

Swedish Research on

WORK ORGANIZATION

AN EVALUATION COVERING THE PERIOD 2007-2013

BY:

Arnold B. Bakker

Silvia Gherardi

Gudela Grote

Russell Lansbury

Peter Pawlowsky

Robert A. Roe

Foreword

FORTE, THE SWEDISH Research Council for Health, Working Life and Welfare has the mandate from the Government to fund research, to communicate research and to evaluate research in order to set priorities for research and identify knowledge gaps. As obvious from its title, Forte has research on Working Life as one of its main pillars, comprising a wide area of research domains such as physical work environment, labor market and work organization. Sweden has by tradition had a strong research capacity in several domains of Working Life Research, but changes in the research funding structure, the academic environments, research priorities as well as other major changes in society, inevitably affects research interest and research capacity. In particular, Sweden has had a strong capacity in the field of work organization research, to some extent originating from a social contract between parties on the labor market in a welfare state that has changed substantially in recent years. As a part of major societal changes in Sweden, specific public research funding to working life research has

been discontinued and Forte is now the main public research funder in the area.

In order to find out the present situation regarding quality and capacity of Swedish research on work organization, the board of Forte took the initiative to ask an international panel to perform an evaluation of the research area. The panel, under the leadership of professor Robert A. Roe, has done a thorough investigation, comprising literature assessment, bibliometric analyses, questionnaires and interviews with researchers, site visits and interviews with stakeholders and assessment of funding sources. The result of a very thorough and dedicated work is presented in this report. Forte is very grateful to all members of the panel for taking their time and effort to produce this comprehensive report. The assessment made will be of great help in setting priorities for research not only for Forte, but for Swedish research planning in general, in order to meet the dramatic challenges within working life in a rapidly changing society.

Ewa Ståldal
Director General

Peter Allebeck
Secretary General

INDEX

1. INTRODUCTION	9		
1.1. Background	9	3.5.4. <i>Other funders</i>	22
1.2. Aim of the evaluation	9	3.5.5. <i>General remarks on the funding of work organization research</i>	22
1.3. Reference Group	10	3.6. Research units receiving funding	23
1.4. International Panel	10	4. SURVEY OF SWEDISH RESEARCH IN WORK ORGANIZATION	24
2. THE EVALUATION PROCESS	11	4.1. Research landscape	24
2.1. Delineation and segmentation of the field	11	4.2. Research topics for the future	26
2.2. Dimensions and criteria	12	4.2.1. <i>Constraints and problems researchers are facing</i>	26
2.3. Sources of information	13	4.2.2. <i>Measures to be taken according to researchers</i>	28
2.4. Assessment	13	4.3. Observations	28
3. FUNDING AND INFRASTRUCTURE OF SWEDISH WORK ORGANIZATION RESEARCH, PAST AND PRESENT	14	5. REVIEW OF SWEDISH WORK ORGANIZATION RESEARCH	29
3.1. The funding of work organization research - the general picture and developments over time	14	5.1. Overall picture of current research	29
3.2. Development of public funding of work organization research	14	5.2. Research by area	32
3.3. Changing infrastructure for work organization research	17	5.2.1. <i>Area 1: Organization, Working Conditions and Work Design</i>	32
3.4. Overview of external funding for work organization research	19	5.2.2. <i>Area 2: Organization, Management, Leadership and Teamwork</i>	33
3.5. Current funding of work organization research	20	5.2.3. <i>Area 3: Changes in Work, Organization and Environment</i>	35
3.5.1. <i>Forte</i>	20	5.2.4. <i>Area 4: Employment Relations, Influence and Partnership</i>	36
3.5.2. <i>VINNOVA</i>	21	5.2.5. <i>Area 5: Behavior, Health and Wellbeing in Work and Organization</i>	38
3.5.3. <i>AFA Insurance</i>	21	5.2.6. <i>Conclusions</i>	39

6. VIEWS OF RESEARCHERS AND STAKEHOLDERS	40	6.3.3. <i>BT Toyota in Mjölby</i>	45
6.1. Views of researchers	40	6.3.4. <i>Gustavsbergs Vårdcentral (Primary Health Care Clinic)</i>	45
6.1.1. <i>Historical Background</i>	40	7. SWEDISH WORK ORGANIZATION RESEARCH TODAY	47
6.1.2. <i>Swedish Work Organization research: Current issues</i>	41	7.1. Assessment of the research	47
6.1.3. <i>Interdisciplinary research</i>	41	7.1.1. <i>Performance</i>	47
6.1.4. <i>Research collaboration: Scandinavia, Europe, and world</i>	41	7.1.2. <i>Significance and impact</i>	47
6.1.5. <i>Language</i>	42	7.2. Assessment of the research system	48
6.1.6. <i>Career development</i>	42	7.2.1. <i>Infrastructure and funding</i>	48
6.1.7. <i>Future Opportunities</i>	42	7.2.2. <i>Embeddedness and sustainability</i>	48
6.1.8. <i>Future Challenges</i>	43	7.3. Overall assessment	49
6.2. Views of social partners	44	7.4. Perspective	49
6.3. Site visits	44	8. SUMMARY AND RECOMMENDATIONS	51
6.3.1. <i>LKAB Mine in Kiruna</i>	44	9. REFERENCES	52
6.3.2. <i>Scania Bus and Truck Manufacturing in Sodertalje</i>	45		

Preface

IN 2013 THE Board of the Swedish Research Council for Health, Working Life and Welfare (Forte) decided that Forte during the following year should carry out an evaluation of work organization research in Sweden. The aim of the evaluation was described as “to make an assessment of the scientific quality of the research and to identify gaps, weaknesses and strengths of Swedish work organization research from an international perspective”. Work organization research was defined as research on the organization, structuring and management of human work. It was agreed that five main research areas would be included, defined as 1) Organization, working conditions

and work design, 2) Organization, management, leadership and teamwork, 3) Changes in work, organization and environment, 4) Employment relations, influence and partnership, and 5) Behavior, health and wellbeing in work and organization.

This report does not take a historical perspective but focuses on the present and recent past, covering a period of seven years, i.e. 2007–2013. It aims to give an inventory of the research field but also the requested evaluation of gaps, weaknesses and strengths of Swedish work organization research as seen from an international perspective.

EXECUTIVE SUMMARY

This is a report from a review of Swedish research on Work Organization during the period 2007-2013. The purpose of this review is to evaluate the scientific quality of the research and to identify gaps, weaknesses and strengths of Swedish work organization research from an international perspective. The conclusions drawn are based on data from several sources, mostly a survey among researchers, bibliographic data obtained from the Web of Science, and a data-base of Swedish PhD dissertations.

Research productivity and impact of research in the scientific community are high. There is a good mix of quantitative and qualitative research and of publications in English and Swedish to reach stakeholders both in academia and in practice. There seems to be a lack of building new theory that embraces economic and societal changes amounting to the possibility of developing a "new Swedish model". There is intense collaboration among researchers in Sweden and to a lesser extent in the Nordic countries. International collaboration beyond Scandinavia is rare. Overall, there is an impressive research capacity in Sweden, with more than 70 very active research groups. However, support for strategic planning, coordination, exchange and development for researchers, and internationalization seems to be lacking. Funding is still substantial but scattered across several funding agencies, focusing on more short-term and economically driven topics. Due to changing funding schemes, it has become more difficult to attract and support PhD students, endangering a sufficiently strong base from which the next generation of academics in work organization research can be drawn.

Considering the strong position that Sweden had in Work Organization research in the past, the risk of a downfall involving loss of intellectual and social capital and erosion of Sweden's international position and reputation, could and should be prevented. A number

of recommendations were developed, focusing especially on promoting a strategic reorientation of Work Organization research through a thorough analysis of the Swedish and international context, strengthening of the research infrastructure and development of a new funding framework by Forte that supports long-term, conceptually driven research.

DISCLAIMER

This review is written on the basis of the material provided by Forte. It assumes that the sample of participants in the Survey and the interviews adequately represent the community of Swedish work organization researchers and that the bibliographic data collected are representative for the research in the work organization area.

BIOGRAPHIES OF THE INTERNATIONAL PANEL MEMBERS

ARNOLD B. BAKKER is Professor of Work and Organizational Psychology and Director of the Center of Excellence for Positive Organizational Psychology at Erasmus University Rotterdam, The Netherlands. He is also distinguished Visiting Professor at the Faculty of Management of the University of Johannesburg, South Africa. He is Past President of the European Association of Work and Organizational Psychology. Prof. Bakker is particularly interested in positive organizational phenomena, including work engagement, JD-R theory, job crafting, creativity, and job performance. He publishes regularly in the main journals in the field, including the Journal of Organizational Behavior, Journal of Applied Psychology, and Journal of Vocational Behavior. He is editor of Current Issues in Work and Organizational Psychology (Psychology Press), and Advances in Positive Organizational Psychology (Emerald).

SILVIA GHERARDI is Senior Professor of Sociology of Work and Organization at the Faculty of Sociology

of the University of Trento, Italy, where she has been Director of the Research Unit on Communication, Organizational Learning, and Aesthetics since 1993. She has a degree in sociology and has been trained in sociology of organization at the Faculty of Sociology of the University of Exeter (UK). In 2005 she was named Doctor Honoris Causa by Roskilde University (Denmark), in 2008 Honorary Member of the European Group for Organizational Studies (EGOS), in 2010 she was named Doctor Honoris Causa by Kuo-pio University (Finland), and in 2014 she was named Doctor Honoris Causa by St. Andrews University (UK).

Prof. Gherardi is particularly interested in the exploration of different "soft" aspects of knowing at work and in organizations, with a peculiar emphasis for communicative, emotional, symbolic, and linguistic aspects of organizational processes. She has been co-editor of the journal *Organization* for many years and she is in the editorial board of many well known journals in the field such as *British Journal of Management*, *Journal of Organizational Ethnography*, *Gender, Work and Organization*, *Culture and Organization*, and other.

GUDELA GROTE is Professor of Work and Organizational Psychology at the Department of Management, Technology, and Economics at the ETH Zürich, Switzerland. She received her PhD in Industrial/Organizational Psychology from the Georgia Institute of Technology, Atlanta, USA. Special interests in her research are the increasing flexibility and virtuality of work and their consequences for the individual and organizational management of uncertainty. Prof. Grote has published widely on topics in organizational behavior, human factors, human resource management, and safety management. She is associate editor of the journal *Safety Science* and president of the European Association of Work and Organizational Psychology.

RUSSELL LANSBURY is Emeritus Professor of Work and Organisational Studies in the School of Business, University of Sydney, Australia. He holds a PhD from the London School of Economics and has been awarded an Honorary Doctor of Letters (DLitt) by Macquarie University in Sydney, Australia, and an Honorary Doctor of Technology (DTech) by Lulea Technical University in Sweden. He is a former President of the International Labour and Employment Relations Association (ILERA). He has been a Senior Fulbright Scholar at both Harvard University and the Sloan School of Management at MIT in Boston. He has been a Visiting Professor at the National Institute of Working Life Research (Arbetslivsinstitutet) in Sweden.

Prof. Lansbury's recent research interests have focused on the transfer of employment relations policies of multinational enterprises from headquarters to their subsidiaries. He was the joint editor of the *Journal of Industrial Relations* for ten years and has served on the advisory boards of leading international journals in employment relations and human resources. He is the joint editor of the sixth edition of *International and Comparative Employment Relations: National Regulation, Global Changes* (Sage, London).

PETER PAWLOWSKY is Professor for Personnel and Leadership at the Institute for Personnel Management and Leadership Studies and Director at the Research Institute for Organizational Competence and Strategy (FOKUS) at the Faculty for Business Administration of Chemnitz University of Technology, Germany. He studied in the USA (San Diego) and Germany (University of Göttingen & Free University Berlin). He has been Executive Program Director for Corporate Leadership Issues at the Bertelsmann Foundation in Gütersloh, Assistant Professor and Managing Director of the Research Center on Labor Economics/Behavioral Economics at the Free University of Berlin.

Prof. Pawlowsky is co-founder and President of the Society for Knowledge Management 2001-2003, Germany, founding member New Club of Paris, and former Director of the Executive Master of Knowledge Management program at Chemnitz University of Technology. He was guest professor at JAIST (Japan Advanced Institute of Science and Technology), Hokuriku, Japan. His areas of expertise are Human Resource Management, Leadership Research, Knowledge Management, Organizational Learning, and High Performance Management. He published 13 authored and edited books and over 150 articles in scientific journals and books.

ROBERT A. ROE is Honorary Emeritus Professor of Organizational Theory and Organizational Behavior at the School of Business and Economics of Maastricht University, the Netherlands. He is also Visiting Emeritus Professor at the universities of Valencia (Spain), Trento (Italy), Vancouver, (Canada), and Johannesburg (South Africa). He was educated as a psychologist and obtained his Doctor's Degree in Social Sciences from the University of Amsterdam. He has been professor at the universities of Delft, Tilburg, Nijmegen and Maastricht, and Fulbright Scholar at the University of Michigan, Ann Arbor, USA. He recently held the Leibniz chair at the University of Leipzig (Germany) and is currently President of the European Federation of Psychologists Associations.

He has worked in multidisciplinary settings for most of his career. He has been founding Director of the Work and Organization Research Center in Tilburg, the Netherlands, and Director of the Netherlands Aeromedical Institute in Soesterberg.

Prof. Roe's research has spanned a broad range of issues, including political behavior, HRM, work analysis and design, work and health, teamwork, leadership, trust, organizational change, and organizational im-

pacts of technological change and economic transformation. His current interest is in the role of time in methodology and theory building.

He has served on the editorial boards of more than a dozen of scientific journals, including the Journal of Organizational Behavior, Applied Psychology – An International Review, and the European Journal of W&O Psychology, and written more than 400 scientific and professional publications.

1. INTRODUCTION

1.1. BACKGROUND

For many people, in the country as well as abroad, Swedish research in the field of Work Organization was an example of how excellent scientific research could serve the interest of firms, workers and government, and simultaneously contribute to the social and economic success of the nation. In post-War years, Sweden had seen the development of harmonious and productive relations between social partners, and the build-up of a unique infrastructure for research on labor market, work environment, and organization issues. In later years, at the heart of this was the National Institute for Working Life (NIWL; Arbetslivsinstitutet), founded in 1995, which at its heydays had 300 researchers and a budget of 300 MSEK. Political changes and a strategic reorientation of Swedish research led to the closure of the institute in 2007. The budget for Work Organization research was dramatically reduced and the remaining research capacity was relocated to the universities. The changes in work organization research following this year have been the subject of several national studies. This report is the first written by an international panel. It covers the period from 2007 through 2013 and presents a description and evaluation of the Swedish work organization research during that time.

1.2. AIM OF THE EVALUATION

The assessment has two major objectives:

1. to conduct an evaluation of the quality (strengths and weaknesses) and coverage (gaps) of research on 'work organization' in Sweden with respect to scientific and application aspects;
2. to evaluate the development of the research, considering the past and current trends, and to make suggestions on future directions, funding

structures and resources, and the research infrastructure, indicating their relevance for policymakers, funding agencies and researchers.

The evaluation is done from an international and interdisciplinary perspective and takes into account the views of stakeholders. Although the report considers some facets of the history of work organization research in Sweden, its focus is on the present and recent past. That is, the evaluation is limited to the years 2007-2013, the period after the closure of the NIWL. In this way the report complements earlier publications focusing on the history of Swedish work organization and work life research, such as Abrahamsson & Johansson (2013); Albin, Johansson, Järholm, & Wadensjö (2009), Håkansta (2014), Johansson & Abrahamsson (2009), Johansson, Abrahamsson, & Johansson (2013), Sandberg (2013), Sandberg et al. (1992), Stureson (2008), and Westerholm (2007). Chapter 3 of this report, particularly the sections 3.2 on the development of public funding of work organization research and 3.3 on the changing infrastructure for work organization research and Appendix A, an essay titled 'From productivity to complexity – history of Swedish WO research' explicitly deal with history. In addition, references to history are to be found in several other sections of the report.

The results of this evaluation are to be used by Forte to review the strengths and weaknesses of the current system of funding of work organization research. This will allow Forte to provide the Swedish government with an updated view on the status and potential of work organization research with the aim of underpinning and strengthening government strategies in areas such as employment, migration, gender equality, health, digitalization and international economics.

1.3. REFERENCE GROUP

Forte began by setting up a Swedish Reference Group, consisting of the following experts in the field of work organization: Professor Lena Abrahamsson, Department of Business Administration, Technology and Social Sciences, Luleå University of Technology; Klara Adolphson, Head of Organisation and Management Department, Vinnova; Professor Jan Forslin, Department of Industrial Economics and Management, KTH Royal Institute of Technology; Olle Hammarström, Consultant, assigned Mediator at the Swedish National Mediation Office; Professor Gunn Johansson, Department of Psychology, Stockholm University; Professor Jan Löwstedt, Stockholm Business School, Stockholm University; and Professor Magnus Sverke, Department of Psychology, Stockholm University. The Reference Group helped to define the research field to be covered and provided advice on the planning of the evaluation, the selection of experts for the International Panel, and the identification of research groups and researchers in the area. It was also instrumental in establishing contacts with stakeholders and researchers which were interviewed by the International Panel, and it provided background information on the history and recent development of the field. The Reference Group met altogether six times.

1.4. INTERNATIONAL PANEL

The International Panel was composed of foreign experts with expertise in the area of work organization and without any direct involvement in Swedish research. To guarantee sufficient understanding of the Swedish background and access to Swedish publications, two members were included who had good mastery of the Swedish language.

The members of the panel are: Professor Robert A. Roe, Maastricht University, The Netherlands (chair-

person); Professor Arnold B. Bakker, Erasmus University Rotterdam, The Netherlands; Professor Silvia Gherardi, University of Trento, Italy; Professor Gudela Grote, ETH Zürich, Schweiz; Professor Russell Lansbury, University of Sydney, Australia; and Professor Peter Pawlowsky, Chemnitz University of Technology, Germany.

