THE AGEING SOCIETY

InnovationsAllianz
DER NRW-HOCHSCHULEN E.V.

THE UNIVERSITIES OF NORTH RHINE-WESTPHALIA: YOUR PARTNERS FOR EUROPEAN RESEARCH PROJECTS

THE AGEING SOCIETY

EUROPEAN RESEARCH PROJECTS

InnovationsAllianz
DER NRW-HOCHSCHULEN E.V.

THE UNIVERSITIES OF NORTH RHINE-WESTPHALIA:

YOUR PARTNERS FOR EUROPEAN RESEARCH PROJECTS THAT ADDRESS "THE AGEING SOCIETY"

Since its foundation in 2007, the NRW Innovation Alliance has worked hard to sustain the presence of North Rhine-Westphalia's universities in Europe. Given the intense competition for European funding, greater success may only be achieved by improving awareness of the diverse and excellent level of research expertise that exists in this German state's universities. Hence, the NRW Innovation Alliance is organising its first symposium on "The Ageing Society". This carefully chosen research topic of international relevance will afford the universities in North Rhine-Westphalia the chance to demonstrate their potential input, scientific excellence and multiple resources for developing and shaping current and future European research programmes. The symposium will take place in Brussels, providing access to a potentially large audience including the European Commission, European Parliament, political parties and associations.

The NRW Innovation Alliance has prepared this catalogue to adequately illustrate the whole spectrum of the universities' competences in "The Ageing Society" field, with the intention of providing the information in a sustainable form. The catalogue not only concisely presents a wide range of scientific projects that consider multiple aspects of this highly significant social topic but, besides medical issues, it also addresses technical and socioscientific questions. Key terminology includes neurodegenerative diseases, research and development within medical technology, computer-science based technologies, consequences of the demographic change for our health systems, the economic and working environment and urban development.

The extensive compilation of references to scientists' details, their research activities and contact information will enable representatives at scientific institutes and companies to establish contact with appropriate partners in North Rhine-Westphalia's universities.

A short presentation of the NRW Innovation Alliance concludes this publication.

On behalf of the board of directors of the Innovation Alliance of the Universities of North Rhine-Westphalia

Prof. Dr. Gisela Schäfer-Richter
Prof. Dr. Wilhelm Schäfer

TABLE OF CONTENTS

InnovationsAllianz
DER NRW-HOCHSCHULEN E.V.

YOUR PARTNERS FOR EUROPEAN RESEARCH PROJECTS THAT ADDRESS "THE AGEING SOCIETY"

AIMS

With this catalogue, the Universities in North Rhine-Westphalia outline their excellent research in dealing with the many aspects of an ageing society, an issue that is of enormous importance to all members of the European Union. The presentations document the universities' scientific capacities, highlighting the issues and research that should be taken into consideration by the European Union in present or future funding programmes.

The collection of high-quality references in this catalogue enables European companies and research institutions to easily contact relevant research partners in North Rhine-Westphalia's universities.

THE FIRST STEP

In Spring 2009, the "EU-Lobbying" team from the NRW Innovation Alliance, comprising representatives from ten universities, conducted an inquiry at all universities in North Rhine-Westphalia asking for research projects dealing with various aspects of "The Ageing Society".

GUIDELINES

- Focus on excellent research projects, e.g. collaborative research centres and priority programmes funded by the German Research Foundation (DFG, Deutsche Forschungsgemeinschaft), the Federal Ministry of Education and Research (BMBF), the European Union, companies etc.. Not just basic research, but also applied projects.
- Various points of contact for the issue "The Ageing Society", e.g. medical, technical, socioscientific questions.
- Not more than three projects per university (one page per project).
- Easy-to-read representations.
- Contact information on project leaders and participants.

17 universities participated in this survey and submitted details for 45 research projects.

PROJECT PRESENTATION

ALL ARTICLES ARE STRUCTURED AS FOLLOWS:

- Project title.
- Name of the university, contact.
- Abstract – description of work, objectives, main targets.
- List of participants, business partners, research institutions, networks etc. (from North Rhine-Westphalia and from other member states of the EU).
- Project start and duration, total costs and funding.
- Perspectives, approaches and ideas for further development at the European level.

1.1 JARA – BRAIN;
JÜLICH AACHEN RESEARCH ALLIANCE – TRANSLATIONAL BRAIN MEDICINE

ABSTRACT

Translational Brain Medicine (JARA-BRAIN)

Aim: The School of Medicine (RWTH) and the Institute of Neuroscience and Biophysics–Medicine (Forschungszentrum Jülich GmbH, FZJ) have proven collaborations in various psychiatric and neurological research projects. JARA-BRAIN will set a common frame for collaboration and focus on: (1) the identification of predictors of psychiatric and neurological diseases through brain imaging (MR, fMRI, PET, MEG), animal models, behavioural and genetic risk analyses, allowing for individually optimised treatment and prevention; (2) novel therapies including brain-computer interfaces and deep brain stimulation; and (3) technical innovations in neuroimaging and their transfer into clinical applications. The neuroscientific focus is on neurodegenerative diseases (demographic shift), schizophrenia and affective disorders (extreme impairment), and developmental dysfunctions (life-long impairment). Translating neuroscience to clinical applications at an internationally recognised level requires analysis of large cohorts using innovative methods – both of these prerequisites are facilitated thanks to the structured cooperation of both centres. However, to achieve true interdisciplinarity, we need to support academic leaders that combine competency in both research and clinical practice, besides opportunities that are exclusively focused on one or the other. Therefore, in JARA-BRAIN we have adopted the international practice of establishing a clinician-scientist, who can integrate clinical competency in psychiatric and neurological diseases with basic neuroscience and/or neuroimaging based on formalised concepts. This may represent a pioneering model for other fields of medicine. Structural prerequisites: The FZJ has a unique infrastructure for neuroimaging, brain mapping, cellular neurobiology, cognitive neurology, MEG and deep brain stimulation. Expertise in psychiatry, neurology, neuropsychology, clinical research, and patient care will be the input of the RWTH. The potential impact of JARA-BRAIN is further enhanced by existing and ongoing joint activities and joint centre grants (DFG, BMBF, industry). Furthermore, JARA-BRAIN works closely with the International Research Training Group (IRTG) 1328 on brain behaviour relationships in schizophrenia and autism as well as the Aachen Institute for Advanced Study in Computational Engineering Science (AICES). There is already collaborative agreement with the proposed Cluster of Excellence "Media: Material Conditions and Cultural Practice" Implementation: Clinical scientists will start as Junior Professors with tenure track (W1), supplemented by young physicians from the alliance institutions. The certified education will imply independence from everyday clinical duties yet awareness of its needs. The new generation of academic leaders will facilitate the convergence of clinical and basic neuroscience in translational medicine, shape education, and enhance clinical practice.

