRR in Östergötland AB (Trygghetsrådet)</i>	802400-4825	15