Professor Robert Roe acted as chair of the International Panel. The group met three times in Stockholm. At the first meeting in February 2014, the purpose and objectives of the evaluation were presented. With the help of the Reference Group, the scope of the work organization field was clarified and criteria for the evaluation were established. The panel also drew up a work plan for the evaluation, defined the information-gathering tasks to be delegated to Forte staff, and established a time schedule.

At the second meeting in August 2014, the International Panel reviewed the information gathered by then, decided upon further information needed, and made preparations for interviews and site visits as well as its next meeting. It conducted two interviews with stakeholders from the labor union and employer side. It also consulted members of the Reference Group on certain issues.

The third meeting took place in October 2014 and lasted a whole week. The panel conducted a series of group interviews with stakeholders and researchers from universities throughout Sweden. Moreover, it reviewed the information gathered meanwhile and made a more detailed plan for the further work. Apart from documenting its activities, it began making assessments and writing this report.

The report was written in the winter of 2014/2015. When the report writing was finished in draft, a feedback seminar was organized.

2. THE EVALUATION PROCESS

2.1. DELINEATION AND SEGMENTATION OF THE FIELD

There is no unequivocal, internationally accepted definition of the field of 'work organization'. In a narrow sense, work organization refers to the way in which work is and should be organized, and work organization research pertains to processes of structuring work, the structural arrangements and processes resulting from this, and their impacts on people and society. In a broader sense, work organization refers to a range of social, economic and technical phenomena that are affecting, interconnected with, or affected by work and the way in which work is structured and managed. This includes new arrangements in which workers are working in different locations and at different times, and without permanent employment and the protection of labor law and trade unions, as was the case in the past. In this broader sense, work organization involves labor market, labor relations, work environment, and working life issues. Research on work organization conceived in the latter way has a broad scope and ranges from the study of job design, work motivation and leadership to public health, corporate strategy and economic policy.

After a discussion with the Reference Group, the International Panel opted for a broad operational definition of work organization research, as this would allow seeing wider patterns and trends over time, while keeping the possibility of zooming in on certain core phenomena. The field was demarcated with the help of keywords used in pertinent literatures. The keywords were arranged in five categories that have been used to segment the field into research areas. It is important to note that these categories are overlapping and that their content is subject to changes over time.

The following five areas with the initially chosen keywords are the following.

1. *Organization, Working Conditions and Work Design (Design)*
Organization structure, Technological system, Production system, Information system, System design, Sociotechnical design, Workplace design, Job design, Task design, Human factors, Ergonomics, Division labor, Working hours, Work time, Shift work, Work demands, Workload, Safety, Risk, Accidents
2. *Organization, Management, Leadership and Teamwork (Management)*
Ownership, Strategy, Legitimacy, Productivity, Return-on-investment, Return-on-assets, Business ethics, Corporate social responsibility, Sustainability, Authority, Power, Organizational politics, Collaboration, Management, Decision-making, Human resources, Recruitment, Selection, Training, Employee development, Career development, Career planning, Outplacement, Worker diversity, Leadership, Followership, Teams, Team climate, Organizational culture.
3. *Changes in Environment, Organization and Work (Change)*
Ecological change, National culture, Cross-cultural, Technological development, Innovation, Virtual work, Mobile work, Internet, Interconnectivity, Mergers, Acquisitions, Outsourcing, Privatization, Marketization, Public-private partnerships, Labor market, Flexibility, Entrepreneurship, Career,

Employability, Unemployment, Demographic change, Organizational change, Organizational development, Organizational transformation, Organizational transition, Organizational learning.

4. *Employment Relations, Influence and Partnership (Employment Relations)*

Industrial relations, Labor relations, Industrial democracy, Worker or employee participation and partnership, Psychological contract, Trade union, Labor unions, Shareholders, Stakeholders, Co-determination, Joint consultation, Collective bargaining, Works councils, Industrial action, Working conditions, Worker equality, Wages, Salaries, Benefits, Retirement, Worker protection, Arbitration.

5. *Behavior, Health and Well-being in Work and Organization (Behavior)*

Commitment, Involvement, Engagement, Loyalty, Turnover, Work attitudes, Absenteeism, Presenteeism, Justice, Fairness, Trust, Identity, Citizenship behavior, Extra-role behavior, Counter-productive behavior, Emotion, Anxiety, Fatigue, Recovery, Employment security, Stress, Strain, Burnout, Well-being, Health, Occupational disease, Work disability.

2.2. DIMENSIONS AND CRITERIA

The review focuses on four important dimensions of research which were agreed upon with Forte and the reference group. Two of these relate to the specific research undertaken and its impact, two relate to the field of Swedish work organization research as a whole. Each of the dimensions is evaluated by three criteria, which are listed below.

A. Scientific performance (compared to international standards)

1. Research productivity: the number of publications and their impact
2. Research quality: the application of appropriate theories, concepts, methods, samples etc.
3. Innovative potential: the presence of original ideas that have the potential for novel discoveries or applications.

B. Significance and impact of the research for society (that is for people and business as well as public organizations, in Sweden and internationally).

4. Policy and social relevance: significance of questions, models, theories for issues in organizing work
 5. Impact/Valorization: evidence of actual applications and impact, or potential for application and impact, in organizational practice or policy-making.
 6. Coverage of important issues: degree to which important issues in Swedish society are being studied.
- C. Research infrastructure and the availability of funds (as prerequisites for scientific research)
7. Organizational structures and resources: presence of structures and resources that permit, promote and support doing research and publishing research
 8. Availability of funding: access to and likelihood of obtaining financial means for doing research
 9. Intellectual capital: presence of collective knowledge and learning capability regarding the research field.
- D. Embeddedness and sustainability (as enhancers of quality and impact over longer periods of time)
10. Continuity/sustainability: possibility to extend research over multiple years and attain cumulative knowledge and impact
 11. Reproductive capacity: presence of arrangements for educating and socializing young researchers (PhD) and for enhancing research competence of researchers (postdoc and senior)
 12. International embeddedness: degree to which Swedish research is connected with research in other countries and integrated in international research activities.

These criteria have been used in determining strengths and weaknesses, and in identifying gaps.

2.3. SOURCES OF INFORMATION

The following sources of information were used for the evaluation.

- 1) Background information: publications and documents on the history of Swedish work organization research and about the state of research in this field internationally.
- 2) Survey among researchers: questionnaire filled by leaders of research groups and individual researchers regardless whether they have been funded by Forte or other bodies.
- 3) Publications: the up to 10 best publications from each researcher participating in the survey.
- 4) Bibliometric analysis: analysis of scientific output within the work organization field, as recorded in Web of Science, with numbers of citations and the Impact factor of major journals.

- 5) Dissertations: theses registered in a national database, from the 1960's on, relating to the work organization field.
- 6) Interviews and site-visits: group interviews with (a) representatives of unions and employers, public and private organizations, and (b) researchers.

2.4. ASSESSMENT

The International panel has studied the different sources of information and given a descriptive account of each of them, where possible distinguishing between the five research areas. In the final assessment all sources of information have been taken together.

3. FUNDING AND INFRASTRUCTURE OF SWEDISH WORK ORGANIZATION RESEARCH, PAST AND PRESENT

This chapter gives an overview of the development of research funding in Sweden. It describes the history of research funding in general and zooms in on the funding of work organization research in a way that allows seeing the changes during the first decade of the new millennium. In addition it provides information on the funds currently involved in financing work organization research¹.

3.1. THE FUNDING OF WORK ORGANIZATION RESEARCH - THE GENERAL PICTURE AND DEVELOPMENTS OVER TIME

Based on statistics from 2011, Sweden's total expenditure for R&D has been a total of 3.4-3.6% of GDP (or 124 billion SEK)², which is well over the 3% target of the European Union's Lisbon 2020 strategy and more than any other country in the world. Of this, 70% is provided by the private sector, 25% by the government support for the higher education sector, and 5% by government, public agencies and non-profit organizations. An overall picture of Swedish R&D of the year 2011 is given in Table 3.1. The types of research funded in 2013 are shown in Table 3.2.

If one examines the total research investments reflected in the Fiscal Bills and Research Bills of the Swedish Government, it is quite obvious that there has been a strong expansion of the public investments in research over the last decade. Important from a research funding perspective is the introduction of centers of excel-

lence in 2004/05 and the launching of strategic fields 2008/09. As indicated in Table 3.3, which contains information from Statistics Sweden's database, the major funding in Sweden stems from the corporate sector.

3.2. DEVELOPMENT OF PUBLIC FUNDING OF WORK ORGANIZATION RESEARCH

The general information presented above tells us little about the funding of work organization research. In fact, the share of public and private funding is quite different from the overall picture, since here, public funders make the largest contribution. How much the private sector contributes is not known and hard to estimate since business organizations tend to invest mainly in development and research directly related to themselves.

For a good understanding of this situation, it is worth going back in time and to consider the unique historic developments that stimulated work-related research in earlier decades and that set the stage for the changes of the mid 2000's. Particularly important is the reform of working life that was initiated by the government in the 1970's. While new legislation was created – the Employment Protection Act, Annual Leave Act, Parental Leave Act, Employment (Co-determination in the Workplace) Act, Trade Union Representatives (Status at the Workplace) Act and Labor Disputes Act, some new institutions were established and efforts were made to develop a knowledge supporting

1 This chapter is based on extensive information provided by Kenneth Abrahamsson and Tommy Dahlén, whose help is gratefully acknowledged.

2 http://www.scb.se/en/_/Finding-statistics/Statistics-by-subject-area/Education-and-research/Research/Research-and-development-in-Sweden---an-overview-international-comparisons-etc/Aktuell-Pong/8726/380108/

system shared by the social partners. The government also launched a number of adult education reforms, both in formal education and popular and civic adult education, and supported education and competence development at the workplace level.

A first state body for financing working life research was established in 1972: the *Worker Protection Fund* (Arbetskydds-fonden, ASF), in 1986 renamed as *Work*

Environment Fund (Arbetsmiljöfonden, AMFO). The fund was governed by representatives of Swedish employer organizations, trade unions, and the National Swedish Board of Occupational Safety and Health (in later years the Ministry of Employment). ASF and AMFO became the primary sources for funding research and development programs dedicated to health and safety, as well as issues like gender equity, leadership, and learning. By the years 1990/91, the Work

Table 3.1 Funding of R&D research in Sweden year 2011 (MSEK)

Research funding agencies	Total	Business enterprises	Higher education	Government authorities	Country councils & municipalities	Private non-profit sector
SWEDISH FUNDING	104690	70370	29092	2363	2540	325
Private funding	70981	66191	4188	71	374	157
– Business enterprise	67567	66003	1262	55	209	38
– Private non-profit sector	3068	54	2720	15	160	38
Public funding	33709	4179	24904	2292	2166	168
– Government funding	29208	3989	22660	2259	165	135
FUNDING FROM ABROAD	13197	10774	2154	160	54	55
– Business enterprises from abroad	9964	9661	286	8	9	–
– EU	2002	491	1373	96	42	–
TOTAL R&D IN SWEDEN	117887	81144	31246	2523	2594	380

SOURCE: SCB (STATISTICS SWEDEN)

Table 3.2 Intramural R&D distributed by type of R&D and sector year 2013 (%)

Intramural R&D	Business enterprise sector	Government authorities	Country councils & municipalities	Private non-profit sector
Basic research	2	5	1	50
Applied research	12	70	86	27
Experimental development	86	25	14	23
TOTAL	100	100	100	100

SOURCE: SCB (STATISTICS SWEDEN)

Table 3.3. Corporate investment in R&D 2007 to 2013 (MSEK)

Corporate R&D	2007	2009	2011	2013
Own R&D spending	78352	79346	81145	85934
External investments	31352	26183	28300	31783
Staffing/person years	54439	55147	54292	56143

SOURCE: SCB (STATISTICS SWEDEN)

Environment Fund received around 1500 applications each year of which two thirds were granted. The fund received 900 MSEK from the payroll tax, of which half the sum was allocated to research and development³. As from the late 1980s an increasing proportion of the funds were allocated to the financing of positions and research at academic institutions.

Another public funding initiative was the creation of the *Swedish Working Life Fund (ALF)* in 1990. The aim was to improve the working environment in Sweden, more specifically to "increase labor supply by reducing absenteeism in the workplace and to cool down the overheated economy". The fund provided financial assistance to businesses and local governments who wanted to improve work environment for their employees, rehabilitate employees with work-related injuries, or increase their productivity. During the period 1990-1995 approximately 25.000 workplace programs were financed out of a total budget of 10 billion SEK (two billion SEK annually)⁴. The main actions covered were: changes in work organization 5.5 billion (51%), measures to improve the physical environment 2.2 billion (23%), vocational rehabilitation 1.6 billion (17%), new technology 0.4 billion (4%), and local work environment 0.3 billion SEK (3%).

In 1995 the Work Environment Fund ceased to exist and the *Swedish Council for Working Life Research (RALF)* was established. It acted as a research council for working life and labor market studies, financed by state budget, and supported research in three main areas: work organization, working environ-

ment, and labor market. Figures from 1997 show that work organization was the largest field with around 105 MSEK followed by work environment with 86 MSEK, and labor market with 45 MSEK⁵. Although research funding was the primary function of RALF, part of the budget remained reserved for grants for development projects. The year 1995 brought another important change, namely the entry of Sweden into the European Union. As a consequence the European Social Fund (ESF) became a new financial source for labor market and work place development. Over the years the ESF became a major funding source for work life research.

A major restructuring of Swedish research funding took place in 2001, resulting in fewer and larger scientific councils. As for working life, it was decided to reallocate RALF's activities to two new funding agencies: the *Swedish Council for Working Life and Social Research (FAS)* and the *Swedish Agency for Innovation Systems (Vinnova)*. RALF's budget (some 220 MSEK in 2000) was divided on an equal basis between FAS and Vinnova. FAS' responsibility was broader than that of RALF, including support for research on work, welfare and public health. Research related to working life covered research on work organization, the working environment, and the labor market. However, since Vinnova focuses on issues other than work life, the overall level of funding for working life research declined considerably. Next to FAS, recently renamed as Forte, and Vinnova, there is a third important source of funding, namely AFA In-

Table 3.4 Comparison of total government spending for research and the investments for research on working conditions 2005 to 2013 (MSEK)

Government investment	2005	2006	2007	2008	2009	2010	2011	2012	2013
Working condition	224	243	126	27	143	126	139	144	152
Total spending	23775	24709	24704	25594	28272	29470	28975	31175	31489

SOURCE: SCB (STATISTICS SWEDEN)

3 See Håkansta (2014), page 25-26.

4 Vinnova (2008) Kartläggning av ett halvt sekels jämställdhetsarbete i Sverige. Vinnova-rapport 2008:07

5 Budget Bill/Prop 1998/99:1, page 72.

surance, which is jointly owned by the Confederation of Swedish Employers, the Swedish trade unions and the Council for Negotiation and Cooperation. AFA Insurance funds research into occupational health and safety in Sweden and has an annual research budget of 150 MSEK.

An overall impression of the resources spent on work organization research can be obtained from Table 3.4. This specifies the amounts allocated to research by the Swedish government, and the amounts specified for 'working conditions', as reflected in the Fiscal Bills of the years 2005 through 2013. However, it should be kept in mind that research related to work organization could to a lesser extent also be found in other categories.

This information is interesting because of the decline from 2006 to 2007, which reflects the closing of the NIWL. The drop from 243 to 126 MSEK represents half of the NIWL budget, since NIWL also invested in knowledge dissemination, policy processes and development work. The figure for 2008 does probably depend on the reporting to Statistics Sweden and considers only extra resources from the government and not the regular spending. It is important to note that the investment in research on working conditions went up in recent years, but the share in the total budget declined from 9.4% in 2005 to 4.8% in 2013. This may be indicative of a declining weight assigned to work related research by the government, but the picture is not complete, and contributions via other channels should also be considered.

3.3. CHANGING INFRASTRUCTURE FOR WORK ORGANIZATION RESEARCH

Along with the changes in funding there has been a change in the institutional landscape of Swedish work organization research (Håkansta, 2014). In 1977 a new Working Life Center (WLC) was established, complementing the previously existing Work Environment Institutes. The costs were covered by a payroll tax. As was the case with the Work Environment Fund, the management was in the hands of social partners. In 1995, after an assessment of working life research and its funding, a new research body was created, the *National Institute for Working Life* (NIWL). During the following decade the NIWL developed into a large and powerful research organization as is shown in Table 3.5. In 1999 the regular budget was 300 MSEK, and the number of employees 458.

It should be noted that NIWL over the years expanded by creating regional centers in order to develop closer connection to the universities and to support research and development work in the regions. The collaboration with universities was important because the institute funded doctoral students but had no mandate to supervise students and award PhDs. In 2005 there were 87 PhD students with positions at NIWL, distributed across disciplines such as economic history, sociology, psychology, and occupational medicine. NIWL fulfilled a number of other functions, including a national library on working life research, education and information to local constituencies in the work life sector, and support for international collaboration.

Table 3.5 Number of employees and annual budget in MSEK for NIWL between 1995 and 2006⁶

NIWL	1995	1997	1999	2001	2003	2005	2006
Employees	347	368	458	495	249	–	424
Research & development	242	321	300	325	257	277	237
Other purposes	–	–	128	–	–	–	116

SOURCE: SCB (STATISTICS SWEDEN)

6 Figures for 2006 from Sturesson, L. (2008) Working Life Research in Sweden 2008 - the current position. Stockholm: FAS/Vinnova.