LIST OF PARTICIPANTS

RWTH Aachen University
(especially School of Medicine)

Forschungszentrum Jülich GmbH
(especially Institute of Neurosciences and Medicine, INM)

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

This project is part of the institutional strategy of the RWTH Aachen University within the Excellence Initiative for improving research run by federal and state governments. It is funded with approx. 5 Mio. Euro within the 5 year period of the Excellence Initiative.

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

This Excellence Initiative aims to improve structures for successful research. As such it is difficult to define conrete perspectives for further development of projects. JARA-BRAIN basically concentrates on the further advancement of the collaboration between the RWTH Aachen University and the Forschungszentrum Jülich. Developments at the EU level will depend on the initiatives of the participating researchers.

The idea of JARA-BRAIN is to offer promising prerequisites for such developments. Four newly established junior groups and a JARA-BRAIN general manager to support large-scale funding applications are central measures within this approach.

RWTH Aachen University

CONTACT: Department of Psychiatry and Psychotherapy, **Prof. Dr. med. Dr. rer. soc. Frank Schneider**

1.2 ALLIANCE FOR MENTAL HEALTH IN AN AGEING SOCIETY

ABSTRACT

Work package 1 Clinic & Genetics of Alzheimer's Disease

WP leader: Matthias Riemenschneider, Technical University München (TUM)

WP participants: TU München, Forschungszentrum Jülich, RWTH Aachen

Description of work, main methods, levels of analysis:

Whole genome association study (WGAS): To investigate the genetic and environmental factors determining AD risk and progression (e.g. cognitive decline), we will analyse a total of 1,000 patients including control groups. In following-up upon this data (i.e. quantitative measures, case-controls) we will prioritize genetic regions according to their strength of association, including several validation and replication procedures. In a first validation step, neighbouring SNPs in the associated genomic regions will be genotyped in an independent case-control cohort from München (700 cases; 700 controls). Those genetic regions/genes, which passed the validation step will then be replicated and confirmed using our independently ascertained case-control series from Sweden, Australia and/or the US. In general, the follow-up investigations will be restricted to a maximum of 100 loci identified through the initial WGAS. The discordant sib-pair sample will be used for a second confirmation. Further steps will include functional analyses of gene expression, alternate splicing and possible effects on APP processing, A generation and/or plaque-densities in cellular systems and/or brain material. These will be finally completed by a validation step in animal models. Gene mapping in monogenic forms of AD: We will use extended families with autosomal dominant AD to map the causative loci in these families using Affymetrix 100K SNP-Chips (4 families with monogenic load; onset > 70 years). As only one or at least two additional genes are expected to cause monogenic AD, it appears reasonable to analyse these AD families individually and together. Following identification of linkage regions we will start with DNA sequencing to identify the causative genes/mutations. Within the linkage regions, we will prioritize positional candidate genes which may be involved in AD pathological mechanisms. Epigenetic alterations in AD: To assess epigenetic dysregulation in late-onset AD compared to controls, we will investigate post-mortem brain samples (German Brain-Net; 100 AD patients and 100 controls) for differences in DNA methylation patterns and also, if positive, for histone modifications. For DNA methylation analyses we will utilize (i) CpG island microarrays for genome-wide screening and (ii) MALDI-mass spectrometry for a more detailed follow-up analysis. The available CpG island microarrays contain over 12,000 CpG islands, which allow an unbiased screen of the genome. If disease-associated epigenetic patterns are identified, these genomic regions will also be screened for AD brain-specific chromatin remodelling, by analysing specific histone variants. Prediction of dementia in patients with MCI: Approximately 100 patients with a primarily amnestic type of MCI and 100 age- and sex-matched controls will be included by multicentric recruitment in this study. The inclusion criteria for patients is defined by the MCI criteria of Petersen 32 and neuropsychological testing (CERAD-NP). The longitudinal design includes 5 time points (0, 12, 24, 36, 48 months) with further time points to be followed up beyond the funding period. The following measures will be applied to all subjects: (1) Structural MRI (T1 and T2 weighted images): Analysis of brain morphology using DFM: analysis of individual progression curves of structural changes as defined by DFM; analysis of the structural differences between different subtypes of MCI patients (primary degenerative type vs. other patients developing AD vs. others) at different time points; prediction of later time points; (2) FMRI of episodic verbal and object (faces) memory using two established paradigms. This is motivated by the fact that these functions are sensitive to dysfunctions and may serve as markers of progression. (3) Neuropsychiatric and neuropsychological assessment. Distribution of work and cooperation between the WP partners and with other WPs Recruitment of patients, clinical examinations as well as neuropsychological testing will be performed by the Neurology Departments at the TUM and RWTH Aachen. Genetic analyses will be done at the TUM and the HMGU (Helmholtz Zentrum München German Research Centre for Environmental Health) genotyping platform depending on specific technological requirements. MR-imaging is performed at the Research Centre Jülich. There will be a close interaction between the three WPs of this research topic in order to identify the genetic basis of the known comorbidities between the three phenotypes. Therefore, rating scales and questionnaires used for phenotype definition will be shared between WPs, and measures will be taken to allow direct comparison of genotype data.

LIST OF PARTICIPANTS

RWTH Aachen University
(especially School of Medicine)

Forschungszentrum Jülich GmbH
(especially Institute of Neurosciences and Medicine, INM)

Technical University München

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

This project is part of the Alliance for Mental Health in an Ageing Society and is supported and funded by the Helmholtz Association. The RWTH Aachen receives a total funding of approximately 300,000 Euro within a 3 year period.

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Predictors for neurodegenerative disorders derived from this study will need to be tested for cross-cultural validity. Furthermore relevance for treatment strategies based on the predictive value of neuropsychological, genotypical, and brain functional assessments, will have to be evaluated with regard to different mental health systems in Europe.

RWTH Aachen University

CONTACT: Department of Psychiatry and Psychotherapy, **Prof. Dr. med. Dr. rer. soc. Frank Schneider**

1.3 eHEALTH: ENHANCING MOBILITY WITH AGEING:
ADAPTIVE IMMERSIVE INTERFACES TO PERSONAL HEALTH CARE SYSTEMS

ABSTRACT

The common vision of this project is based on a scenario involving individuals after major medical events. The person affected is to receive an object (technical device) that allows for active monitoring, thereby creating a link between the individual and the health care system, with the provision of medical support, if necessary. The object (or objects) will also be able to communicate with other parts or objects of the health care system. On demand, the system offers the opportunity of patient-health professional communication. The complexity of the eHealth system raises basic questions about behaviour, communication and the acceptance of the technology, in addition to the technical, logistical and practical development of said systems. The main issues of the project will be the systematic evaluation and consecutive optimization of the interrelation of medical, environmental, technical, communicative, psychological and social factors, and their consequences for the design, use and acceptance of personal eHealth support systems. This includes the interrelation of system features, like design, and user attitudes, like trust, in the new technological devices.

The project bridges competencies in the faculty of humanities with those in computer science, medical engineering and architecture. It combines the methodological and theoretical perspectives of the different disciplines in order to develop a truly interdisciplinary approach for a human-centred technological development.