This information helps understand that the close-down of the institute in 2007 and the sudden withdrawal from the government from work related research was a major shock for the researchers in this field, as well as for those who had been benefiting from the research. The budget of 237 MSEK in 2006 was dramatically reduced and only compensated by around 20 MSEK. Resources were reallocated to universities and some newly established institutes with a confined remit, such as the *Institute for Evaluation of Labour Market and Education Policy* (Institutet för arbetsmarknads- och utbildningspolitisk utvärdering; 2007), the *Swedish Social Insurance Inspectorate* (Inspektionen för socialförsäkringen, 2009), and the *Swedish Agency for Health and Care Services Analysis* (Vårdanalys, 2011)⁷.

An overview of the changes in infrastructure, involving the research institutes and the public funding agencies in the domain of work life research is given in Figure 3.1 below. After 2007 there is no longer a centralized institute, but research is being conducted

in a decentralized infrastructure, comprising dozens of research groups at university institutes. Work organization research has thereby become embedded in academic environments and regional settings.

The institutional transformation of organizing and financing after 2006 can be described as a transition from strategy-driven and coordinated with a focus on organizational and human development to more diverse and academically oriented research. This changed the focus of the work from creating more productive working conditions, decreasing accidents and injuries, and supporting employee participation and health to the pursuit of scientific excellence and higher publication rates in international referenced journals. It has become more difficult to develop joint research programs, such as the programs that NIWL had conducted (e.g., on gender studies, regional development, labor law and European integration, work life balance and coping). Building platforms and promoting of international exchange have also become more difficult.

Figure 3.1 Public research institutes and research funding organizations of particular importance to Swedish working life research 1938-2014

Year	Public research institutes	Public research funding organizations	
1938	Work environment institutes ⁸		
1972		Work Environment Fund	
1977	Working Life Centre		
1995	National Institute for Working Life (NIWL)	Swedish Council for Working Life Research (RALF)	
2001		Swedish Council for Working Life and Social Research (FAS)	Swedish Governmental Agency for Innovation Systems (Vinnova)
2007			
2014			

SOURCE: HÅKANSTA, C. (2014).

7 Håkansta, C. (2014). Former Glory and Challenges Ahead: The Definition of Working Life Research in Sweden. *Nordic Journal of Working Life Studies*, 4(4), 3-20.

8 During this period, occupational health was conducted in four different organizations. 1938-1965: a department of National Institute of Public Health (*Statens institut för folkhälsa*), 1966-1971: Institute of Occupational Medicine (*Arbetsmedicinska institutet*), 1972-1986: Department at National Board of Workers' Protection (*Arbetskyddsstyrelsen*), 1987-94: Work Environment Institute (*Arbetsmiljöinstitutet*).

In assessing the consequences of closing NIWL it should be kept in mind that NIWL did not contain all Swedish work-related research. In fact, NIWL covered only some 20% of the total pool of Swedish researchers in the field of working life, and the subfields of occupational health and medicine, work organization, and labor market (including labor law).

3.4. OVERVIEW OF EXTERNAL FUNDING FOR WORK ORGANIZATION RESEARCH

In two surveys, conducted in 2004 and 2008, FAS has charted the external funding of working life research between 2001 and 2007⁹. Although this concerns the years before the period of the current evaluation (2007-2013), these data can provide some insights into the long-term development (see Table 3.6). The table

only includes funding agencies that provided funding of some significance for working life research. The irregularity of the figures could be due to the 2004 and 2008 surveys having been completed by different individuals who have interpreted the survey questions differently. However, they may also reflect reorganizations and changed priorities. With regard to the Swedish Research Council (VR) the difference in magnitude between surveys is probably due to the fact that the 2001-2003 statistics were obtained from its Scientific Council for Medicine and therefore probably only include work environment research, while the 2008 survey was answered after a search of all VR project grants. The decline for AFA Insurance grants from 2003 to 2004 is due to the completion of a major development project.

Table 3.6. Funding per year for research, development, knowledge distribution, positions, centers etc. in the area of working life (MSEK)

Research funding agencies	2001	2002	2003	2004	2005	2006	2007
AFA Insurance	169	231	189	35	42	45	87
Vinnova	118	80	60	39	34	29	82
Swedish Council for Working Life and Social Research (FAS)	94	117	120	128	110	108	138
Swedish Research Council (VR)	3	3	3	27	28	27	26
Bank of Sweden Tercentenary Foundation (RJ)	5	14	17	2	0	32	12
Swedish Association of Local Authorities and Regions (SKL)	3	3	5	2	1	1	1
The Institute for Evaluation of Labor Market and Education Policy (IFAU)	5	6	6	5	5	5	5
FORMAS	5	10	12	0	0	0	0
TOTAL	402	464	412	238	220	247	351

SOURCE: RESULTS OF FUNDING SURVEYS 2004 AND 2008. FAS REPORT (2009), SWEDISH RESEARCH INTO WORKING LIFE - A RESOURCE FOR WELFARE, HEALTH AND GROWTH. ENSURING RESEARCH OF HIGH RELEVANCE AND QUALITY.

Table 3.7. Shares of public and private funding sources in the area of working life for the year 2005 (%)

Research funding agencies	2005	
Public funding	90,6	
Research councils/foundations (public)	39,6	
Basic support from universities (faculty grant)	24,8	
EU-grants	3,9	
Other public funding	22,2	
Private funding	9,4	
Corporate support	2,8	
Private non-profit organisations	4,5	
Other private funding	2,1	
TOTAL	100	100

SOURCE: LEVIN, H. & WIKMAN, A. (2006). KARTLÄGGNING AV SVENSK ARBETSLIVSFORSKNING. FAS.

9 Sturesson, L. (2008) Working Life Research in Sweden 2008 - the current position. Stockholm: FAS/Vinnova.

Table 3.7 shows the great importance of public research councils and research foundations for working life research. These account for almost 40 percent of the total financing. Basic grants from universities and colleges are also important, accounting for about a quarter of the total financing in 2005. This is followed by funds from other public funding (such as support from public authorities), which amounts to approximately 22 percent. EU funds used to account for a relatively small proportion of research funding in the employment field; about four percent. Private research funding includes funding from companies, private non-profit organizations and other private financing. Overall, the proportion of research funds from private financiers amounts to just over nine percent.

There are some differences in the types of research funded from these different sources. For instance, research councils and foundations are most active in the areas of labor and occupational health, basic grants by universities/colleges more often funded work organization research. EU funding was more used for research on the labor market and work, and companies' main contributions were in the areas of safety, health and work organization.

3.5. CURRENT FUNDING OF WORK ORGANIZATION RESEARCH

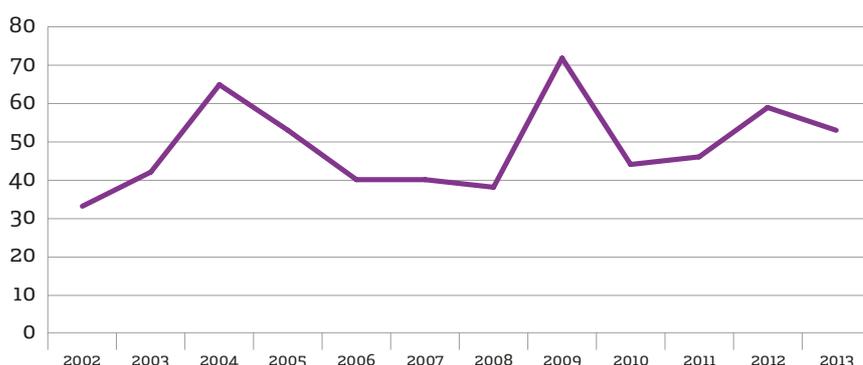
This section gives an impression of the more recent trends in funding research on work organization, looking at the contribution of Forte, Vinnova, AFA Insurance and some smaller funds. We lack the information to provide an overall picture of the funding of

Swedish work organization research in recent years. Extrapolating past budgets to current contexts is anyhow difficult. For instance, basic support from universities seems to be declining, and external funding (public and private) seems to be increasing. It seems reasonable to expect an increase in EU-grants, particularly those stemming from the European Social Fund. During the period from 2007 to 2013, Sweden has been allocated 6.2 billion SEK and should contribute with at least the same amount in Swedish public co-financing. However, the ESF aims to support practical projects that allow people to increase their chances of entering and remaining in the employment market and not primarily research¹⁰. For the period 2014-2020 the Swedish ESF budget is about 7 billion SEK, with an equal amount of co-financing. The focus will be on: stimulating the skills that strengthen individuals' status in the labor market, strengthening the link between education and working life; increasing the transitions to work among people who are far away from the labor market; and facilitating the employment and participation in training among young people.

3.5.1. Forte

While Forte is a major financier of work organization research, this area is only one out of six that is being funded. Forte's grant data base comprises around 380 projects over the years 2001-2013. The amounts funded per year (the total for research projects, program support, and centers of excellence), the share of funding for working life issues and the share of funding for different topics are shown in the figures 3.2 to 3.4¹¹.

Figure 3.2. FAS/Forte support to research on work organization 2002-2013 (MSEK)



SOURCE: FORTE

¹⁰ The Social Fund in Figures. Projects, participants and benefit. ESF Sweden 2013.

¹¹ The diagram illustrates FAS/Forte investment allocated during each year; the grants can cover periods of multiple years.

The figures from 2002 do not reflect the actual situation due to changes of information systems and databases in the shift from The Swedish Council for Working Life Research (RALF) to the Swedish Council for Working Life and Social Research, FAS (nowadays Forte). The figures show that work organization has a rather slow pace of increase in relation to other fields, but on the other hand, it is obvious that working life research as such has a stronger increase and connects with the level of public health research, while welfare research is lagging behind to some extent.

3.5.2. VINNOVA

Vinnova is Sweden's innovation agency. Its mission is to promote sustainable growth by improving the conditions for innovation, as well as funding needs-driven research. Vinnova's vision is for Sweden to be a world-leading country in research and innovation, an attractive place in which to invest and conduct business. Vinnova promotes collaboration between companies, universities, research institutes and the public sector. Its focus is on research and development (R&D) as drivers of innovation.

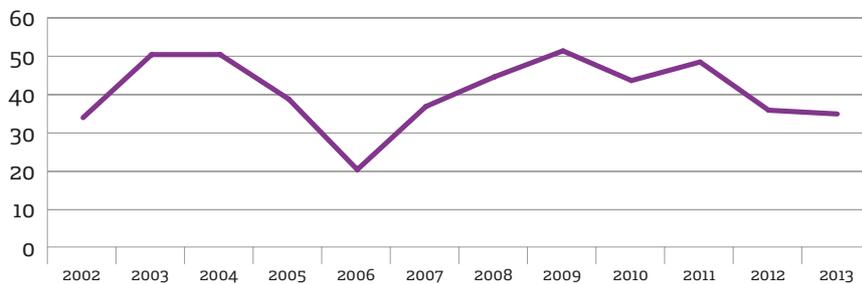
That is, it stimulates a greater use of research, makes long-term investment in strong research and innovation milieus and develops catalytic meeting places. Vinnova also promotes international cooperation. To increase its impact, it seeks interaction with other research financiers and innovation-promoting organizations.

Vinnova invests about 2.7 billion SEK per year in various program areas. One of these, 'Production systems and work organization' includes a number of work organization topics. The total amount allocated to this area was 211 MSEK in 2013; of this some 45–50 MSEK was spent on a program 'innovation leadership and organization', a program 'work organization models', and a sub-program on 'lean production systems'. There is also some research on innovation and entrepreneurship and innovation management in a broader context.

3.5.3. AFA INSURANCE

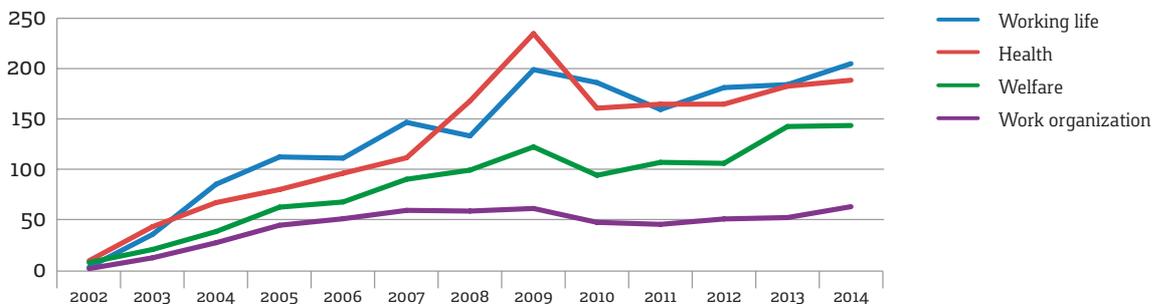
AFA Insurance is an insurance company with the objective of contributing to a more secure working life and a long-term sustainable community. AFA Insur-

Figure 3.3. Share of funding of working life research in relation to Forte's general mission to support research on work, health and welfare



SOURCE: FORTE

Figure 3.4. Forte support to research in four domains: work life, health, welfare, and work organization (MSEK)



SOURCE: FORTE

ance is owned jointly by the Confederation of Swedish Employers (Svenskt Näringsliv), the Swedish Trade Union Confederation (LO) and the Council for Negotiation and Co-operation (PTK). AFA Insurance administrates collective insurances and provides financial support in the event of incapacity for work due to sickness, work injury, shortage of work, death and parental leave. In addition to the core insurance activities, AFA Insurance manage knowledge and resources, and work to prevent ill-health in the workplace. A major preventive measure is funding research and development projects with the aim to reduce ill health and injuries at work.

AFA Insurance allocates significant funds to research and development, with grants totaling 150 MSEK each year within the area of health and work environment. About 60 MSEK is directed towards health related issues and about 90 MSEK towards work environment. Examples of areas funded in work environment are: work organization, work methods, ergonomics, physical work environment, biological and chemical health hazards and psychosocial work environment. There are currently approximately 250 ongoing projects. There are four open calls per year where researchers can apply and also thematic calls for special R&D programs. Examples of current and newly finished thematic programs are: chemical health hazards, work and rehabilitation, regenerative medicine, occupational health services and chronic pain.

In total AFA Insurance has since 1992 funded research and development projects for over 1900 MSEK within the area of work environment and health.

3.5.4. OTHER FUNDERS

A number of other funds finance research on work organization on an ad hoc basis. Among them are the *Swedish Research Council* (Vetenskapsrådet, VR), which has sub-committees on Educational Sciences and one on Humanities and Social Sciences. Although work organization research is occasionally funded, it is not a major priority for either of the committees.

Riksbankens Jubileumsfond (RJ) is an independent foundation with the goal of promoting and supporting research in the Humanities and Social Sciences. It funds very few project on work organization. In order to map research needs, stimulate academic research and facilitate the exchange of information RJ has established so-called 'sector committees'. These groups

consist of researchers from disciplines significant to the field in question, as well as of representatives for important social interests in these contexts. There are currently three operational sector committees. The Sector Committee for Research on Civil Society, the Sector Committee for Public Economics, Management and Leadership, and the Sector Committee for Research on Premodernity, which have some relationship with work organization research.

The *Knowledge Foundation* (KK-stiftelsen) is the research financier for universities with the task of strengthening Sweden's competitiveness and ability to create value. The Foundation supports research that is conducted at Sweden's new universities, provided that industry provides a matching amount and actively participates in order to achieve development there as well. The Knowledge Foundation was established in 1994 and since then it has invested some 8.4 billion SEK in more than 2400 projects.

3.5.5. GENERAL REMARKS ON THE FUNDING OF WORK ORGANIZATION RESEARCH

It appears difficult to obtain a complete picture of the resources put into research and received by researchers in the field of work organization. One of the reasons is that work organization is not a category that has been (consistently) used by funding organizations and researchers. More often, statistical sources refer to categories such as 'working life' and 'working conditions', which are part of 'work organization' in a broader sense. Moreover, no clear distinction has been made between research and development, and within these categories between fundamental and applied research, and product development and organizational or human development. This leads to a blurred picture since the funds for such types of activities reach different types of research institutions (e.g. within business and universities). Equally important is that funding organizations, budgets and investments in different fields and types of activities (research, development, and other) have changed over the years. If one adds to this the differences in systems of project registration and documentation on the side of funding agencies, and the differences and changes in information that is being reported, it is clear that no transparent picture of the funding situation is to be expected. Reliable and complete information for the recipient side is also missing. It is unclear to what degree universities and researchers use 'work organization' as a major catego-

ry in describing their activities and budgets. Universities receive different kinds of resources, also for PhD research, but to what degree these reach the field of work organization research is unclear. A comprehensive and consistent reporting system on the side of Swedish universities seems to be lacking.

The figures regarding direct government funding for work organization research and the budgets of the NIWL suggest that public funding of work organization research has declined considerably during the past ten years. However, there are also indications of a significant recovery in more recent years through the funding by Forte, certainly if one counts research on work life and on work, health and wellbeing to the domain of work organization, as we have done in this study. A certain degree of compensation may also follow from increased government spending on university based R&D and on research by PhD students. An unknown factor is the amount of funding that researchers receive from private and other sources. As a result, we do not know exactly how much funding is currently flowing into work organization research.

What we do know, based on evidence from the survey on work organization research, is that researchers

experience a shortage of funding. One of the concerns mentioned is that current funding is not able to support the transition of human and social capital to younger generations of researchers as the previous generation retires.

3.6. RESEARCH UNITS RECEIVING FUNDING

The data presented above show important historic changes but not the state of funding in more recent years. The grants received during 2007-2013 for research in the work organization area was reported in the web survey that Forte sent out to the Swedish researchers (see Table 3.8). The sums are based on answers from 89 researchers, employed at Swedish universities/colleges (and one company), who responded to this question/had received funding, out of the 135 responders.

The total sum received for the period was 896.6 MSEK. The largest funding sources were Forte (previous FAS), EU and Vinnova, followed by AFA Insurance, Research Foundations, Swedish Government and other Governmental Authorities, Regional Public Funds and the Swedish Research Council (VR). Some participants stated grants continuing after 2013 and this sum amounted to 71.6 MSEK.

Table 3.8. Funding received from different funding agencies according to the researchers' survey responses

Research funding agencies (2007-2013)	MSEK	%
AFA Insurance	74.7	8.3
Other insurance companies	1.4	0.2
Vinnova	140.4	15.7
Swedish Council for Working Life and Social Research (FAS)	281.9	31.4
Swedish Research Council (VR)	20.0	2.2
The Knowledge Foundation + Vinnova + Swedish Agency for Economic and Regional Growth	100.0	11.2
Swedish Universities (various)	10.0	1.1
Research Foundations	48.0	5.4
Regional Public Funds	29.3	3.3
Swedish Government and other Governmental Authorities	39.1	4.4
Companies	8.0	0.9
EU	143.5	16.0
Other/unspecified	0.3	<0.1
TOTAL	896.6	100

SOURCE: FORTE'S SURVEY 2014 TO SWEDISH WORK ORGANIZATION RESEARCHERS 2007-2013

4. SURVEY OF SWEDISH RESEARCH IN WORK ORGANIZATION

To get a comprehensive and up-to-date image of Swedish work organization research, a Survey was conducted among researchers. The Survey was directed towards research group leaders, who were asked for replies concerning their group as a whole, but it gave room for responses from individual researchers as well. The respondents were identified by Forte staff through a search in the Libris database for PhD theses 2007-2013 and in the databases of Forte and Vinnova for grants awarded in 2007-2013, as well as through suggestions by the Reference Group.

There was no formal definition of 'research groups'. Research groups are understood to be groups which either (1) have a leader with budgetary responsibility, or (2) work together on the same research project(s), or (3) work with similar research questions (related to work organization) in the same administrative unit.

Table 4.1 Research groups by size

Group sizes	No.	No. researchers
More than 25	3	100
21-25	2	49
16-20	3	56
11-15	9	114
6-10	11	96
Up to 5	10	37
Not specified	36	0
TOTAL	74	452

SOURCE: FORTE'S SURVEY 2014 TO SWEDISH WORK ORGANIZATION RESEARCHERS 2007-2013

The survey was sent to 245 researchers. The total number of usable responses received was 135; which implies a response rate of 55%. Details on the sample, the way in which the survey was distributed and the responses received are given in Appendix B.

4.1. RESEARCH LANDSCAPE

According to the responses to the Survey, there are (at least) 74 research groups, spread all across Sweden and predominantly located at universities. The replies from 38 group leaders show that the number of researchers in their groups amounts to 452, among which 100 are PhD students and a small number is associate researchers from other institutions. The composition of the research groups hints at a considerable degree of interdisciplinarity: 22% of the groups include researchers from three or more disciplines. The research groups are of substantial size (see Table 4.1): more than one-third of all work organization researchers is employed in larger groups, with more than 20 members, more than two-third works in groups of more than 10 researchers.

The image of the research landscape can be complemented by a list of university institutes from which responses were received. This list is given in Table 4.2.

In Figure 4.1, we describe some findings from the survey, showing the views of respondents on their involvement in the five research areas and the degree of development desired in these areas.

The current involvement is greatest for areas 1 (Design) and 3 (Change). The plans for further development are relatively strongest for areas 2 (Management) and 4 (Employment relations).

Table 4.2 Research groups by institution

Swedish Universities/Colleges ^{1,2}	No. Staff
Chalmers University of Technology	5
Halmstad University*	1
Jönköping University*	4
Karlstad University	5
Karlstad University and Karolinska Institutet	1
Karolinska Institutet	3
Karolinska Institutet and KTH Royal Institute of Technology	1
KTH Royal Institute of Technology	5
KTH Royal Institute of Technology and University of Borås	1
Linköping University	11
Linnaeus University	2
Luleå University of Technology	8
Lund University	11
Malmö University*	4
Mälardalen University*	3
Stockholm School of Economics	4
Stockholm University	14
Stockholm University and Karolinska Institutet	1
Swedish University of Agricultural Sciences	1
Södertörn University*	2
The Swedish National Defence College	1
Umeå University	3
University of Borås*	7
University of Gothenburg	18
University of Gävle*	1
University of Skövde*	5
University West*	1
Uppsala University	4
Örebro University	1
Foreign universities	
Syracuse University	1
University of Nordland	1
Companies	
Capacent	1
Swerea IVF	1
The Swedish Management Group	1
Österberg ledarskap & utveckling	1
Other	
The Regional Council in Kalmar County	1

^{1,2} Some of the universities listed are not universities in the Swedish classification, but colleges (Högskola), although they have “university” in their names. They are marked with an asterisk in the table.

SOURCE: FORTE'S SURVEY 2014 TO SWEDISH WORK ORGANIZATION RESEARCHERS 2007-2013

Figure 4.1 Research by area (current and planned level; Questions 18 and 25)



SOURCE: FORTE'S SURVEY 2014 TO SWEDISH WORK ORGANIZATION RESEARCHERS 2007-2013

4.2. RESEARCH TOPICS FOR THE FUTURE

The open-ended questions of the survey helped to develop a view of specific research topics that attract the greatest interest for the near future. The respondents considered the following areas should have the highest priority (see also Figure 4.2).

- a. Organizational change
Includes studies of the effects of macro trends such as privatization, marketization, New Public Management, standardization and increased managerialism, and globalization on work organizations, working conditions, customers/clients/patients etc. as well as on wider society.
- b. Management and leadership
How to manage and lead private, public and non-profit organizations effectively and efficiently.
- c. Technology driven change
How primarily new IT-technology affects working conditions, management, and the health and work-life balance of workers. Analysis if or how new technologies improve effectiveness of organizations.
- d. Equality issues in work organizations
Concerns studies of gender and ethnicity and equality in work organizations. Addresses questions of how to make work organizations more equal, sometimes using an intersectional perspective.
- e. The relationship between work and health
Discrimination and bullying at work, the effects of various forms of employment and unemployment on health.
- f. Forms of employment
Addresses new and traditional flexible forms of employment and job insecurity.
- g. Demography and work
To study issues such as the impact of an aging workforce, issues surrounding age, work and unemployment and integration of excluded groups into the workforce.
- h. Relations employers/employed
Concerns changing power relations between employers and employees. For example, studies of relationship between unions and employers, and worker influence on workplace decisions.

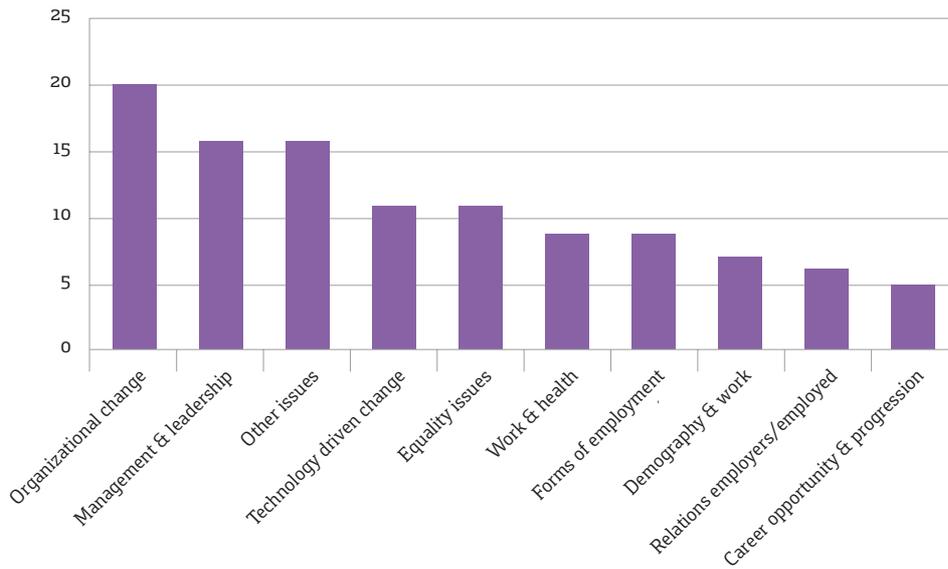
- i. Career opportunity and progression
Includes issues such as learning and working and how to foster career opportunities and progression for employees in various lines of business.
- j. Other issues
Covering topics such as intervention studies, interdisciplinary research, implementation of existing research findings in organizations, collaboration with organizations/companies, increasing workloads.

4.2.1. CONSTRAINTS AND PROBLEMS RESEARCHERS ARE FACING

Researchers also indicated the most important constraints and problems they are facing in work organization research. Most respondents mentioned general rather than specific problems. The following ones are among those listed most (see also Figure 4.3).

- a. Funding issues
Includes issues such as short-term funding and lack of long-term funding, funding focused on too narrow areas of research within the work organization field, and lack of funding of basic and critical research. Funding difficulties contributes to difficulty of establishing long-term research environments with academic excellence.
- b. Not enough time to do research, due to teaching and administration. Other tasks eat up research time.
- c. The system of resource allocation for research
Includes opinions such as that the focus on funding world leading research and publication economy within academia has detrimental effects on research. Diminishing interest of work organization research in research councils and scattered funding makes the application process for researchers difficult and resource consuming.
- d. Difficulty of conducting cross-disciplinary research
Structures are not in place to conduct cross-disciplinary research.
- e. Lack of national and international research networks
Lack of funding to establish or maintain networks.

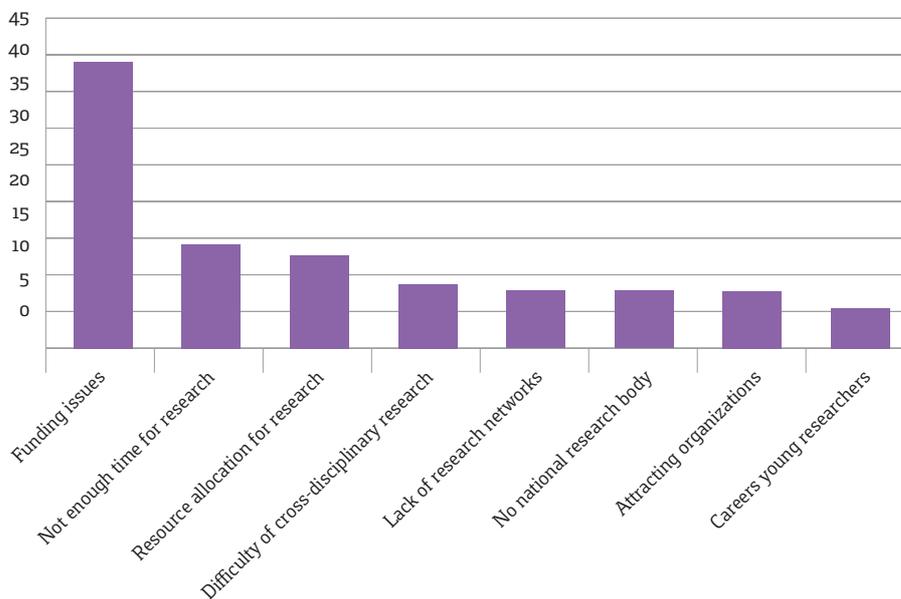
Figure 4.2 Research topics that should have the highest priority according to Swedish work organization researchers



Note. Multiple answers per respondent are possible.

SOURCE: FORTE'S SURVEY 2014 TO SWEDISH WORK ORGANIZATION RESEARCHERS 2007-2013

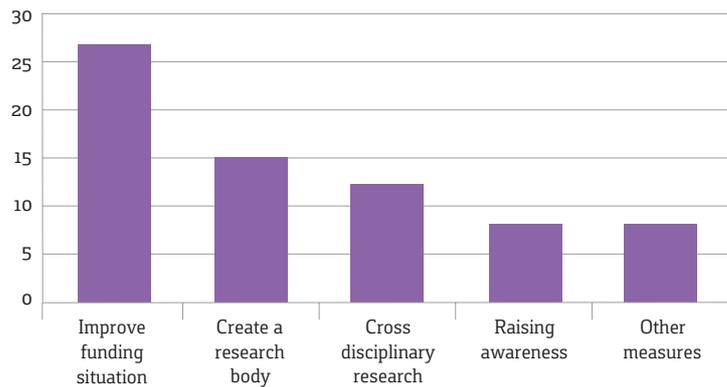
Figure 4.3 The most important constraints/problems facing work organization research



Note. Multiple answers per respondent are possible.

SOURCE: FORTE'S SURVEY 2014 TO SWEDISH WORK ORGANIZATION RESEARCHERS 2007-2013

Figure 4.4 Most important measures to improve/strengthen work organization research



Note. Multiple answers per respondent are possible.

SOURCE: FORTE'S SURVEY 2014 TO SWEDISH WORK ORGANIZATION RESEARCHERS 2007-2013

- f. No national coordinating research body supporting work organization research
No research organization in place to facilitate collaboration between various disciplines, contact between research and practice, and network building.
- g. Difficult to attract organizations to participate in research
Diminishing interest in research among organizations and different time frames, researchers have long time frames and organizations shorter.
- h. Limited possibilities to provide funding for PhD students and limited career prospects for young researchers
Concerns the regeneration of researchers in the field.

- d. Raising awareness

Raising awareness among policy makers and wider society about work organization research as an important field. This could be done by linking research with national competitiveness and innovation.

- e. Other

Including decreasing dominance of medical perspectives, integrating various perspectives in the field, and improve collaboration with practice.

4.2.2. MEASURES TO BE TAKEN ACCORDING TO RESEARCHERS

These are the most important measures that researchers think should be taken to improve/strengthen the field (see Figure 4.4).

- a. Improve funding situation
E.g. more and more stable funding. Diversify funding, and fund more PhDs.
- b. Create a research body – national or Nordic
The research body would provide support for researchers with network building, contacts with organizations willing to participate in research, fund research, facilitate cross-disciplinary research and support internationalization.
- c. Improve conditions for cross-disciplinary research and fund networks for researchers

4.3. OBSERVATIONS

The picture of priorities, concerns and solutions emerging from the open questions in the Survey are not unique for Sweden. Their interests in research topics point at high awareness of and involvement in what is happening in the current economy and how this intersects with other segments of society. They experience similar difficulties in obtaining funds and personnel resources as researchers in other countries. However, there is a difference in that the researchers see a weakness in the research infrastructure, as there are no channels or instruments for strategy development and coordination. Means for facilitating and stimulating cross-disciplinary research, national as well as international collaboration also seem to be lacking. This may to some degree be attributed to the disappearance of the National Institute for Working Life, which fulfilled such functions in the past. However, it is also a real limitation for a dispersed and underfunded research community that wants to contribute to Swedish society and to participate and excel internationally. It is also worth noting the significance of securing research funding for developing a new generation of researchers.

5. REVIEW OF SWEDISH WORK ORGANIZATION RESEARCH

In this chapter we provide an integrated image of Swedish WO research based on the bibliographic analysis, the Survey among researchers and the information provided about the doctoral theses.

5.1. OVERALL PICTURE OF CURRENT RESEARCH

The bibliometric analysis was based on counts of the output for the five research areas defined earlier, which appeared in the selected journals during the years 2007–2013 (see Table 5.1). The number of articles counted is 870, which amounts to 3.9% of the world output on work organization in these journals. Table 5.1 compares the results for Sweden with those of other countries, depending on the number of articles. Leading is, not surprisingly, the USA. Globally Sweden comes on the 10th place; in Europe it takes the 5th place after the UK, the Netherlands, Germany and Spain.

To get an impression of the degree to which Swedish research is being cited we also calculated the average number of citations of articles and the h-index (which reflects both the number of publications and the number of citations). The results are presented in Table 5.2 and show Sweden to be in a favorable position, though more concerning the h-index than the average citations where other comparable countries fare better.

Considering that Sweden is a country with a rather small population, we have examined what its share would be if one corrects for population size. Figures 5.1 and 5.2 present a comparison for the US and six European countries. It is noteworthy that the correction puts Sweden in the 3rd place, together with Denmark, and very close to Finland (number 1) and Norway (number 2). It is noteworthy that the leading countries are all Scandinavian.

Table 5.1 Sweden among 16 leading countries: output

Country	No. Records	% of World
USA	6507	29,0
United Kingdom	4274	19,0
Australia	1866	8,3
Canada	1530	6,8
Netherlands	1253	5,6
Peoples R China	1234	5,5
Germany	1169	5,2
Spain	1089	4,8
Taiwan	986	4,4
Sweden	870	3,9
France	792	3,5
Italy	643	2,9
Finland	622	2,8
Denmark	488	2,2
Norway	473	2,1
Switzerland	453	2,0

SOURCE: WEB OF SCIENCE

Table 5.2 Sweden among 16 leading countries: impact

Country	Average Citations	h-index
USA	8,32	67
United Kingdom	6,88	47
Australia	5,65	36
Canada	7,62	38
Netherlands	7,55	37
Peoples R China	6,27	34
Germany	5,89	33
Spain	5,19	29
Taiwan	4,97	26
Sweden	5,75	27
France	5,51	27
Italy	5,81	25
Finland	6,62	28
Denmark	7,44	27
Norway	6,20	23
Switzerland	7,47	24

SOURCE: WEB OF SCIENCE

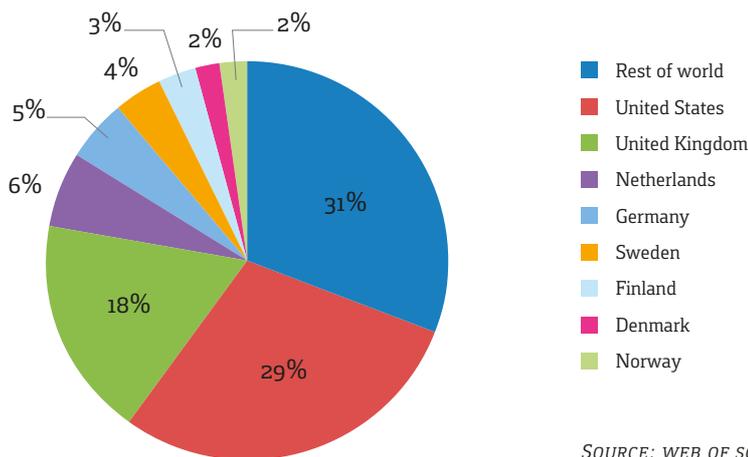
Of course, one cannot assume that this overall picture for 2007–2013 is stable over time. Therefore, we have looked at the development over time. We note a growing number of publications until 2009 and a leveling off from thereon (see Figure 5.3).