The eHealth project consortium at RWTH Aachen University upper row: left: Prof. Ziefle (Leader), right: Prof. Jakobs; lower row: left; Prof. Russell; centre: Prof. Schmitz-Rode; right: Prof. Borchers

LIST OF PARTICIPANTS

RWTH Aachen University:

Prof. Dr. phil. Martina Ziefle (Research Leader),
Communication Science; Human Technology Centre

Prof. Dr. phil. Eva-Maria Jakobs,
Textlinguistics & Technical Communication

Prof. Dr. med. Thomas Schmitz-Rode,
Institute for Biomedical Engineering,
Chair of Applied Medical Engineering

Prof. Peter Russell,
Computer Aided Architectural Design

Prof. Dr.-Ing. Jan Borchers,
Chair of the Media Computer Group/Computer Science

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: September 2008 – August 2011

Costs: ca. 950,000 Euro

Funded by: German Excellence Initiative of the German federal and state governments

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

The development of multidisciplinary integrative models to facilitate the design of user-oriented eHealth systems with an integrated "ecology of devices". This includes new concepts of electronic monitoring systems within ambient living environments, which are suited to support persons individually (according to user profiles), adaptively (according to the course of disease), and sensitively (according to situation types and living conditions). The research is focused on patients with chronic heart disease as a key application with high clinical demand.

RWTH Aachen University

1.4 AGE AND TECHNOLOGY:
FUTURE TECHNOLOGIES IN THE MOBILITY AND HEALTH SECTOR (TEKLA)

ABSTRACT

This project focusses on the development of an interdisciplinary approach for the design of elder age-friendly future technologies. The project aims at the identification of older adults' requirements for specific technologies that meet their demands. By adopting a participative approach, older people have been integrated systematically into the processes leading to the development and design of user-friendly technologies. Key technologies in the mobility sector (driving assistance systems) and health sector (medical technologies) have been used as application platforms.

The project was divided into three sub-projects: A: An interview survey examined the technology concepts and age images of three age groups (55+, 65+, 75+) in order to identify the socio-, cultural-, age- and technology-specific attitudes, demands and barriers relating to the use of technology. In a field study, older adults were observed handling technology in everyday life. Primary strategies of use and problem-solving were looked at. The outcomes were integrated into the conception of test designs and test scenarios for the development of future technologies in the automobile and in the medical sector (Sub-projects B and C).

Related publications:

Jakobs, E.-M., Lehnen, K., Ziefle, M. (2008). Age and Technology. Aachen, Germany: Apprimus (ISBN-13: 978-3940565068)

Jakobs, E.-M. & Ziefle, M. (2008). What is the problem- Age or Technology? International Conference on Health Care Systems, Ergonomics, and Patient Safety (HEPS).

Ziefle, M.; Pappachan, P.; Jakobs, E.-M.; Christen, F. & Wallentowitz, H. (2007). Experimental evaluation of visual interfaces of In-Vehicle-Information-Systems. In A. Toomingas, A. Lantz & Th. Berns (Eds). Work with Computing Systems. Stockholm: Royal Institute of Technology.

Ziefle, M.; Pappachan, P.; Jakobs, E.-M. & Wallentowitz, H. (2008). Visual and auditory interfaces of advanced driver assistant systems for older drivers. In K. Miesenberger et al. (eds.): ICCHP 2008. LNCS 5105 (pp.62-69). Berlin, Heidelberg: Springer.

Wirtz, S., Ziefle, M. & Jakobs, E.-M. (in press). Autopilot versus hearing aid – domain- and technology type-specific parameters of older people's technology acceptance. Full paper at the 9th International Conference on Work With Computer Systems, WWCS 2009, Beijing, China.

LIST OF PARTICIPANTS

RWTH Aachen University:

Prof. Dr. phil. Eva-Maria Jakobs (Project Leader),
Institute of Linguistics and Communication Studies (ISK)
Textlinguistics & Technical Communication

Prof. Dr.-Ing. Dr. med. Steffen Leonhardt,
Philips Chair of Medical Information Technology (MEDIT)

Prof. Dr.-Ing. Henning Wallentowitz,
Institute of Vehicle Technology (IKA)

Prof. Dr. phil. Martina Ziefle,
Communication Science, Human Technology Centre

Institute for the German Language (IDS),
Prof. Dr. phil. Reinhard Fiehler, Mannheim

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: July 2005 – December 2006

Costs: ca. 180,000 Euro

Funded by:
Ministry of Research and Technology of North Rhine-Westphalia (MIWFT NRW, Excellence competition NRW)

Walter-Eversheim-Foundation

Siemens Centre for Knowledge Interchange (CKI), RWTH Aachen

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

The creation of a future lab within RWTH Aachen University in which the knowledge and competences of various disciplines are combined and unified to generate new ideas, methods and perspectives.

The key aim of this future lab will be the development of a shared knowledge across research fields, and the motivation to solve complex problems by transdisciplinary cooperative work and combined competencies, thereby producing synergetic effects.

Participant in a simulation of a driver assistance system

RWTH Aachen University

2.1 OPTIMIZATION OF WHEELCHAIR COMFORT

ABSTRACT

Set against the background of demographical and epidemiological data, the anticipated demand for therapeutic appliances will surely increase in the future. Hence the imporatance of intensive research into innovative re-developments with medical appliances that can simultaneously address increasing expenditure while also optimising the quality of supply. The increase in human life expectancy entails growing requirements for mobility and comfort within the bounds of care and health. Wheelchairs, wheeled walkers or hospital beds must be multifunctional, user-friendly and mobile.

Depending on various application fields of medical appliances, special needs concerning ergonomics, safety, hygiene, operability, durability, smooth running and comfort have to be considered.

To this end, within this interdisciplinary research project, the areas of "Engineering and Mathematics" and "Economy and Health" at the University of Applied Sciences in Bielefeld work closely together. An essential part of the project is the survey of wheelchair users and other parties who are involved in the process of supply. The objective is to learn about the wishes and needs, particularly of wheelchair users, in order to appreciate the different requirements for wheelchairs. Valuable results have been obtained based upon the differing views of the "wheelchair" system. These insights will be used in the further developments of wheelchairs in cooperation with small and medium-sized enterprises. The results are also important for associations, registered societies and at a political level.

LIST OF PARTICIPANTS

Invacare Deutschland GmbH, Porta Westfalica

Meyra Wilhelm Meyer GmbH & Co. KG, Vlotho

O4 Wheelchairs GmbH, Kleve

Rolko GmbH, Borgholzhausen

Bertelsmann AG, Gütersloh

BSNW Behinderten Sportverband NRW e.V., Duisburg

Federal Academy of Orthopaedic Technology, Dortmund

German Association of Orthopaedic Technology, Dortmund

Deutscher Rollstuhl-Sportverband e.V., Hamburg

Ministry for Employment, Health and Social Affairs of the Land of North Rhine-Westphalia, Landesbehindertenbeauftragte NRW, Düsseldorf

Reha Support, Düsseldorf

Spectaris German Industry Association e.V., Berlin

Forbo Flooring GmbH, Paderborn

TFI Textiles and Flooring Institute, Aachen

Torwegge GmbH & Co. KG, Bielefeld

Association of German Engineers (VDI) Ostwestfalen-Lippe e.V.