In interpreting these figures we have to take into account that the number of publications in the domain of work organization, like in many other domains, shows a long-term increase, probably due to global publication patterns. Looking at the data for the world over the period 1989–2013 we see a steady growth with a slight positive acceleration. The increase for Sweden is similar, except for the last few years. In fact, the pattern for Sweden shows a fast growth till 2009 and no growth afterwards. This may well be read as a reflection of changes in the funding of work organization research in Sweden. Given the usual publication time lag the growth in the years 2007–2009 may still be attributed to the activities of

the NIWL; the absence of growth to the disappearance of the NIWL.

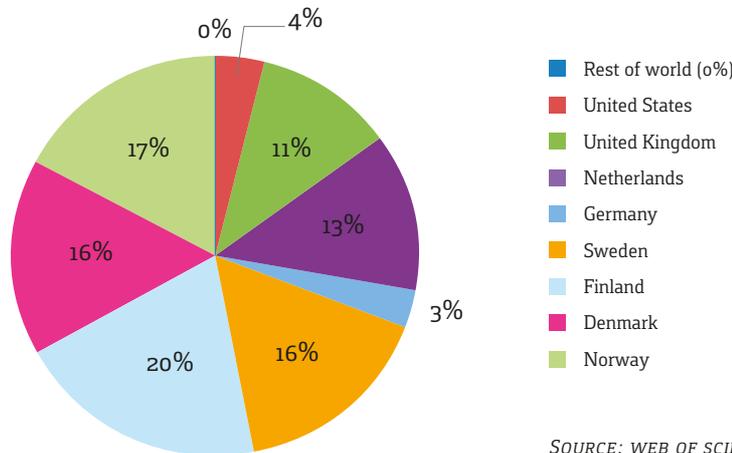
In preparing for the bibliometric analysis we noted that the research output in Work Organization research is spread across a very wide range of journals. The total number of journals is 140. The 40 journals with the highest numbers of publications by Swedish researchers are listed in Table 5.3. The table shows the number of publications for each journal and the journals' impact factors 2013. The total number of publications in these most chosen journals is 499, which is 57% of all 870 publications. We see that 118 of the 499 articles (14%) have been published in journals with an impact factor larger than 2.0. There are 49 journals with only 1 or 2 publications during the years 2007–2013; they account for 68 or 8% of all articles. Among them is a one high-impact factor journal, Organization Science (IF 2013 = 3,81), which has published 2 articles by Swedish authors.

Figure 5.1 Sweden vs. selected European Countries and USA: share in output by number of publications



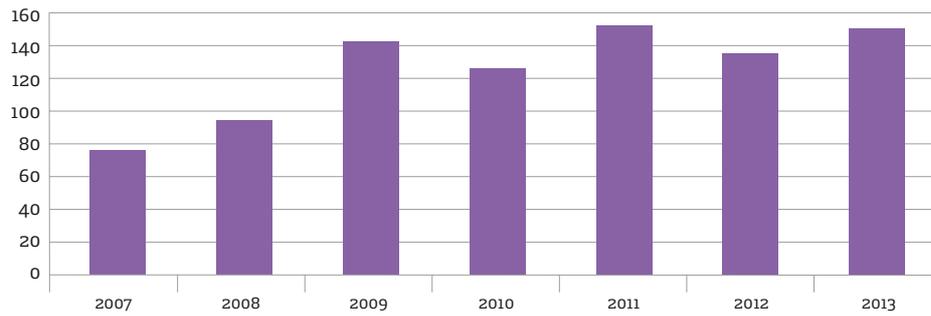
SOURCE: WEB OF SCIENCE

Figure 5.2 Sweden vs. selected European Countries and USA: output by number of publications divided by population size



SOURCE: WEB OF SCIENCE

Figure 5.3 Numbers of Swedish work organization publications by year (2007-2013)



SOURCE: WEB OF SCIENCE

Table 5.3 Research output in journals arranged by IF 2013 (N=499)

Source journal	No.	IF-2013
Journal Of Management Studies	7	3,28
Journal Of Business Venturing	7	3,27
Scandinavian Journal Of Work Environment & Health	18	3,10
Supply Chain Management-An International Journal	12	2,92
Entrepreneurship Theory And Practice	7	2,60
Organization Studies	10	2,50
Tourism Management	7	2,38
International Journal Of Nursing Studies	19	2,25
International Journal Of Behavioral Medicine	10	2,21
International Archives Of Occupational And Environmental Health	13	2,20
Corporate Social Responsibility And Environmental Management	8	2,05
British Journal Of Management	7	1,91
Industrial Marketing Management	20	1,90
Human Relations	9	1,87
Public Administration	8	1,86
Journal Of Occupational And Environmental Medicine	8	1,80
Corporate Governance-An International Review	6	1,77
International Journal Of Project Management	25	1,76
Safety Science	17	1,67
Small Business Economics	9	1,64
Ergonomics	11	1,61
Journal Of Business Ethics	6	1,55
International Journal Of Operations & Production Management	17	1,52
Management Accounting Research	12	1,42
Journal Of Product Innovation Management	7	1,38
Applied Ergonomics	13	1,33
Journal Of Business Research	10	1,31
Journal Of Service Management	10	1,29
Journal Of Risk Research	18	1,27
R & D Management	8	1,27
International Journal Of Industrial Ergonomics	8	1,21
Journal Of Nursing Management	60	1,14
Industry And Innovation	6	1,12
Gender Work And Organization	7	1,03
International Journal Of Computer Integrated Manufacturing	6	1,02
European Journal Of Marketing	7	1,00
Cognition Technology & Work	6	1,00
Managing Service Quality	8	0,98
Scandinavian Journal Of Hospitality And Tourism	12	0,88
Scandinavian Journal Of Management	40	0,85

SOURCE: WEB OF SCIENCE

5.2. RESEARCH BY AREA

We are now moving to a description of the research in the five research areas, using bibliometric as well as survey information. We should remind the reader that the five areas are not mutually exclusive but show considerable overlap. For instance, there are many publications dealing with both Design and Management, or Management and Change. Figure 5.4 gives an impression of the numbers of publications in each of the areas over a longer time span: 1989–2013. It shows first of all an increase in the amount of studies categorized as covering different aspects of work organization, with acceleration towards the last period (though within an overall stable number of publications since 2009, see Figure 5.3). In the most recent period the rank order of popularity of the areas is: Management, Design, Change, Worker Behavior, and Labor Relations. For a long time Design has been on the first place, though.

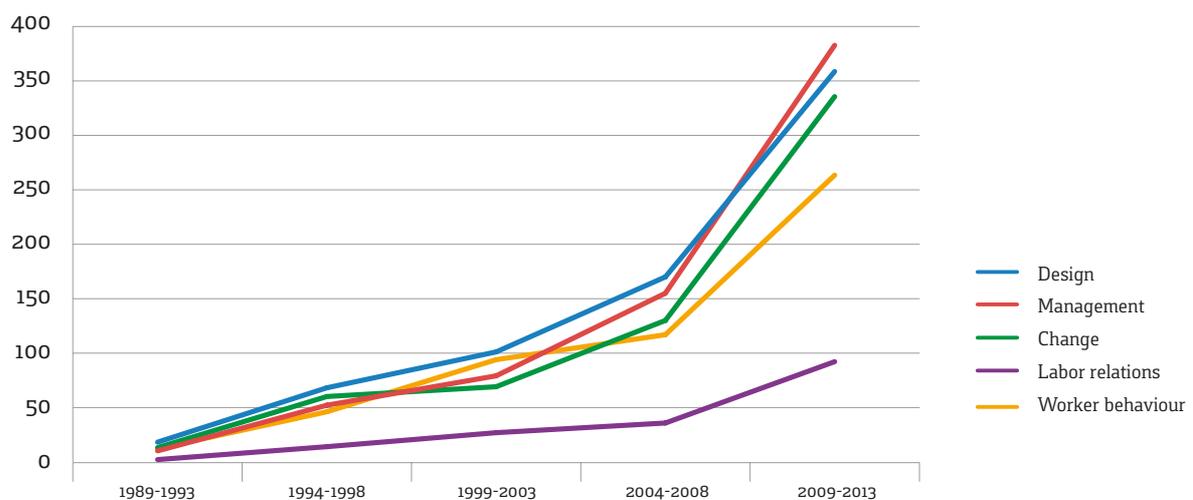
5.2.1. AREA 1: ORGANIZATION, WORKING CONDITIONS AND WORK DESIGN

The area Organization, Working Conditions and Work Design (“Design”) is well represented in the current research as indicated in the survey responses by researchers. Topics related to this area are indeed by a slight margin most frequently mentioned. It also ranks very highly in the research areas researchers plan to continue or develop further. However, the group leaders appear to be more skeptical. According to their responses, topics related to “Design” are least investigated, but ought to be much more researched in the future.

The research that was classified as Organization, Working Conditions and Work Design in this report contains a wide range of topics ranging from physiological research on vigilance to conceptual discussions on changes in the sociology of work. Yet, all are related to the impact of working conditions and work design. Health care is a frequent field of study, with topics researched in this field covering again a wide array of questions, such as consequences of new public management, quality management, or safety climate. Overall, both public and private sector organizations and industry sectors are covered by the research. Much of the research addresses working conditions and work design indirectly by studying particular kinds of work and their effects. Some studies investigate particular new forms of work and new kinds of industries, such as open source software development and the gaming industry.

In the timeframe included in the analysis, 130 theses (22% of the total) were written on topics related to “Design”. More than half of these (77) were written in Swedish. The earliest thesis is from 1976, the newest from 2013. There has been a significant increase of theses over this time span (44 before 1996, 86 after). About half of the theses (58) could be classified further based on English abstracts. Of these again about half were case studies related to the implementation of certain organizational practices (e.g. quality circles) or larger organizational change processes (e.g., lean management). Ten theses were conceptual and/or historical, for instance looking at changes in the nature of work and organizations more broadly. Survey-based

Figure 5.4 Coverage of research areas in numbers of publications (Sweden, 1989–2013)



SOURCE: WEB OF SCIENCE

and generally quantitative research is more prevalent in newer theses. Topics in older theses are often explicitly linked to issues around socio-technical system design, while newer theses have addressed a broader range of issues, often within an organizational learning framework. There appears to be a shift towards studying service and knowledge work rather than industrial work along with a shift in topics, which in newer theses concern questions like flexible working, knowledge management, or entrepreneurship.

Publications in the area of “Design” are very mixed, with books, book chapters, and journal articles both in English and in Swedish. For journals it is a mix of field and topical journals (e.g. healthcare or quality management) and more general journals for work organization research (e.g. Human Relations, Journal of Occupational and Organizational Psychology, Economic and Industrial Democracy). There are very few if any articles in high impact general journals (e.g. Academy of Management Journal, Organization Science, Journal of Applied Psychology). The vast majority of publications are written in collaboration with co-authors from Sweden, frequently also from the same research institution. Some authors have wider networks of collaboration as indicated in the survey, mostly in Europe and the US; however, these rarely show up in joint publications. The language of publications follows the outlets, with journal papers usually written in English and book chapters and research reports written in Swedish. Still a sizable portion of publications is written in Swedish.

The research field of organization, working conditions and work design is very active, with many researchers contributing to it and covering a wide range of topics and industry sectors. Along with the increasing focus on health care in many countries, there are a growing number of studies in this domain. Furthermore, there seems to be a growing tendency towards studying working conditions and work design as part of broader management trends, especially lean management and quality management. This can be considered a successful strategy especially in view of funding and gaining access to organizations. However, a drawback is that the conceptual focus of the research is less visible. This may also explain that Swedish research has not been much considered in the recent resurgence of interest in work design research reflected in a number of review articles and special issues of journals.

Research topics covered in PhD theses are only partially reflected in journal publications. One reason for this may be that many PhD theses are based on qualitative case studies that are more difficult to publish in

academic journals compared to quantitative research.

Overall, researchers in area 1 (“Design”) use a broad range of publication outlets, well suited to the research topics and respective scientific communities. Publications in high impact journals are quite rare, however. There are still a substantial number of publications in Swedish, which serves the purpose of knowledge transfer to practice partners well. The interdisciplinarity of the research field is obvious from the variety of disciplines and research institutions the researchers belong to. This permits a wide diffusion of research results across university departments and geographical regions, which provides multiple channels for knowledge transfer both in teaching and in interaction with stakeholders. Most research collaborations as also reflected in co-authored publications are situated in Sweden, some in the Nordic countries more broadly, and very few with partners in other European countries or beyond Europe. Thus, the Swedish research on organization, working conditions and work design appears to be somewhat self-centered, which limits academic impact.

5.2.2. AREA 2: ORGANIZATION, MANAGEMENT, LEADERSHIP AND TEAMWORK

According to the database of the total amount of publications, the output in area 2 (“Management”) – similarly as the other areas, has increased significantly since 2000 and is currently heading the publication list with more than 350 publications in the time span between 2009-2013, compared to under 100 publications between 1999-2003. A similar conclusion of the high coverage of this area can be drawn from the Survey conducted in 2014. Asked which research orientation labels the objectives, problems and questions of the research groups best, most group leaders see this area along with “Changes in Environment Organization and Work” as best describing their research field. Also with regard to future research emphasis, this area, together with “Working conditions” and “Changes in Environment” is heading the list of research fields to be developed in the next few years. The high importance of this field is most significantly reflected in the number of dissertations in this area. Of the 597 PhD-theses written in Sweden between 1963 and 2013 around 47% focus on this research area.

The area 2 “Management” is a blend of highly diverse research topics and research traditions incorporating such different disciplinary areas as sociology, medicine, industrial relations, psychology, engineering, and others. The most dominant single subject of research is clearly “organizational change” with determinants

in societal change, technology, globalization, management strategies, and consequences regarding gender issues, health and safety and professional segmentation. This focal field is closely followed by research and theory building around “gender” questions and “innovation”, both with regard to organizational and societal innovation. A strong intersectional field is learning covering individual, organizational and societal levels. Most of the research is rooting in humanistic traditions (“good work”) and driven by concerns about individual and collective health and well-being, and to a lesser degree productivity, competitiveness or managerial strategies as means of increasing organizational success.

Looking at the research in more detail, we see that this is a melting pot of different research traditions, topics and different levels of research both on the individual level such as job transitions in individual careers, individual decision making processes and the meso-level concerning organization and firms, such as growth of new firms, a large amount of emphasis on leadership issues and strategic issues dealing with demographic changes and new concepts of management, with special focus on new public management.

The figures on the research orientation of the groups mentioned in the survey show a dominance of leadership, gender and occupational health issues at the workplace. Comparably little emphasis is placed on topics such as Strategic Human Resource Management, Knowledge- and Intellectual Management and contributions to theory-building in the area of dynamic capabilities, absorptive capacity or resilience – issues which one would suspect from an international research orientation. Looking at the key achievement mentioned by the respondents themselves, this confirms the picture that the specific strengths of the research lies in the realm of traditional Swedish lines of research, highlighting work and health, new public management, leadership research in a broad variance, gender studies and management behavior. Some more recent work focuses on topics such as open innovation, cyber-bullying, industrial work organization and sustainability, good work, and path dependence and social constructivist theory building.

The complete overview of PhD theses between 1963 and 2013 shows a more comprehensive picture and allows pinpointing some changes in content over time. Over the total time span contributions dealing with “Training”, “Learning” and “Knowledge Development” clearly dominate the picture (around 20%). This topical focus started in the end of the 90’s and

has dominated ever since. The second area of research is marked by contributions concerning “Leadership” questions. Here we can observe a strong interest in the beginning of the 90s and revitalization after 2000.

Further “Strategy” plays an important role, but there is a decline in the number of theses concerned with strategic issues after 2000. Some other content areas also change significantly over time. Theses focusing on “work organization” and “work process” cluster in the beginning of the 90s and show a diminishing importance after 2000, while works related to “organizational culture” and “organizational development” grow in number after 2000.

Looking at the more recent time span since 2005, the most popular topics in PhD research are (1) “Learning”, “Training”, “Knowledge Development”, (2) “Organizational culture” and “Organizational Development”, (3) “Leadership Studies” and (4) “Collaboration”, “Management” and “Network research”. As for the publication language there is a clear trend towards the use of English rather than Swedish over the years.

Looking at quantitative and qualitative indicators, the publications in this field show a high variance. Publications analyzed refer both to monographs, book chapter and articles in journals and here one trend is to be observed from book publications towards articles targeting moderate to high but not superior impact level. Secondly, there is a change with regard to language of publications from Swedish to English language publications, although the number of Swedish publications is by far larger than expected from the voices in the interviews conducted in 2014. In this research area we find that dissertations over the complete time period are around 50% in Swedish and 50% in English with only a slow temporal trend to English.

The highest quantitative output comes from the larger universities, i.e., those of Lund, Stockholm and Göteborg. With regard to number and quality of publications there seems to be segmentation between highly productive individual/groups and contributions from younger cohorts entering the community. In the first cluster the outlet of publications indicate a relative high international impact looking at Journals, such as Public Management Review, Applied Psychology, European Journal of Work and Organizational Psychology, Organization Studies, International Journal of Innovation Management, Journal of Applied Social Psychology, European Journal of Work and Organizational Psychology, Human Resource Management Review and others.

5.2.3. AREA 3: CHANGES IN WORK, ORGANIZATION AND ENVIRONMENT

Area 3 (“Change”) covers almost 50% of the topics listed under the label Work Organization. The attention to changes in organization, changes in work and in the work environment has historically been one of the main pillars of this research (and in Sweden) and its presence in the period 2007-2013 confirm a long and steady increase. Obviously the themes covered under the definition of area 3 did not only change compared to the previous period, but also over the years.

After a careful reading of the articles or book chapters that have been provided through the survey, and grouped under this area, we can see relevant patterns of topics covered, publication strategy and forms of collaboration. It is relevant to mention that we limited our analysis to 5 publications per author, even if few authors had submitted more and others less than five. Most of the submitted publications are articles published in English; nevertheless 20% of them are book chapters both in English (53%) and in Swedish (47%). Apart from one author who consistently publishes as a single author, the large majority, if not the whole of the other authors publish in collaboration with co-authors, located mainly within other Swedish universities, or in a few cases in Nordic countries. Little collaboration can be detected with other European colleagues. This fact means that a collaborative approach between colleagues is well established at a national level, while a wider network on International collaboration still needs to be developed.

Since the main topic in area 3 is change, it is not surprising that changes have been studied within a plurality of disciplinary approaches and therefore published in a wide range of journals. Few articles have been published in the same journal. Hence when we look at the family resemblance within the journals we see, once again, how the research in Work Organization is scattered in a plurality of foci:

- A consistent number of publications focus on the theme of changes in health organization and occupational medicine and are published in journals like International Journal of Behavioral Medicine, International Journal of Health Planning and Management, Safety Science, Journal of Workplace Health Management, Social Science and Medicine, Work Stress;
- A clear disciplinary focus on psychology – similar to the previous emphasis on health issues – is apparent in articles published in Journal of Occupational and Organizational

Psychology, while a multi-disciplinary approach is more common in the publications that follow. Major publication outlets are journals in the organization and management field, either with a broad scope (Human Relations, Gender, Work and Organization, International Journal of Gender and Entrepreneurship) or more specifically focused (Journal of Manufacturing Technology, Accounting, Journal of Development Entrepreneurship, International Journal of Human Resource Management).

- Another cluster of publications focus on work and employment, around journals such as Work Employment and Society, Journal of Technology and Management Innovation, New Technology Work and Employment;
- Finally, a smaller but interesting number of publications focus on training and learning in the workplace and are published in journals as Vocations and Learning, Studies in the Education of Adults, Journal of Education and Work

Taken in their totality, the publications that the authors submitted as representative for their work comprise all the classic themes of Work Organization in area 3 in relation to changes in work, organization and environments, occupational health, psychosocial environment, work, and new technologies. Many different topics and disciplinary approaches are scattered throughout a large number of journals and illustrate the visibility and embeddedness of Swedish research in several strands of contemporary debates. Moreover they illustrate also how the topics of interest have been changing during the last seven years. In fact, it is interesting to stress how the theme of innovation – especially linked to new technologies – and creativity represent a promising new focus for the renewal of Work Organization in general.

The topics chosen for dissertation research provide an interesting perspective on how research interests have changed over time and how research is embedded in a wider intellectual context. The time span covered by the analysis of the dissertations is much larger than the period considered for the current evaluation. This fact allows for some more general considerations.

The total number of dissertations in area 3 is 210 (35% of the total), of which 84 are written in English, while 123 in Swedish and another 3 either in Norwegian or Danish. When we consider the time span 2007-2013 we find 39 dissertations (21 in English and 18 in Swed-

ish). The proportion of dissertations written in English has increased dramatically compared to the past, but there is not a huge difference if we consider the absolute numbers. The number of dissertations written in Swedish has remained almost the same, while it could be expected that in recent years more dissertations would have been written in English. This was suggested during the interviews with the researchers, who have the feeling that almost two third of the current dissertations are in English. At a closer examination this is not yet the case.

Reviewing the empirical field studies and methodologies used reveals that the choice of the language may be grounded in the nature of the research. Since the clinical method, or ethnography, is often employed, and the empirical field often is grounded in a national culture and local economic and legal conditions, the choice of Swedish may reflect the researchers' proximity to their objects of study.

The analysis of the dissertations in this area reflects the changes in research interests prompted by more general social and economic transitions. When examining the 1970s and 80s (leaving aside the few dissertations of the preceding years) we can find the classical themes that characterized the study of the psychosocial work environment in Sweden and made the study of work organization in Sweden so distinctive. It is not surprising then that topics like teamwork, problem-solving in working groups, cooperation, quality management, organizational development, ergonomics, union mergers or union renewal attracted the attention of the PhD students. Later, the structural, economic and societal conditions changed and instead of having industrial sectors studies (comprising not only industry but also public sector, schools, post etc.), we find a focus on lean production, interface organizations, business modeling, new public management, service work and similar themes that mirror the changes in work environment. Several dissertations, in particular, have been focused on organizational learning, network organizational learning and knowledge management at an early stage of the development of these themes in the international debate. Noteworthy is also research on issues about equal opportunities, diversity management, and gendered ways of work organization that emerged during the last years.

A more quantitative evaluation of the performance in area 3 reveals high levels of productivity not only in relation to the number of publications in Sweden, but also in relation to international standards. Many publications in this area have contributed to the international discourse. Moreover, they are situated in

well-known journals, and reflect certain innovativeness. Yet, if we do not only consider the top of the iceberg in the publications, but the whole, we can notice that the continuous change in work deserves more innovativeness in the researched topics. Issues such as ubiquitous technologies, flexibility, insecurity, boundaryless work, new meaning of work, gendering of work practices and their impact on workplace/workspace are somewhat underrepresented. They are present in the research projects under study, but their potentiality is not yet fully developed.

The structural conditions for doing research in Sweden in area 3 reveal some of strengths that are not present in other European countries. In fact, putting aside the individual researchers' views on scarce resources, the potential for doing good research in this area is related to the heritage of the past, founded in the national culture in the form of easy access to the field, reciprocal trust between social partners and the distribution of intellectual capital across the field. In fact, research groups established in the older and traditional universities (or institutions) represent a promising human capital for the coming years. The emergence of new groups in smaller universities and institutions can be read as a signal of potential of renewal for this area of study, both in terms of generational change and in terms of innovativeness in research topics. However, such changes do not come by themselves but need to be supported by appropriate research policies. These are particularly critical for contemporary changes in academic work. Younger generation academics are subject to the same work instability affecting all other workers. The increasing competitiveness of the academic environment pushes researchers to take a direct responsibility for the funding of their research projects and may constitute a factor of instability (or lack of consolidation) for both research interests and careers.

5.2.4. AREA 4: EMPLOYMENT RELATIONS, INFLUENCE AND PARTNERSHIP

General interest in area 4, employment relations, has declined in recent years and the focus of interest by researchers in this field has changed. Previously, considerable attention was paid to the relationships between unions and management, which dealt not only with traditional issues such as collective bargaining but also with collaboration between the 'social partners', and participation by employees in decision making at the enterprise level. These issues characterized the 'Swedish model' which came to prominence in the 1970s and 80s. Research in this area was encouraged by the NIWL.

Of those respondents to the survey who were classified as having their principal research interests in this area, very few cited employment relations as their main on-going focus of attention. However, a range of other issues of interest were mentioned. One major category of growing interest concerns the relationship between gender and various other matters including: labor market segregation, division of labor, social status, organization, leadership and entrepreneurship. Other emerging research interests included organizational change, organization development, occupational health and safety and psychosocial issues at work.

Analysis of doctoral theses completed in this area revealed some interesting trends. Of the 50 theses (8% of the total) completed since the 1960s, almost half were undertaken before 1990 and almost one third were completed after the year 2000. Less than 10 per cent of theses in this area were completed in the 1990s. The 1980s appear to have been a 'golden age' for doctoral research in employment relations but this was followed by a steep decline during the 1990s. Since 2000 there has been an upward trend but this seems to have tapered off since 2010. It is worth noting that males dominated this area with approximately 72 per cent of the completed theses, although women are increasingly represented as the topics of interest in this area become more diverse.

Approximately 80% of the theses on employment relations completed since the 1960s were in Swedish. Research on unions was popular in the 1980s with almost one-third dealing with unions or union-management relations. The University of Lund has dominated research in this area, with about 25 per cent of theses being completed there. The University of Stockholm and the Stockholm School of Economics together had around 20 per cent of the theses, followed by Gothenburg and Linköping, each of which accounted for about 15 per cent of doctoral theses completed in this area.

The analysis of current research revealed that those undertaking work in employment relations were equally engaged in research on management and organizational change. At an individual level, most respondents to the survey indicated that they would continue to develop their work in the area of employment relations but note that they would also undertake research in organizational change and management. When addressing the question of what research areas should be developed in the future, most felt that employment relations would decline in importance while organizational change and management would become more dominant.

Many publications by respondents tended to be in form of chapters in books and edited collections, which may reflect that much of the research is undertaken as case studies. Many of the book chapters were published in Swedish but recently most are in English. There were a large number of journals in which research was published, few of which were in the employment relations field. Among the most highly ranked journals were *Human Relations*; *Work Employment and Society*; and *Gender, Work and Organization*, and the *Scandinavian Journal of Psychology*. A number of journals cited were in the organizational change area such as: the *Journal of Organizational Change*, the *Action Research Journal*; the *International Journal of Innovation Management*, *New Technology*, *Work and Employment*.

The largest and most diverse range of journals was in the health and related areas such as: the *Journal of Health Organization and Management*; the *Journal of Occupational and Environmental Medicine*; *Social Science and Medicine*, the *Journal of Nursing Scholarship*; and *Health and Stress*. Finally, there were several journals concerned with social welfare and policy such as: *The International Journal of Social Welfare*, *The Journal of Health and Social Care in the Community*, and the *Canadian Journal of Ageing*. This very broad range of journals could be an indication that researchers are looking beyond the traditional outlets to new journals in which their work can be published.

There was an impressive list of research grants obtained from a wide range of sources both within and outside Sweden. The most popular sources of funds were Forte (and its predecessor FAS), Vinnova, VR (The Swedish Research Council) and the Riksbanken Jubilee Fund. A small number of researchers had obtained funds from enterprises such as LKAB for industry based research (e.g., in mining). A few had gained funds from European Union sources and other countries (e.g., the Canadian Social Sciences and Humanities Research Council) for projects which involved international collaboration. However, most researchers in this area relied on funding sources within Sweden.

A number of researchers mentioned that their research had contributed to policy reforms introduced by government (e.g., in relation to gender issues) and industries (such as mine rescue services). Contributions had also been made to international programs, particularly within the European Union to labor market policy discussions as a result of cooperative research programs. Examples were also given of contributions made by researchers to the joint programs developed

by unions and management, although these tended to be during earlier decades. Several comments were made that closer relations between researchers and stakeholders in government and industry had formerly been facilitated by the NIWL and that these had declined since its closure.

While there appears to have been a decline in the volume and impact of research in traditional employment relations topics, researchers in this area have adapted to changes in the field by placing greater emphasis on newer issues such as gender and work organization. There are also indications that research in this area is gradually focusing more on European-wide and international matters, such as the impact of globalization on employment relations and related matters.

However, there are a number of challenges which have been identified by scholars active in this area. These include the lack of multi or inter-disciplinary research on employment relations, the fragmentation of research in this field, the gap between research and practice, and the absence of publications which can communicate research findings to the social partners. Many of these problems are seen as having been exacerbated by the closure of the NIWL. There is also a lack of generalizable knowledge from case studies in particular workplaces to the wider economy. Finally, there is the challenge of providing opportunities for early career researchers to develop their capacities and to collaborate with practitioners and policy makers in employment relations and related fields.

5.2.5. AREA 5: BEHAVIOR, HEALTH AND WELLBEING IN WORK AND ORGANIZATION

The overwhelming interest in area 5 ("Worker Behavior") is in work-related antecedents of job stress and worker health. The researchers in this field investigate all types of job demands, including job insecurity, customer-related stressors, and high strain jobs (high job demands/low job control). The perspective that is taken is very much an empirical one, and the focus is mostly on the negative side of occupational health and behavior, with outcome variables such as cardiovascular health risks, depression, sleepiness, accidents, and absenteeism. Related phenomena that are studied include typical occupational health psychology topics such as coping with stressors, safety climate, work-family conflict, and gender equality. The

positive side of occupational health and well-being (with a focus on employee strengths, capabilities, and work engagement) seems underrepresented, but some exceptions of positive phenomena that are studied include job resources, employability, physical exercise, and leadership.

The articles written by the researchers in this domain have been published in a wide range of outlets, ranging from chapters in Swedish books with a limited reach to articles in top journals with a high reach. Swedish researchers in the area of behavior, health, and well-being in the Work Organization domain do publish in high-impact scientific journals. However, survey participants also included papers in their top-10 publications that seem of more limited impact (e.g. Swedish papers). Examples of journal outlets are *International Archives of Occupational and Environmental Health*; *PlosOne*; *Scandinavian Journal of Work, Environment, and Health*; *International Journal of Stress Management*; and *Scandinavian Journal of Psychology*. Most of the top-10 journal articles published between 2007 and 2013 are in the English language.

This may be indicative of a more general trend to publish in English instead of in Swedish. Among the 92 dissertations written in this area since the 1960s (15% of the total), 43 (47%) have been written in Swedish (1 in Danish). We see a dramatic change over the years: whereas 92% of the dissertations written in the first 25 years of the covered time period (1963 and 2013) were written in Swedish, this dropped to 41% in the second 25 years. Actually, since the year 2000, only 11 of the 45 published dissertations (24%) were written in Swedish.

The focus of the theses varies widely, from safety culture and sick leave, to risk management, unemployment, learning, motivation, and performance. Some of the researchers who finished a dissertation in this area are well-established with a very high h-index, whereas other researchers are still very young or left academia and have virtually no impact in the scientific literature.

When comparing the topics of the published articles with the topics that are mentioned as main areas of interest, we see an interesting trend. Although job stress is still a major topic, as could be expected, with topics like work-to-family conflict, shift-work,

job insecurity, workplace incivility, and safety climate, we see more interest in organizational-level phenomena, including new public management, organizational change, “co-workership”, management models, gendered structures and cultures, job transitions, and leadership. This may well be a reflection of current societal changes in Sweden and globally.

When asked for the future, the researchers mention that they want to continue their current work, but also expand it in terms of more emphasis on boundary-less work, the importance of employee proactivity, and the ageing workforce (with attention for the needs of younger workers and older workers; what could be called age-conscious personnel policy). Several researchers mention job insecurity, gender equality, and safety climate as topics that will continue to be important in the future.

In terms of research grants, we see that the topics that have been financed in recent years (2007-2013) are partly different from what researchers used to study. There is still money for the broad domain of job insecurity and its impact on employee health and well-being, with topics such as job transitions, justice, changes and re-employment, and employability. In addition, the researchers in this area received funding for projects on “negative” phenomena, including (cyber) bullying, gender inequality, violence at work, job incivility, accident frequency, and safety climate. However, there seems to be considerable grant money nowadays for research on innovation, such as improving work in health care, and innovation management reward systems. Additionally, researchers in this domain received money for doing research on lean production in health care (efficiency and quality of care), learning, (sustainable) leadership, Swedish management models, work-life balance, health interventions, performance, and motivation. In terms of impact on practice, the projects that have been carried out by researchers in this area have been used to develop guidelines for practice (e.g., guidelines on working hours; guidelines for equality policy). In addition, the research projects have led to the development of education programs, workshops, and seminars.

The researchers in area 5 (“Worker Behavior”) see several challenges for the near future, most importantly the lack of financial resources – which has a limiting

impact on the possibility to create “Nachwuchs” – and a lack of coordination in the research field (amongst others between Forte and Vinnova). According to the participants in the survey: “The relatively small project grants that are common in Sweden (about 2-3 MSEK) do not suffice to both conduct in-depth theoretical work and then publish it on the highest international level.”

5.2.6. CONCLUSIONS

While the preceding analysis has revealed some interesting differences, which relate to the relevance of the research topics in view of macro-trends in the Swedish and global economy, there are some interesting commonalities. First, Swedish researchers in the domain of Work Organization are scattered across many different institutions and disciplines with quite diverse resources and foci. Second, there is a substantial degree of collaboration among researchers in Sweden. Collaboration with other Nordic countries also exists, but there is very limited collaboration with researchers from other European countries and other parts of the world. Third, productivity in terms of numbers of publications is rather high, but the overall impact of the research is limited. The number of publications in international top-journals is very small, and the largest part of the output has appeared in outlets with a moderate or low Impact Factor. A significant number of publications consist of books and book chapters, of which many are written in Swedish rather than English. Fourth, the research is largely empirical and directed towards current issues in Sweden, but conceptual and theoretical works are relatively scarce. It seems that the potential for innovation and contributions to the international discourse is not fully used. Fifth, there is a clear overall trend to publish less in Swedish and more in English. This also applies to the PhD dissertations. Sixth, in all areas there are concerns about lack of structural funding, as well as lack of coordination and strategic planning of research. This can be seen as one of the reasons why Swedish Work Organization Research is unable to engage in long-term research and demonstrate and develop its potential. It is also a factor hindering the build-up of a generation of young researchers that can succeed those reaching the age of retirement.

6. VIEWS OF RESEARCHERS AND STAKEHOLDERS

Although occasionally referred to before, we will now present the views of various stakeholders. We begin with researchers, who were interviewed by the international Panel in October 2014. After that we present the views by employers and unions, who were interviewed in August and October, and some impressions from site visits to four well-known Swedish work organizations which took place in the summer of 2014.