ZIG-Zentrum für Innovation in der Gesundheitswirtschaft OWL e.V., Bielefeld

Academic partners:

IBT FuE-Schwerpunkt "Industrielle BewegungsTechnologie"

KOPF Kompetenzplattform "Vernetzte Simulationen zur Optimierung der Wertschöpfungskette – Von der Idee bis zum Recycling"

Team of researchers out of four areas of studies in combine

KfB Kompetenzzentrum für Bewegungsvorgänge

FH Bielefeld, Fachbereich Wirtschaft und Gesundheit

FH Bielefeld, Fachbereich Ingenieurwissenschaften und Mathematik

German Sport University Cologne

Universität Kassel and more partners for Cooperative promotions

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: March 2005 – December 2008

Costs: 292,000 Euro

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

On the basis of preliminary findings and experiences, the team of researchers around Prof. Dr.-Ing. Hörstmeier will concentrate on the correlation between power requirement and energy consumption of the affected people. It is important to exactly analyze the association between humans and technology that relates to the total system, "Wheelchair". The objective is the conception of an inspection system for the analysis of wheelchair energy consumption. It aims at realizing an energy label, to illustrate to the wheelchair user how smoothly or stiffly their wheelchair is running. As a result, improved counseling and transparency on the market for therapeutic appliances will lead to a consequent cost-cutting in healthcare.

The University of Applied Sciences Bielefeld was represented at the fair Rehacare 2008 in Düsseldorf with a handbike to feel the personal expenditure of energy. Photo: Erich Lichtenscheid

2.2 KFB-ENERGY CLUSTER FOR WHEELCHAIRS

ABSTRACT

Elderly and disabled people should be enabled to lead independent and self-determined lives, taking part in society according to their own inclinations and capabilities. Technical aids can support them in this and even replace lost skills, at least partially.

The optimisation of such aids is meant to contribute to the integration of the elderly and disabled and to improve the quality of their lives, whilst avoiding secondary damage and resulting illnesses.

Thus the demands on the performance of a wheelchair constitute one of the most important prerequisites for meeting the day-to-day needs of the user. It is therefore an important objective to further develop wheelchairs adapted to individual users, incorporating innovative and forward-looking products. A wheelchair's structure ergonomically adjusted to the user is decisive for its handling. People whose participation in daily life was restricted by their physical constitution and diminished strength find their mobility significantly increased by a wheelchair that has been energy-optimised, i.e. the energy expended is induced and utilized more efficiently. This becomes particularly clear if we consider the physics of energy input and energy loss in the case of hand-propelled wheelchairs: at this interface between humans and technology the specific arm strength of the wheelchair user when propelling the chair can be measured. Engineers at the Fachhochschule (University of Applied Sciences) in Bielefeld are the first in Germany to use the Smart Wheel for this purpose.

LIST OF PARTICIPANTS

Invacare Deutschland GmbH, Porta Westfalica
Meyra Wilhelm Meyer GmbH & Co. KG, Vlotho
04 Wheelchairs GmbH, Kleve
Rolko GmbH, Borgholzhausen
Bertelsmann AG, Gütersloh
BSNW Behinderten Sportverband NRW e.V., Duisburg
Federal Academy of Orthopaedic Technology, Dortmund
German Association of Orthopaedic Technology, Dortmund
Deutscher Rollstuhl-Sportverband e.V., Hamburg
Ministry for Employment, Health and Social Affairs of the Land of North Rhine-Westphalia, Landesbehindertenbeauftragte NRW, Düsseldorf
Reha Support, Düsseldorf
Spectaris German Industry Association e.V., Berlin
Forbo Flooring GmbH, Paderborn
TFI Textiles and Flooring Institute, Aachen
Torwegge GmbH & Co. KG, Bielefeld
Association of German Engineers (VDI) Ostwestfalen-Lippe e.V.
ZIG-Zentrum für Innovation in der Gesundheitswirtschaft OWL e.V., Bielefeld

Academic partners:

IBT FuE-Schwerpunkt "Industrielle BewegungsTechnologie"
KOPF Kompetenzplattform "Vernetzte Simulationen zur Optimierung der Wertschöpfungskette – Von der Idee bis zum Recycling"
Team of researchers out of four areas of studies in combine
KfB Kompetenzzentrum für Bewegungsvorgänge
FH Bielefeld, Fachbereich Wirtschaft und Gesundheit
FH Bielefeld, Fachbereich Ingenieurwissenschaften und Mathematik
German Sport University Cologne
Universität Kassel and more partners for Cooperative promotions

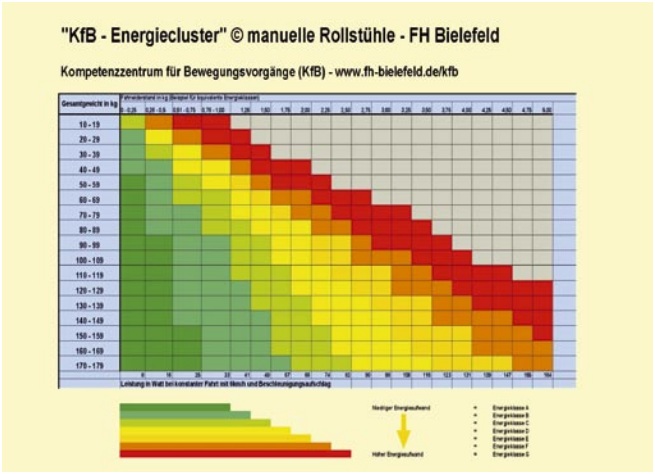
PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: July 2008 – July 2011

Costs: 450,000 Euro

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

The team of The Fachhochschule Bielefeld can rely on many years of experience studying the interface between humans and technology in such interdisciplinary research projects as Rollers in the Health Sector and The Optimisation of Wheelchairs. New project plans are based on these successes. An interdisciplinary team of researchers from various departments and universities as well as partners in industry will work in the areas of ergonomics, resistance, degree of efficiency, parameters for settings, energy transmission, and the interaction between these factors. A newly developed energy cluster has been set up to facilitate an objective coordination of the optimisation measures.



The KfB-Energy Cluster serves the purpose of classifying wheelchairs regarding their energy performance.

2.3 BISHOP – BIELEFELD SAFE HOME PROJECT

ABSTRACT

Technology-assisted Safe Homes are a solution to the immediate problems of an overburdened healthcare system and an increasing population of seniors with varying degrees of independence. Older adults have long been overlooked by technology companies, partly due to the reluctance of senior citizens to deal with technology but also because many applications are irrelevant to their needs. The project BiSHoP is targeted at the research and development of smart techniques, tools, and devices that will improve in-house care for a growing senior population.