6.1. VIEWS OF RESEARCHERS

6.1.1. Historical Background

Researchers pointed out that the current situation in Work Organization research couldn't be understood without considering history. A comprehensive picture of the developments over time is presented in Appendix A. Here we present the picture that emerged from the interviews. The researchers emphasized that after a period of tripartite collaboration between the government, business organizations, and employee organizations, Sweden witnessed important changes in the landscape of working life. Globalization led to international take-overs of Swedish firms and an adoption of new management trends with "more control and less trust". These developments were said to have resulted in increasing polarization and an eroding of relationships. Researchers' overall impression is that employers withdrew from work organization research, and that government lost interest. Research collaboration with companies became more difficult because of international ownership and outsourcing in many fields. These historical changes appear to have undermined the 'Swedish model', characterized by good collaboration between labor unions and employers, and by workers taking responsibility for employee and organizational interests.

A dramatic event that was often referred to was the closing of the National Institute of Working Life (NIWL) in 2007, which implied a withdrawal of an annual budget of some 300 MSEK. The interviewees described this event as "a big blow" for Work Organization research. Nowadays, there is only a limited budget for research on matters that are seen as original Swedish strengths, including job design and employee health. The new funding organizations Forte and Vinnova are seen as focusing less on societal or employee needs, and more on managerial and technological demands, as well as on practical, economic output. Although Forte and Vinnova does invest in long-term financing of centers of excellence (e.g., the Stockholm Stress Research Centre and HELIX at Linköping University), there seems to be a limited focus on innovative research. The research funded by AFA Insurance has a predominant practical focus and does not cover basic research. The tripartite past still fuels trust and facilitates access of researchers to companies and their employees. However, business firms increasingly have a short-term focus, which limits access. Researchers see a clear need for a long-term perspective, but this is hard to reconcile with business interests and current research culture, which stresses quick publishing.

It was also mentioned that the 'Swedish model' no longer resonates among younger people. The younger generation did not witness the Swedish model and often does not really know what it stands for. They prefer to work differently and new organizational arrangements emerge from this. The new concept is "Management– Technology–Organizing practices", which refers to use of digital media at work. Nowadays, stakeholders use social technology (internet, e-mail, Twitter, Facebook), which leads to new relations between man-

agement and employees. New business models, professional service work, and innovations in industrial firms have become prevalent, and with the possibilities of working “anytime, anywhere”, the need for work-life balance has gained in importance.

According to the interviewees, the closing of the NIWL has resulted in some advantages, and many disadvantages. One advantage mentioned is that when researchers spread out and started to work at various universities, working life research and organization studies became more distributed but also more integrated within the respective research institutions. However, the disadvantages mentioned are more numerous. The interviewees believe that it has become more difficult to carry out working life research at a high level. They mention fragmentation of research (and other) activities and a loss of competence. Additionally, they see a clear lack of coordination, a loss of expertise and a loss of library facilities. Also mentioned is a gap between the older and younger generation after the closing of the NIWL. A salient point is the general lack of funding for research, particularly since at some institutes, research time for professors has been reduced to only 20%, and getting funding (e.g., from EU sources) has become rather difficult. Researchers have set up the so-called FALF network, which is to compensate for this. However, this network has very limited resources.

6.1.2. Swedish Work Organization research: Current issues

During the past years, digitalization has had a major impact on society as a whole, and on work organizations in particular. In Sweden, this digitalization has changed management practices (e.g., in terms of monitoring) and human resources management, and has led to new ways of working. Since employees can now work “anytime, anywhere”, the traditional focus on job design has been replaced with a stronger focus on management practices, organizational change, and boundaryless work. An additional important change in Swedish work and organizational life has been the internationalization of Swedish firms. On the one hand, many large firms have been taken over by international companies. On the other hand, many employees now work abroad. As one interviewee put it, “We live in a post-Scandinavian, post-Swedish, and post-bureaucratic era in which new technology has caused a completely new ecology with an integrated socio-technology.” One of the issues studied nowadays is flexibility in work life, in the form of individual, work place, and labor market flexibility.

It is important to note that several typical Swedish assets are still characteristic of Work Organizations nowadays. Research on gender equality is historically strong. In addition, the power distance in Sweden is very low, which is evidenced by flat organizations, empowering leadership, and healthy employment relations. The trust and neutrality between employers and employees facilitates access to organizations, and enables a pluralistic focus on organizational problems. Sweden still has good databases, and excellent registers that can be used for longitudinal research. There is still a high engagement among Swedish researchers and continued attention for work life issues (including cyber bullying, job stress, and coping). The collaborative climate inherited from the past has a certain potential for better solutions that meet the needs of various parties. However, this heritage may get lost and valuable opportunities for collaboration may disappear, unless business organizations opt for sustainability rather than short-term achievements.

6.1.3. Interdisciplinary research

Virtually all interviewees indicate that multidisciplinary research is needed. Many problems in modern organizations are multidisciplinary and include complex, multilevel issues (at the micro and macro level; also when it comes to interventions). Some researchers indicate that there is too little multidisciplinary research, and they see the current research climate at universities as pointing into the wrong direction. University research is individualized, and lacks the micro-macro link. Many university studies have a too narrow scope (also within a single discipline). Moreover, top journals seem to be focused on single disciplines, which hamper publishing multidisciplinary research. Other researchers indicate that with the closing of the NIWL and the reemployment of the NIWL-researchers at various universities across Sweden, multidisciplinary research has become more prevalent and stronger. For example, research at the college level is smaller in size, but typically multidisciplinary, contextualized, applied, and intervention-oriented. This research implies collaboration and funding at the local community level. In fact, both trends are visible in the published output.

6.1.4. Research collaboration: Scandinavia, Europe, and world

The general view is that international contacts were stronger during the years of the NIWL than they are today. However, some networks continued and new ones were founded, including FALF Association for

Work Life Researchers; NOFS Nordic accident researchers' network, and NEVA for education. This means that the collaboration with the Nordic countries continues to exist. Moreover, the Nordic conference was revitalized in 2012. The conference had in total 260 participants, and 23 streams of presentations. The Nordic collaboration also exists in the form of scholarships for students.

European collaboration has not been continued. It was generally encouraged during the times of the NIWL (e.g., comparative studies). Now it is only stimulated in some places, e.g. Stockholm University. The collaboration regards setting up research, but also collaborative publications. The interviewees believe that European allies can profit from their collaboration with Swedish researchers, due to the relatively easy access to organizations and databases – a strength that has remained from the past. Several researchers indicated that they participate in EU-projects, but not specifically for Work Organization research. Some researchers indicate that they collaborate with colleagues outside the EU, but this seems exceptional. In general, there is more internationalization in the academic discourse, not in conducting research.

6.1.5. Language

Most interviewees indicate that the vast majority of publications are in the English language. When asked for the relative proportion of publications in English and Swedish, the average response is that publications are 80% English and 20% Swedish (range for English: 50%-100%). This is not confirmed by the bibliographic analysis and the review of the PhD dissertations, and may apply to the most recent situation only. Case studies are still popular in Sweden, also in PhD theses, as is action research (mostly in areas 2 and 3; Management and Organizational Change). In addition, several interviewees indicated that they like to publish in Swedish (books, journal articles) in order to communicate with Swedish stakeholders (e.g., policy makers, practitioners), and “give back to society”.

6.1.6. Career development

What about the new generation of Swedish Work Organization researchers, the so-called “Nachwuchs”? The interviewees indicate that this is a serious problem: There is insufficient room for ‘regeneration’. They give several reasons for this. First, the (legislation regarding) funding of PhD-projects changed in 1998, and has since then the requirement of fully funding PhD projects for 4 years, with 3 year financing. As the NIWL closed the funding of many PhD projects stopped.

This all means that resources have been shrinking considerably. A second reason may be that PhD-students in the field of Work Organization are not necessarily only interested in academia; they may also use their PhD-degree to make a career in consulting.

The researchers from area 5 mentioned an interesting subgroup of PhD-students, namely “senior PhD students”. These are older individuals who are with pension and imply limited costs. It should be noted that this group can only partly be qualified as “Nachwuchs”. Forte has junior research grants, but young researchers need more than research money. They need to meet others, and be exposed internationally. Although some structured PhD programs seem to exist, graduate schools do not seem to be common. In addition, outside of the metropolitan areas, PhD students are hard to get. Career development is OK for those who get in, but as one of the interviewees put it, “it is unclear who is the new generation”. There seems to be enough interest from students – even more than can be financed. In conclusion, in order to take care of the next generation, junior scholars including PhD-students and postdocs need better opportunities.

6.1.7. Future Opportunities

The interviewees stated that future research should investigate what the various economic and social actors in Sweden are really doing, and develop a clearer image of what Work Organization research is about. Because of all the changes, there is a need to reconsider the “old industrial relations model”, and collect new information regarding work and organization. This information should be descriptive, but should also be useful for theory building. There are some challenges involved in this, because of the changing Work Organization landscape. For example, in the mining industry, subcontracting is highly prevalent, which makes it difficult to set up new research (e.g., foreign owners; language issues). As a second example, there are rather poor conditions for doing research on migrant work at the countryside. There is also a need for new concepts for new phenomena (e.g., crowdsourcing; Wikipedia). Some interviewees wondered whether it is really possible to get such research – although socially highly relevant – funded. It would generally be needed to take a long-term perspective on business and society, to be able to plan research for longer periods and keep feeding the research pipeline.

Future research may also investigate how management models imported from the US play out in a Swedish context. Important concerns are new forms of work, organizations, and cultures. What and where are the

Swedish companies, Swedish workers, and Swedish management today? How do the various stakeholders collaborate to ascertain employee health and well-being, as well as excellent organizational performance? There seems to be a lack of knowledge about current employment/power relations; and a lack of generalizable knowledge (beyond case studies) about how work is organized today.

In addition, in the changing world of today, more research attention is needed for employment (in)security. Which groups face inclusion/exclusion at the labor market: particularly young people, or older individuals (ageing population)? Are there precarious conditions for certain groups of workers (migrating workforce, ethnicity, and race)? There seems a need for research on the link between globalization and unemployment, job insecurity versus temporary employment, redundancy, and hidden aspects of precariousness. The researchers from area 2 (Management, Leadership, and Teamwork) indicate that Swedish research used to be strongly focused on individual workers, not enough on HR, teams, leadership, and management. Many problems have traditionally been formulated from the perspective of individual employees, not from the perspective of employers. Future research may change this and find new ways to incorporate the multilevel phenomena in work organization research.

Furthermore, what are the new “Sociotechnics”? Research is needed into organizational factors in boundaryless work that contribute to employee well-being and psychosocial illness. Also, it seems important to investigate the implications of increasing service work (where workers need to deal with the emotions of clients), and the pressure on the public sector, especially health care. Sweden seems to house a wide array of competent researchers, good access to organizations, excellent networks, and a tradition of high-level statistics. These qualities can be used to get high-quality research done. There is good access to micro-processes and ample opportunities for critical studies, qualitative research, and theory development.

Research could have more impact by organizing the collaboration with practitioners, so that there is a better leverage of knowledge (e.g., better applications). The historically strong collaboration with social partners can be used to organize this, and to bridge the research–practice gap. The researchers from area 4 (Employment Relations) mention possible journals for practitioners. According to the researchers in area 2 (Management), future research could also take an organizational perspective on productivity and worker

well-being with concepts like high-involvement and high-performance, filling the gap left by previous research on individual workers.

Some of the interviewees indicate that the ‘Swedish model’ itself may offer competitive advantage to researchers. They do not see the ‘Swedish model’ as something of the past, but rather as alive and flourishing. It may – in an updated form – facilitate gender research, and educate the new generation of young researchers. Nevertheless, there are also new employment patterns in a global economy, something is happening behind the Swedish model: EU and global mobility. One way to use the Swedish model in future research and theory is to work on a Swedish Sociotechnical model, in which digitalization, employee health and safety, and new job design is combined.

6.1.8. Future Challenges

In addition to future opportunities, Swedish Work Organization research also faces several challenges. One important problem mentioned by several participants is the lack of systematic and long-term funding. Because of the dependence on scarce and variable external funding, Swedish researchers seem vulnerable, and dependent on trends (short-time focus instead of long-term focus) – something that also applies to other countries. Following the financial resources may also have an impact on the topics that are studied and on careers as a whole. The interviewees mention that there is a danger of limited critical research on managerial approaches, and a lack of theoretical work on work organizations. Indeed, such types of studies are of crucial importance for the advancement of the field and have the potential of offering new perspectives from which all stakeholders, including those responsible for managing future organizations may profit.

After closing down the NIWL, research on Work Organization became scattered. The researchers indicate that it may be important to reconsider the division of scarce resources between the regions and the Stockholm area with its excellence centers. Some also indicate that there is an unhealthy competition between the excellence centers and the university. One suggestion is to upscale by merging research groups into bigger groups, and to sponsor networks, programs, and centers. This may also improve employer support for implementation.

Because of all the changes in society (e.g., immigrants, new forms of work, age demographics, diversity), many Work Organization concepts seem outdated. New theories and models are needed. There is also

a lack of intersectional research. The lack of insight in the consequences of all these changes poses a risk for uniform policy-making. There is also a poor understanding of management, because the current knowledge is mostly based on the private sector and male-dominated.

6.2. VIEWS OF SOCIAL PARTNERS

To obtain views from stakeholders interviews were conducted with unions and employers associations representing a wide cross section of industries. AFA Insurance was also included in these interviews. AFA Insurance is the largest provider of funds for research into occupational health and safety in Sweden (150 MSEK annually). It is jointly owned by the Confederation of Swedish Employers, the Swedish Trade Union Confederation and the Council for Negotiation and Cooperation.

The interviews revealed that there are many shared interests in the broad field of work organization. These include traditional issues in employment relations such as collective bargaining and labor market functioning to broader employment issues such as recruitment, employability, competency development and the match between skills and jobs. Newer issues include 'boundary-less' work, digitalization, gender, diversity and work-life balance. AFA Insurance is also concerned with health and safety at work as well as work environment and psycho-social issues which affect people's health at work.

Of course, there are differences between the social partners in relation to the emphasis which they give to research priorities. The Engineering Employers Association expressed the view that they would like to see greater focus on issues of concern to their members such as more flexible systems of employment and working arrangements, achieving a faster return to work by employees after recovering from accidents and illness and better collaboration between employers and unions about the introduction of new systems such as lean production. They felt that work safety issues were now incorporated into organizational practices but that work environment issues remained at the margin and were accorded less attention by managers and employees.

The Swedish Trade Union Confederation and Unionen wanted to see more attention paid to research on precarious employment and jobs which are low skilled and repetitive. The union representatives felt that the emphasis on cost saving by employers had negative consequences for work organization, as did the introduction of lean management systems. They contrasted the more

positive approach to joint research by employers and unions in Norway compared with the polarization of attitudes among the social partners in Sweden. They did not feel that 'pure' academic research was useful for their members and urged that more 'action research' be undertaken which would lead to more sustainable systems of work. Unionen noted that they had a large research unit which met most of their needs.

Both unions and employers agreed that the NIWL had served a useful purpose as a point of contact and collaboration between the social partners. They would support the re-establishment of a similar body but urged that the research agenda be set by the social partners and not by the government, in order to foster unbiased research which would be regarded as more useful by stakeholders. They also saw the need for more funding by government for research on work organization but with a strategic agenda.

Finally, concern was expressed by respondents about the need to build the 'next generation' of work life researchers but emphasized the need to maintain continuity with earlier research so that they did not 'reinvent the wheel'. They would like to see the development of more 'integrative' research rather than 'piecemeal' and 'imitative' research.

The stakeholders did not regard cooperation with researchers as a problem and indicated that they had a number of well-established and positive relationships with researchers and universities. However, they also indicated that they were open to pursuing new and more extensive forms of research collaboration in the future.

6.3. SITE VISITS

In order to get a view of conditions in successful contemporary Swedish organizations and to validate the views of researchers and stakeholders four site visits were undertaken. The specific objectives of the visits were: (1) to investigate current work organization issues in Swedish workplaces; (2) to identify innovative developments in work organization; and (3) to assess the impacts of research on work organization within Swedish workplaces.

6.3.1. LKAB Mine in Kiruna

The LKAB mine in Kiruna is government owned and produces 90 per cent of the total iron ore extracted from mines located in Europe. It has been highly profitable in recent years due to a sharp rise in the price of iron ore. LKAB has undertaken a great deal of investment in automation in order to make the mines safer and more productive.

Both management and union representatives at LKAB have agreed to the introduction of 'process optimization' in the mining in order to improve various aspects of the production system in mining operations. Key elements of process optimization include continuous improvement and total quality control which are closely associated with the Toyota production system, also known as 'lean production'.

While LKAB management claims that process optimization places great emphasis on employee engagement and communication in the workplace, and not just on the application of production techniques, union representatives argue that greater emphasis could be placed on involvement of the employees in process issues.

There is close engagement of LKAB with researchers from Lulea Technological University (LTU) not only in mining engineering and related technical aspects but also in issues such as work design, health and safety, gender equality and employment relations. Researchers from LTU also collaborate with the mining unions at LKAB.

6.3.2. Scania Bus and Truck Manufacturing in Sodertalje

Scania is a major global manufacturer of trucks and buses. It also provides engineering expertise and services to the transportation industry. It has more than 40000 employees, approximately 15000 of whom are employed in Sweden.

Inspired by Toyota, the Scania Production System focuses on improving efficiency and eliminating waste. While it is similar to the Toyota Production System, Scania claims that they place greater emphasis on ergonomic aspects of job design and reducing stress at work.

Based on research undertaken in its manufacturing facilities, Scania has recently reduced the size of their work teams and given them greater support and support in order to reduce work pressure and enable them to be more efficient. Scania has also developed a system of component modularization to achieve greater economies of scale and efficiency.

Scania has a long history of collaboration with Swedish universities, particularly in research and development, including a doctoral program with Mälardalen University. Recently, VW has gained full control over Scania and it remains to be seen if this will affect research collaboration with universities in Sweden.