The development process within BiSHoP is characterized by the following objectives:

- The definition of specifications for technical requirements in close collaboration with nursing science experts.
- The use of standard compounds and technologies to minimize costs and expedite easy system integration.
- Early prototype testing in local field studies accompanied by nursing experts to accelerate the development of applications.

LIST OF PARTICIPANTS

University of Applied Sciences Bielefeld

Department of Economy and Health Sciences
University of Applied Sciences Bielefeld

Department of Architecture and Civil Engineering
Dewert Antriebs- und Systemtechnik GmbH, Kirchlengern

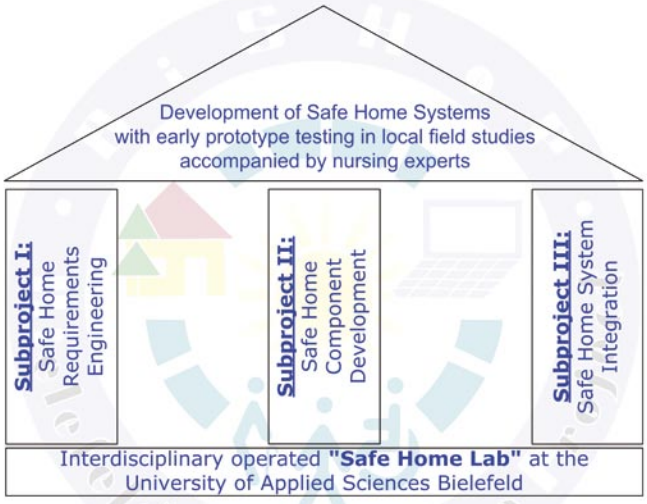
Miele & Cie. KG, Gütersloh

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project start 2007, not yet funded

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

- Setup an interdisciplinary network, including research institutions, clinics and industry. Establishment of a research pipeline from basic research to application.
- Definition of a European standard for Safe Home technologies.



University of Applied Sciences Bielefeld

2.4 KOMPASS – COMPETENCE DEVELOPMENT IN THE HEALTH AND SOCIAL FIELD

komPASS
Kompetenzentwicklung im Gesundheits- und Sozialbereich

ABSTRACT

KomPASS is one of several 'competence platforms' resulting from an initiative by the Ministry of Innovation, Science, Research and Technology of the German State of North Rhine-Westphalia. Its objective is the development and strengthening of a sustainable research infrastructure across the faculties of health and social sciences within the University of Applied Sciences in Bielefeld, focussing particularly on the development of competence in the areas of nursing, social work, occupational therapy and physiotherapy.

To achieve its objectives, KomPASS works in an intra- and interdisciplinary context: research results based on the fields of practice are analysed with regard to their contribution to the analysis and development of competences and (inter-)professional competence profiles in the health and social area. KomPASS initiates and supports the dialogue between the professions and - in particular - between researchers and practitioners. KomPASS research projects include several questions aiming at our ageing society, for example, the building up of a qualification framework in the field of assistance, support and care for the elderly.

Research results are to be implemented in practice, and practical questions and problems are to be discussed with regards to possible academic and research processes that might lead to their solution and/or improvement. This includes coaching for institutions in their application for research and development funds. On the basis of the identified needs, KomPASS will develop and offer a range of services to institutions in the health and social sector. This range comprises consultation, education and academic support services. In particular, offers include concept or programme development and support with the implementation of innovations, consultation services with the planning and conducting of application orientated research projects, educational programmes, academic further education and conferences.

LIST OF PARTICIPANTS

Participants at University of Applied Sciences Bielefeld:

Prof. Dr. Wolfgang Beelmann, Psychology

Prof. Dr. Cornelia Bormann, Public Health

Prof. Dr. Mathias Bonse-Rohmann, Vocational Education Science

Prof. Dr. Ute Hartmann, Psychology and Social Science

Prof. Dr. Annette Nauerth, Nature Science

Prof. Dr. Beate Klemme, Physiotherapy Science

Prof. Dr. Barbara Knigge-Demal,
nursing science and educational science

Prof. Dr. Walkenhorst,
science of health professionals and rehabilitation

Academic partners:

Prof. Dr. Gertrud Hundenborn,
German Institute of Applied Nursing Research (DIP), Köln

Prof. Dr. Heidi Höppner, University of Applied Sciences, Kiel

Prof. Dr. John Erpenbeck, Steinbeis Transfer Institute, Berlin

Dr. Walpurga Freitag, HIS
(Higher Education Information System) GmbH, Hannover

Mieke le Granse, Hogeschool Zuyd, Heerlen, Netherlands

Prof. Dr. Horst Kowalewski, University of Lüneburg

Prof. Dr. Jutta Räbiger, Alice Salomon,
University of Applied Sciences, Berlin

Prof. Dr. Karin Reiber, University of Applied Sciences Esslingen

Prof. Dr. Hartmut Remmers, University of Osnabrück

Prof. Dr. Susanne Schewior-Popp,
University of Applied Sciences (KFH) Mainz

PD Ulrich Wiesmann, University of Greifswald

Cooperating schools, training centres, business partners:

Clinical Centre, Bielefeld

Several institutions for social and health care practice like
Caritas, Diakonie and AWO

Centre for Physiotherapy GmbH, Bielefeld

Clinical Centre, Viersen

AOK Westfalen-Lippe (health insurance)

Centre for Innovation in Health Economy, ZIG OWL, Bielefeld

Occupational Union of Physiotherapy, Köln

Occupational Union of Occupational Therapy, Karlsbad

Occupational Union of Nursing

Association of Social Work (DPWV), Bielefeld

Schule für Ergotherapie der Rheinischen Kliniken, Düren

Jugendberufshilfe der Rege mbH, Bielefeld

Kreis Gütersloh

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: May 2007 – December 2011

Costs: 500,000 Euro, funded by the Ministry for Innovation, Science, Research and Technology (MIWFT)

Funded by the Federal Ministry of Education and Research (BMBF)
(Phase I: AZ 01GT0315 / Phase II: AZ 01 GT 0615)

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Looking ahead, KomPASS aims at cooperations with international partners at the EU level. This should include the analysis of specific competence profiles in the professions, the development of educational programmes in the light of these profiles, and the sharing of practical questions and problems in order to find common research approaches to respond to these. KomPASS can build on a wealth of experience in international cooperations and projects gained through its members' many years of experience in international project work.

CONTACT: Dept. Nursing and Health, **Prof. Dr. Annette Nauerth, Prof. Dr. Ursula Walkenhorst**

University of Applied Sciences Bielefeld

3.1 DISRUPTIVE BEHAVIOUR OF RESIDENTS IN NURSING HOMES: PROVING A NURSING INTERVENTION PROGRAM

ABSTRACT

Hazardous disruptive behaviour of residents in nursing homes poses an increasingly important challenge. Representative data does not exist but recent studies carried out in Germany suggest that 30 to 60% of residents show behaviour patterns with risk potential. The participating residents were characterized by a high degree of dependence on care giving support as well as by complex problems. Five types of hazardous disruptive behaviour were identified. Agitation, which is characterized by restlessness and wandering, appeared at least once a week in nearly half of the residents. Verbal aggression could be observed with a little more than a quarter of the residents. 17% of the residents showed physical aggressive behaviour against other persons and 15% against things. Only 9% developed a self-violating behaviour. Altogether 66% of the residents regularly exhibited one of these types of behaviour. Specific predictors could be assigned to most of the types. For example, aggressive behaviour is obviously promoted by loss of the ability to communicate, loss of orientation and frequently performed nursing interventions, which require touching the resident's body (like washing, giving assistance in the case of an inability to control urination or defecation etc.). The results of the survey support the assumption that depending on the behaviour type, factors can be identified which offer a starting point for prevention of disruptive behaviour with risk potential. The results will be used as a basis for the development of a nursing intervention program to prevent disruptive behaviour in nursing homes.

LIST OF PARTICIPANTS

(a) Principal Investigators

Prof. Dr. Doris Schaeffer, Dr. Klaus Wingenfeld, Angelika Ammann, Norbert Seidl,

Faculty of Public Health, Dept. of Health Services Research and Nursing Science and Institute of Nursing Science

(b) Practice Partners / Institutions

Altenzentrum Jochen-Klepper Haus, Bielefeld

Evangelisches Altenhilfezentrum Meckmannshof, Münster

Seniorenzentrum Friedrich-Winter-Haus, Extertal-Bösingfeld

Seniorenzentrum Wilhem-Augusta-Stift, Bielefeld

Seniorenzentrum Baumheide, Bielefeld

Westfälisches Pflegezentrum Münster, Münster

(c) Research Networks / Scientific Cooperation

North Rhine-Westphalian Nursing Research Network, Bielefeld

Nursing Research Network North, Bremen

Nursing Research Network Mid-South, Halle (Saale)

Institute of Nursing Science at the University Bielefeld

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Phase I: 01/05/2004 to 31/12/2007

Phase II: 01/05/2007 to 30/04/2009

Funded by the German Federal Ministry of Education and Research (Phase I: AZ 01GT0315 / Phase II: AZ 01 GT 0615)

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

An increasing number of interventions are available for nursing home residents with disruptive behaviour. It is therefore important for nurses to have knowledge about evidence-based intervention in order to meet the individual requirements of the residents.

Bielefeld University

3.2 HEALTH PROMOTION IN LONG-TERM CARE

ABSTRACT

The Ludwig Boltzmann Institute Health Promotion Research (LBIHPR) in Vienna (Austria) and Bielefeld University will cooperate over the next seven years on research in health promotion as a strategy to deal with the problems in the field of Long-Term Care (LTC).

The research partners initially carried out a systematic literature review to explore concepts of health promotion in settings of LTC with an extensive search for practical examples in nursing homes in Germany and Austria. Based on these results a survey will be conducted to analyze the health status of residents and employees in LTC. On the basis of this data set, interventions for both groups will be planned, carried out and evaluated in LTC settings.

LIST OF PARTICIPANTS

Ludwig Boltzmann Institute Health Promotion Research, Vienna, Austria

Institute of Nursing Sciences at Bielefeld University

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: Summer 2008 – Summer 2015

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

The survey in the LTC setting is planned for Germany and Austria, in Austria also for the settings "school" and "hospital". Research partners will be able to create a theoretical concept of health promotion in organisations. Health promotion interventions and new models for their evaluation will be developed for use in German speaking organisations.

CONTACT: Faculty of Health Sciences, **Prof. Dr. Doris Schaeffer, Dr. Michaela Brause, Dr. Andreas Büscher, Dr. Annett Horn**

3.3 SELF MANAGEMENT SUPPORT IN CHRONIC ILLNESS AND MULTIPLE MEDICATION IN THE ELDERLY: CHALLENGES AND POTENTIALS IN HOME CARE NURSING

ABSTRACT

Chronically ill patients are often dependent on multiple medicines to control their disease and attain an acceptable quality of life. The management of multiple medication regimes is a challenging task. In health care systems with a high level of professionalization in nursing, self-management support is provided by nursing specialists but patient counselling and education remains rare in German health care, especially for the elderly suffering from multiple chronic conditions. The aim of the research project is to explore the challenges inherent in living with chronic illness and long-term pharmacotherapy, and to develop an intervention for providing individualized self-management support for the elderly in home care nursing. In the first phase of the project a multi-perspective qualitative research design was adapted, covering semi-structured interviews with 26 health professionals and in-depth interviews with 27 chronically ill to elucidate the support needs of the elderly patients and the potentials of home care nursing to meet their self-management support needs. The findings confirm that the day to day management of medication regimes is a complex and challenging task for people with chronic illness. Symptom perception and communication, health and medication beliefs, daily routines, and social support seem to be important factors influencing the management of medication. The data also reveals that, in contrast to nurses, other health care professionals get little knowledge about everyday problems experienced by patients. Nurses should take an active part in providing self-management support tailored to the patients' needs. Like other health professionals nurses have to be adequately prepared in patient education and counseling to provide effective self-management support. Based on these findings, a two-tiered intervention has been developed, which will be evaluated in the ongoing second phase of the project.

LIST OF PARTICIPANTS

(a) Principal Investigators

Prof. Dr. Doris Schaeffer, Dr. Gabriele Müller-Mundt, Jörg Haslbeck (01/05/2004 – 30/04/2007), Gunnar Geuter (since 01/07/2007), Sandra Neuhaus (since 01/08/2008).

Faculty of Public Health, Dept. of Health Services Research and Nursing Science

(b) Practice Partners / Institutions

AWO – Hausgemeinschaft Jöllenbecker Straße, Kreisverband Bielefeld e.V., Bielefeld

AWO – Zentrum Dorfstraße, Arbeiterwohlfahrt Kreisverband Bielefeld e.V., Bielefeld

ASB-Pflegeteam Gütersloh, Arbeiter-Samariter-Bund Regionalverband Bielefeld OWL e.V.

Diakoniestation Detmold, Diakonie ambulant e.V., Detmold

Diakoniestation Gütersloh, Diakonie Gütersloh,

Diakoniestation Halle, Diakonie Kirchenkreis Halle e.V.

Diakoniestation Horn-Bad Meinberg, Diakonie ambulant e.V., Detmold

Diakoniestation Kalletal, Elisenstift Dörentrup

Diakoniestation Rheda-Wiedenbrück, Diakonie Gütersloh

Diakoniestation Steinhagen, Diakonie Kirchenkreis Halle e.V.