6.3.3. BT Toyota in Mjölby

BT Toyota in Mjölby is part of Toyota Materials Handling Company which is a division of the Toyota Industries Corporation. Toyota acquired the company in 2000. It was formerly owned by Konsum which began manufacturing hand pallet trucks in the 1940s for use in its grocery stores. Currently it is a production centre of pallet trucks (forklifts) and related items and is one of the largest warehouses in Europe. BT Toyota also has a large R&D department with a large number of engineers. Approximately 2100 people are employed at the facility.

After acquiring BT, the parent company gradually introduced the Toyota Production System (TPS) with a strong emphasis on improving quality, cost, safety and delivery time. It has been a challenge for BT to adapt to the assembly line system and achieve the performance standards demanded by Toyota. Toyota has required that BT become more productive within their existing resources and has introduced extensive training for the workforce involving team work, job rotation and learning a range of new functions.

BT Toyota has acquired about 50% of the Swedish market and exports 95% of its products. It is under pressure from the parent company to increase its market share where it is currently third after two German companies. Each year, the company raises the sales and productivity targets to be closer to its Japanese standards.

Almost all the blue-collar workers at BT Toyota belong to IF Metall and there is a high level of union membership among the white-collar workers. The unions are seeking increased training for their members as well as improved wages and a reduced work load. The management argues that Japanese plants tend to achieve higher productivity than their Swedish plants but the union argues that the Japanese have proportionately a greater number of white-collar workers and a larger local market.

BT Toyota has some contact with academic researchers, particularly with Linköping University through the "Helix Project" but this is less than some other Swedish companies.

6.3.4. Gustavsbergs Vårdcentral (Primary Health Care Clinic)

Gustavsbergs Vårdcentral (GV) is one of 200 primary health care clinics in the Stockholm region under the authority of the Stockholm City Council.

During the past seven years, GV has embarked on a major reorientation of its work in order to focus on improving the detection and treatment of mental health disorders for community in its area.

The director of GV, who has worked at the clinic for the past 17 years, undertook research in collaboration with the Karolinska Institutet (which specializes in medical research) and discovered that around 30% of patients attending the clinic for various ailments were suffering from some form of mental health disorder, such as anxiety and depression.

A new approach was adapted to health care which involved the addition of psychologists and other therapists to work alongside general practitioners (GPs) in order to assist with the identification and treatment of patients with mental disorders.

The personnel in the clinic are organized into twelve multifunctional teams, of varying sizes, typically com-

prising a GP, different types of therapists, psychologists, nurses and ancillary staff. Each group has a leader whose role is to ensure that there is full collaboration between the various individual experts.

The preliminary results have been encouraging with a decline in patients reporting stress disorders, anxiety and insomnia. Cognitive behavior therapy combined with self-help information has resulted in patients making a faster return to work after diagnosis and treatment.

The clinic is now being emulated at a number of other primary health care centers in the UK. However, the previous government focused on reducing the time taken for medical treatment and introduced a scheme to encourage new private primary health clinics to be established. It remains to be seen whether the current Labor government will reverse or modify this policy.

7. SWEDISH WORK ORGANIZATION RESEARCH TODAY

We are now coming to an assessment of the Swedish work organization research based on the criteria that were presented in Chapter 2.

7.1. ASSESSMENT OF THE RESEARCH

This section deals with scientific performance evaluated against international standards (7.1.1), and with the significance and impact of the research for society, that is, for people and business as well as public organizations, in Sweden and internationally (7.1.2).

7.1.1. Performance

1. Research productivity: the number of publications and their impact

The output of Swedish Work Organization research is impressive. We noted that in terms of the number publications Sweden takes the 10th place among 16 leading countries in the world. Corrected for population size Sweden accounts for 16% of all publications in the world, just like Denmark. The impact of Swedish research is considerable. In terms of the average numbers of citations it takes the 12th place in the world and the 9th in Europe. In terms of the h-index Sweden takes the 10th place in the world and the 7th in Europe.

2. Research quality: the application of appropriate theories, concepts, methods, samples etc.

From our review of the publications provided by the respondents of the survey, we concluded that the quality of empirical research is high in terms of the appropriateness and diversity of methods and samples. However, there seems to be a lack of new theoretical developments, especially in response to changing economic and societal conditions in Sweden and internationally.

3. Innovative potential: the presence of original ideas that have the potential for novel discoveries or applications

The number of innovative ideas advanced in the research output is limited, and the potential for novel discoveries is hard to assess. There is a tendency for research to study trendy topics for which finance seem to be available.

7.1.2. Significance and impact

4. Policy and social relevance: significance of questions, models, theories for issues in Sweden

Swedish research in Work Organization is generally relevant for policy making and society. Researchers are aware and receptive to the needs expressed by local stakeholders, and the meaning of 'social relevance' is something embedded in the way research is conducted and empirical findings are fed back. The idea of taking part in development of local policies is a shared value – at least until now.

5. Impact/Valorization: evidence of actual applications and impact, or potential for application and impact, in organizational practice or policy-making.

Talking about their achievements, researchers mainly mention the importance of their empirical results for stakeholders such as municipalities, hospitals, engineering consulting firms, and so on. Part of the research does present evidence of applications of research results and impact on organizations or local communities. There is an increasing divide – which is an issue for research worldwide – between academic and practical impact.

6. Coverage of important issues: degree to which important issues in Swedish society are being studied

The fragmentation of the field of study in this period of strong socio-economic change makes it difficult to develop a clear picture of which is 'the important issues in Swedish society'. Nevertheless in consideration of the kinds of relationships between all the actors involved in financing/doing/documenting research, it is assumed that 'the important issues in Swedish society' find their way into research.

7.2. ASSESSMENT OF THE RESEARCH SYSTEM

This section deals with the Swedish research infrastructure and the availability of funds, as prerequisites for scientific research, and with embeddedness and sustainability, as enhancers of quality and impact over longer periods of time.

7.2.1. Infrastructure and funding

7. Organizational structures and resources: presence of structures and resources that permit, promote and support doing and publishing research.

The organizational structures that support research on work organization and related fields in Sweden have changed frequently during the past two decades. The organizational infrastructure that has remained after the closure of the National Institute for Working Life (NIWL) in 2006/7 is scattered and does little to promote and support Work Organization research. The available organizational and financial resources impede the development of a strategically oriented, coherent and long-term research program for Sweden.

8. Availability of funding: access to and likelihood of obtaining financial means for doing research.

The total amount of funding available for Work Organization research is considerable less (some hundreds of MSEK) than a decade ago. There are various funds from which researchers can draw (Forte, Vinnova, AFA Insurance, the EU, and others). Forte is the major source of funding but the level of investment varies over time. Researchers judge the funding level is insufficient to carry out the needed research and generate the corpus of researchers. Apart from the Centers of Excellence created by Forte, the funding system as a whole promotes fragmentation and short-term focus of the research. Researchers judge

the success rates in competitive applications as too small. The fragmentation makes it difficult to judge also what the overall available funding actually amounts to.

9. Intellectual capital: presence of collective knowledge and learning capability regarding work organization research.

Sweden's reputation as a leading nation for research in Work Organization has declined in recent years, which is partly due to the emergence of other important issues (e.g., ageing population, demographic change, and social exclusion; Håkansta, 2014). Of particular concern is that some 100 social scientists have left the field in the past decade (Håkansta, 2014). Moreover, the level of senior research will decline due to retirement, while the number of PhDs is also in decline and may be insufficient to replace them. This suggests a deterioration of collective knowledge and learning capability in the Work Organization domain.

7.2.2. Embeddedness and sustainability

10. Continuity/sustainability: possibility to extend research over multiple years and attain cumulative knowledge and impact

Swedish Work Organization research has been traditionally strong and the embeddedness of this tradition in Swedish society can still be considered as an important asset. Especially the tri-partite cooperation regarding work environment and high response rates in surveys and strong practice cooperation with companies have enhanced quality and practical transfer of knowledge to a large extent. However, the situation is changing and the factors that promoted continuity, sustainability and impact in the past have largely eroded.

11. Reproductive capacity: presence of arrangements for educating and socializing young researchers (PhD) and for enhancing research competence of researchers (postdoc and senior)

The reproductive capacity of Swedish Work Organization research appears to be insufficient. Low acceptance rates on applications and limited funding for PhD projects, promote a shift of research focus towards other areas, and makes successful young researchers leave. Overall, there are not enough resources for maintaining and enhancing the competence of researchers and "Nachwuchs" building.

12. International embeddedness: degree to which Swedish research is connected with research in other countries and integrated in international research activities.

In spite of the presence of Swedish researchers in international journals, there is too little active international collaboration. Swedish researchers experience the same problems as researchers from other countries in establishing EU collaboration, associated with the fact that EU calls are restrictive, questions are watered down, trivialized and too economic. However, there appears to be insufficient incentives for European and global collaboration in Sweden's current research infrastructure.

7.3. OVERALL ASSESSMENT

Swedish research in Work Organization appears to be strong in terms of the number of people involved, the presence of a substantial number of senior researchers, the strength of the social network among researchers, the way in which research is organized (with many substantial research groups, well spread across the country) and in terms of volume of output. Internationally, Sweden takes the 10th place in number of publications and h-index. If one corrects for population size, Sweden shares the 3rd place in the world with Denmark (16%), immediately after Norway (17%), Finland (20%) – all Scandinavian countries.

One way to read history is that the awareness of government and social partners of the Work Organization issues in post-War years, and its expression in the gradual development of a collaborative research infrastructure, culminating in the creation of the NIWL in 1995, has meant an enormous boost to Swedish research in this domain. The figures regarding research output and number of PhDs show that the positive effects are still visible but also that they are likely to taper off and perhaps vanish. The volume of output has not grown after 2009 (unlike the general international trend) and the number of PhDs is declining. Also worth noting is the limited degree of innovation in the research being done. There are also reasons for concerns about the research infrastructure, which is not capable to support strategically oriented, coherent and long-term research. Altogether this means that the zenith of Swedish Work Organization research may lie behind us – unless some action towards reorientation and renewal is taken.

Although there is still a sense of grief among senior researchers about the closing of the NIWL and the severe cuts in funding a decade ago, most of them re-

alize that the world has changed and that globalization, digitalization and changing patterns of business ownership have brought a new reality of work and organization, in Sweden as well as elsewhere. Business activities, labor markets and labor relations systems have all become international, and a great deal of legislation has become essentially European rather than national. This means that Work Organization research could not possibly be a continuation of research conducted in the past and that a reorientation is needed. Considering the lasting importance of Work Organization issues for people, business and society, the need to develop a strategic national research agenda is evident (see the next section).

7.4. PERSPECTIVE

Likely as a consequence of past investments, particularly during the existence of the NIWL, Swedish work organization research is generally in a good shape. Productivity is high and societal as well as scientific impacts are substantial. However, there are signs that the tide is turning and that output is no longer growing, that the number of PhDs is declining, and that innovative capacity is waning. The question arises what could be done to counter the risk of a downward turn, which would amount to a loss of intellectual and social capital, and an erosion of Sweden's international position and reputation.

What seems most needed of all is a strategic reorientation, based on a comprehensive research describing ongoing trends and the current state of Work Organization in Sweden. This should preferably take into account the situation in particular regions in Sweden, but also in other Scandinavian and European countries, which in many respects may appear to be similar. This reorientation should also include an assessment of current needs of stakeholders, precise analysis of strengths inherited from the past, and result in a definition of a strategic national research agenda. We imagine that it should be possible to define a research agenda that in some way builds on a 'new Swedish model', without being limited to unique Swedish circumstances. Such a model could build on ideas that were brought forward in studies and essays such as presented in 'The Nordic Light' (Sandberg, 2013) and articulate the need to acknowledge the continuing interdependency of various stakeholders in spite of the changes in economic and political landscape that taken place in recent decades. Since many of the issues facing organizations and people in Sweden also exist in other countries, future research could be a showcase for other countries, demonstrating how issues can be dealt with in an effective and socially responsible way

within the confines of a social market economy. This might actually be a good basis to strengthen international collaboration, particularly in Europe.

Equally important is strengthening the research infrastructure, not necessarily by creating a new centralized body such as the former NIWL, but rather by building on the current distributed network of universities and institutes, and creating one or more (distributed) entities that can take care of strategic planning, coordination, exchange and development for researchers, as well as internationalization. All these functions are crucially important to overcome current weaknesses of Swedish Work Organization research. Internationalization could and should be strengthened by hiring of international scholars, more EU research, and institutional rewards for international publications – outside of Scandinavia.

In addition, it would be desirable to (further) develop structured PhD programs that would operate in line with content of the strategic research agenda, which would allow researchers to dedicate multiple

PhD projects in parallel or sequentially to issues of particular importance. Such PhD projects would also allow building a new generation of researchers that is knowledgeable about crucial issues of work and organization, and the methods for investigating them.

As regards funding we see the need for a higher level of funding over greater time-spans to make it possible to fulfill the above mentioned functions: strategic planning, coordination, researcher exchange and development, internationalization and research by PhDs and postdocs. A clear, strategically oriented funding framework may give better changes for basic and innovative research and may secure the tradition of cross-disciplinary research on Work Organization. It will also provide researchers and departments with the perspective needed for their work and for the necessary investments. A new funding framework might be developed by Forte alone, or in collaboration with other funding agencies (i.e. Vinnova and AFA Insurance), which might have synergetic effects and could lead to greater research coherence, continuity and impact.

8. SUMMARY AND RECOMMENDATIONS

This report presents the results of an assessment of Swedish research in the domain of Work Organization during the years 2007-2013. It is based on an analysis of several sources of information, including existing documents, a Survey among researchers, bibliographic data obtained from Web of Science, and a data-base of Swedish PhD dissertations.

The major findings are the following:

- Productivity is good, both in terms of number of publications (total 870) and impact (average citations 5,75; h-index 27).
- Research is mainly empirical and of good quality in terms of methods and samples. A substantial part of publications are qualitative case studies. Innovative conceptual and theoretical work is rare.
- Significance and impact of the research for stakeholders in Sweden are generally high.
- Research is conducted in a network of interconnected research groups at universities and institutes, which has substantial capacity: there are at least 74 research groups with 452 researchers.
- International collaboration is weak and mostly limited to Scandinavia. International embeddedness of research is less compared to the past.
- Weaknesses of the research infrastructure are the lack support for strategic planning, coordination, exchange and development for researchers, as well as internationalization.
- Funding has gone down considerably over time, lacks stability, is incoherent across funding agencies, and falls short of the needs of researchers.

- Changes over time show a leveling off of output (counter to the international trend) and a declining number of PhD projects, which points at risks for sustainability and reproductive capacity.

Considering the strong position that Sweden had in Work Organization research in the past, the risk of a downfall involving loss of intellectual and social capital and erosion of Sweden's international position and reputation, could and should be prevented. Recommended are:

- A strategic reorientation of Work Organization research, based on a comprehensive study describing ongoing trends and the current state of Work Organization in Sweden (and Europe), aiming at the development of a strategic national research agenda that builds on strengths inherited from the past and a 'new Swedish model' that can serve as example for organizations and people in other countries.
- Strengthening of the research infrastructure, by creating entities for strategic planning, coordination, exchange and development for researchers, as well as internationalization.
- Development of structured PhD programs operating in line with the strategic research agenda.
- Higher level of funding over greater time-spans to support and improve the research, strengthen the infrastructure, and reinforce PhD and postdoc research.
- Development of a new funding framework by Forte, preferably in collaboration with Vinnova and AFA Insurance, to produce synergetic effects and enhance greater research coherence, continuity and impact.

9. REFERENCES

- Abrahamsson, L., & Johansson, J. (2013). One Hundred Years of Inertia. An Exposé of the Concept of the Psychosocial Work Environment in Swedish Policy and Research. *Nordic Journal of Working Life Studies*, 3(1), 5-26.
- Albin, M., Johansson, G., Järvholm, B., & Wadensjö, E. (2009). Swedish research into working life – a resource for welfare, health and growth. Ensuring research of high relevance and quality (pp. 39). Stockholm: FAS.
- Guion, R. M. (2011). *Assessment, measurement, and prediction for personnel decisions (2nd ed.)*. New York, NY, US: Routledge/Taylor & Francis Group.
- Håkansta, C. (2014). Former Glory and Challenges Ahead: The Definition of Working Life Research in Sweden. *Nordic Journal of Working Life Studies*, 4(4), 3-20.
- Johansson, J., & Abrahamsson, L. (2009). The good work—A Swedish trade union vision in the shadow of lean production. *Applied Ergonomics*, 40(4), 775-780. doi: 10.1016/j.apergo.2008.08.001
- Johansson, J., Abrahamsson, L., & Johansson, S. (2013). If you can't beat them, join them? The Swedish trade union movement and lean production. *Journal of Industrial Relations*, 55(4), 445-460.
- Reise, S. P., & Waller, N. G. (2002). Item response theory for dichotomous assessment data. In F. Drasgow, N. Schmitt, F. Drasgow & N. Schmitt (Eds.), *Measuring and analyzing behavior in organizations: Advances in measurement and data analysis*. (pp. 88-122). San Francisco, CA, US: Jossey-Bass.
- Sandberg, A. (Ed.). (2013). *Nordic Lights – Work, Management and Welfare in Scandinavia*. Stockholm: SNS Förlag.
- Sandberg, A., Broms, G., Grip, A., Lars, S., Jesper, S., & Ullmark, P. (1992). *Technological Change and Co-Determination in Sweden*. Philadelphia: Temple University Press.
- Sturesson, L. (2008). Working life research in Sweden 2008 – the current position (pp. 38). Stockholm: FAS/Vinnova.
- Westerholm. (2007). Closing the Swedish National Institute for Working Life. *Occupational and Environmental Medicine*, 6, 787-788. doi: 10.1136/oem.2007.034207

Appendices can be downloaded at: www.forte.se/en/work-organization