Ev. Altenzentrum Oerlinghausen, Diakoniestation

Häuslicher Pflegedienst – Christa Solomon, Gütersloh

HGP – Pflegedienst Erika Viebrock-Johnen, Bad Oeynhausen

Johanniter Unfallhilfe Regionalverband Münster, Pflege- und Gesundheitsdienst

MariWeiss GmbH, Bielefeld

Team Westerfeldstraße, Alt und Jung Nord-Ost e.V., Bielefeld

Mobilitas – Ambulanter Pflegedienst, Bielefeld

Pflege mit Siegel, Bielefeld

Pflegeteam Berni Möllers, Osnabrück

SAGA – Pflegedienstleistungen, Herford

Die Sonnenblume GbR – Häusliche Alten- und Krankenpflege Fam. Roth, Paderborn

Team Brake/Wilkenhof, Alt und Jung Nord-Ost e.V., Bielefeld

TeutoCare – ambulante Dienste, Bielefeld

Vita-Pflegedienst, Osnabrück

Zentrum für Pflege und Gesundheit gGmbH, Bielefeld

(c) Research Networks/Scientific Cooperation

North Rhine-Westphalian Nursing Research Network, Bielefeld

Nursing Research Network North, Bremen

Nursing Research Network Mid-South, Halle (Saale)

State Institute of Health and Work North Rhine–Westphalia (LIGA), Section Social Pharmacy of the Department of Quality and Safety of Medical Products, Münster

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Phase I: 01/05/2004 to 31/12/2007

Phase II: 01/05/2007 to 30/04/2010

Funded by the German Federal Ministry of Education and Research (Phase I: AZ 01GT0315 / Phase II: AZ 01 GT 0615)

Photo: Klaus Mundt, 2009

3.4 SELF-MANAGEMENT SUPPORT OF VULNERABLE POPULATIONS

ABSTRACT

A broad variety of self-management programs exist internationally. In Germany, self-management support in chronic illness is also being increasingly discussed. Nevertheless, there is little data about how vulnerable and hard-to-reach groups can be adequately supported by self-management programs. Therefore, this project will focus on expanding the knowledge base on self-management (support) in chronic illness by identifying areas for appropriate professional interventions based on a systematic review of literature. Attention is paid to a topic that is rarely investigated: elderly people living alone with chronic conditions and their own perspective on day-to-day chronic illness self-management. This is a vulnerable and often hard-to-reach group of health care users and the subject has not yet been the focus of systematic literature reviews and meta-analyses.

The main objective of the research project is the identification of self-management potentials and restrictions of elderly women and men living alone with their chronic illnesses, a group that is both vulnerable and hard-to-reach. It will be conducted in close collaboration with health care experts and researchers in the U.S.A. Two distinct perspectives will be fused: (I) A systematic analysis of existing literature on this particular group will be conducted based on the principles of critical interpretive synthesis that has proven to be useful in reviewing evidence on vulnerable groups. This will be combined with (II) expert interviews with stakeholders in health care to gain in-depth insight into self-management support and chronic illness care for vulnerable people. The research results will expand the knowledge base about self-management in chronic illness in both Germany and the U.S. with regard to elderly people that live alone. Study outcomes will also contribute to the development of appropriate intervention strategies for self-management support in both countries.

LIST OF PARTICIPANTS

Yale University School of Nursing, New Haven, USA

Centre for Home Care Policy & Research,
The Visiting Nurse Service of New York, NY, USA

Harkness/B.Braun-Stiftung Fellowship in Health Care Policy and Practice funded by the Commonwealth Fund, N.Y.C., USA

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: 2008 - 2009

Funding: The Commonwealth Fund, N.Y.C., as part of the author's 2008-09 Harkness/B.Braun-Stiftung Fellowship in Health Care Policy and Practice

Maintaining independence: an imperative for elderly people living alone with chronic conditions

CONTACT: Faculty of Health Sciences, **Dr. Jörg Haslbeck**

4.1 MOBIL 2030
– MOBILITY-ORIENTED CULTURE IN AN AGEING SOCIETY

ABSTRACT

The ageing society will become increasingly mobile. The main target of the project is the development of scenarios for the mobility culture in the year 2030 and their fit to the lifestyles and corresponding needs of older people. The focus is placed on the role and position of the "future" elderly (i. e. 65+ in 2030). The participation of (future) elderly people will, amongst other things, be guaranteed through systematic consideration of their life plans and concepts as well as their current living habits and lifestyle within the context of representative polls of the "Babyboomer" Generation. A number of disciplines (Psychology, Gerontology, History, Demography, Political Science, Sociology, Economics, Media Studies, Traffic Planning and Urban Planning, amongst others) represented by (inter)national colleagues and experts are working together for a stronger interdisciplinary assessment of such significant future developments as "the ageing of society". Experts from the University of Bonn and other German universities and research institutions build a core project team that collaborates with experts from Europe to overseas.

LIST OF PARTICIPANTS

University of Bonn:

Prof. Dr. Jörg Blasius (Sociology)
Prof. Dr. Werner Gephart (Sociology)
Prof. Dr.-Ing. Theo Kötter (Urban Planning)
Prof. Dr. med. Wolfgang Maier (Medicine)
Prof. Dr. Tilman Mayer (Political Sciences)
Prof. Dr. Michael-Burkhard Piorkowsky (Economics)
Prof. Dr. Georg Rudinger (Psychology)
Prof. Dr. Günther Schulz (History)
Prof. Dr. Caja Thimm (Media Studies)

Germany

Prof. Dr. Birg (University of Bielefeld, Demography and Social Policy), Prof. Dr. Borscheid (University of Marburg, Interdisciplinarian Gerontology), Dr. Dalkmann (Wuppertal, Institute for Climate, Environment and Energy, Environment and Energy), Prof. Dr. Echterhoff (University of Wuppertal, Psychology), Prof. Dr. Falkenstein (University of Dortmund, Medicine), Prof. Dr. Gaffron (Technical University of Hamburg, Traffic Systems and Logistics), Gerlach (University of Wuppertal, Traffic and Urban Planning), Dr. Hell (Berlin, Institute of Research in Mobility, Mobility), Dipl.-Psych Holte (Bergisch Gladbach, Bundesanstalt für Straßenwesen, Behaviour and Saftey), Prof. Dr.-Ing. Holz-Rau (University of Dortmund, Traffic Planning), Prof. Dr. Jakobs (RWTH Aachen, Technology and Ageing), Prof. Dr. Kaiser (University of Erlangen, Gerontology), Dr. Lichtblau (Köln, Institute of German Economy, Economics), Dr. Mollenkopf (Heidelberg, Gerontology), Prof. Dr. Nägele (University of Dortmund, Sociology), Dr. Schulze (Bergisch Gladbach, Bundesanstalt für Straßenwesen, Leader of the EU-Project DRUID), Prof. Dr. Staudinger (University of Bremen, Psychogerontology)

Member States of the EU

Prof. Dr. Dijst (Utrecht, NL, Urban Research), Prof. Dr. Hakamies-Blomqvist (Göteborg, SWE, Traffic, Mobility and Ageing), Prof. Dr. Nijkamp (Amsterdam, NL, Regional and Urban Economics), Prof. Dr. Reggiani (Bologna, I, Economics), Prof. Dr. Schmeidler (Brno, CS, Research in Transport Systems), Dr. Walker (Delft, NL, RAND Europe, Systems Engineering)

Other Countries

Prof. Dr.-Ing. Axhausen (ETH Zürich, CH, Traffic Planning), Prof. Dr. Donaghy (University of Champaign II, USA, Urban and Regional Planning), Prof. Dr. Giuilano (USC, Los Angeles, CA, USA, Policy and Planning); STELLA network (Sustainable Transport in Europe – Links and Liaisons to America – former EU-project 2000-2005)

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Duration: August 2009 – July 2011
Total Costs: 240,000 Euro
Funding: VolkswagenStiftung

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Focused on Germany but touching on some neighbouring countries (e. g. NL, DK, SWE), this project takes into account the increased interlinking of functional areas and associated phenomena in the domain of mobility, transport and traffic. The international experts in the a.m. disciplines will (in conjunction with the participation of the "persons concerned") utilize a common approach (scenario-methodology). In this way they will deliver an integrated overall perspective of the future situation in 2030. In view of the growing unintended consequences, particularly for mobility (e. g. regarding sustainability), this implies a stronger interdisciplinary assessment of significant future developments such as "the ageing of society". Scenarios foster logically-oriented communication. A couple of twin-studies at the EU level could help to validate the results of this project and give voice to rationality in (political) decisions and actions.

MOBIL 2030

University of Bonn

4.2 LIFE PROLONGATION AND DECELERATION OF HUMAN AGEING – INDIVIDUAL APPRAISAL, SOCIAL CONSEQUENCES, ETHICAL ANALYSIS AND NORMATIVE JUDGEMENT

ABSTRACT

The demographic change in the direction of an ageing society has led to a variety of cultural and existential challenges especially related to experiences and concepts of health and diseases in the ageing process. Based on knowledge about the causes and mechanisms of biological ageing and the biogerontological efforts to decelerate ageing while extending life-span, an interdisciplinary study has been conducted both from a philosophical and from a psychogerontological perspective. The project explores the state of knowledge in the natural sciences concerning "anti-ageing" intervention, discusses the relevant ethical positions, it has conducted a representative survey of individual values and attitudes with respect to life-span extension, and has derived its own ethical viewpoint based on the interrelation between psychogerontological research about attitudes and ethic-philosophical judgement.

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

- Cooperation with biogerontologists and update of the current biogerontologial research status.
- Exploration of individual goals in an extreme longevity scenario.
- Discussion of further ethical issues in biogerontological endeavours of life extension and rejuvenation research (e.g. intergenerational issues).
- Establishment of an interdisciplinary discussion of ethical issues in the provision for elderly people (e.g. in cooperation with the "German Centre for Research into Neuro-Degenerative Diseases" in Bonn).
- Integrated project at the EU level (EC funding).

LIST OF PARTICIPANTS

Institute of Science and Ethic (IWE),
Centre for the Cultures of Ageing (ZAK)

Maastricht University, Prof. Dr. Guy Widdershoven, Care and Public Health Research Institute, The Netherlands
Central Institute of Mental Health, Prof. Dr. Marcella Rietschel, Mannheim

University of Bonn, Prof. Dr. Georg Rudinger, Centre for Evaluation and Methods

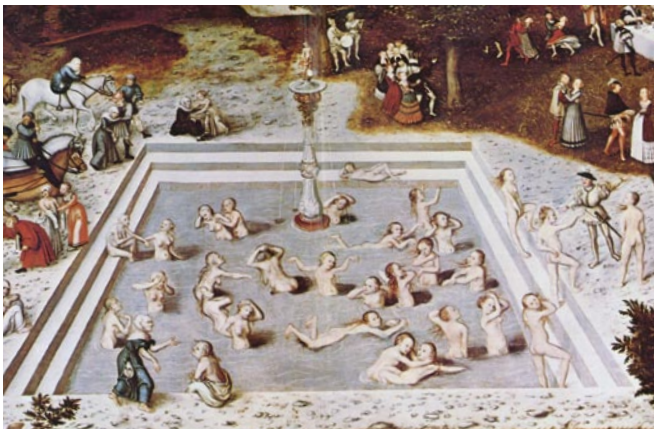
German Reference Centre for Ethics in the Life Sciences, Dr. Dirk Lanzerath, Bonn

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: July 2005 – December 2006

Funding: 154,000 Euro Grant

The project was funded by the excellence initiative of North Rhine-Westphalia "Geisteswissenschaften gestalten Zukunftsperspektiven"



"Der Jungbrunnen", Lucas Cranach der Ältere (1546)

The Fountain of Youth is a legendary spring that reputedly restores the youth of anyone who drinks of its waters.

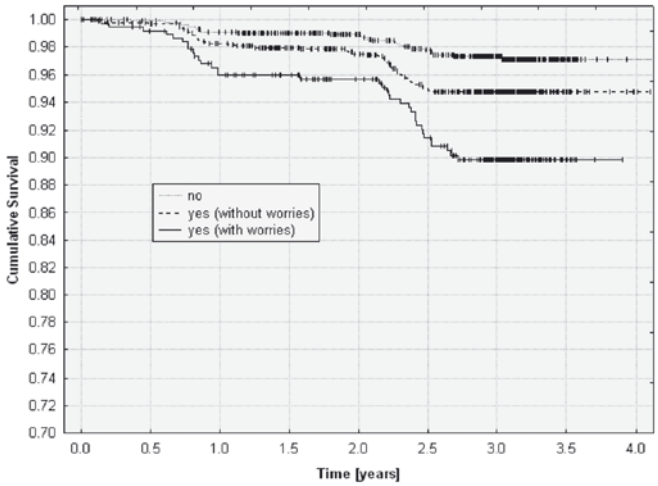
4.3 DETERMINANTS AND EARLY SIGNATURES OF DEMENTIA AND COGNITIVE DECLINE IN THE ELDERLY: AgeCoDe – A GENERAL PRACTITIONER REGISTRY COHORT OF THE ELDERLY (75+)

ABSTRACT

The AgeCoDe study (PIs: Wolfgang. Maier, Bonn, Hendrik van den Bussche, University Medical Centre Hamburg-Eppendorf) aims at identifying early indicators of cognitive decline and incipient dementia, suited for future use by General Practitioners, and at studying the impact of risk factors relevant to age-associated disorders. The study is conducted in six centres (Bonn, Düsseldorf, Hamburg, Leipzig, Mannheim, and Munich) representing cities with a total population ranging between about 300,000 (Mannheim) and 1,8 million (Hamburg). The subjects (n=3327, age 75 or older) were recruited between January 1, 2003 and November 30, 2004. In each centre, 19 to 29 GPs participated in the recruitment process, where patients were randomly selected from GP chart registries.

The AgeCoDe cohort, which is representative for the elderly German population at large, has been assessed every 18 months with a detailed psychometric assessment, conducted by trained raters in the participants' home. During 2009, the fourth round of assessments will be completed, about five years after the baseline assessment. The assessments include a range of medical, social and cognitive variables. Blood-derived DNA has been ascertained from almost all subjects, and recently a blood repository has been added.

The figure shows an illustrative example of the predictive validity of one simple clinical measure: subjective memory impairment (SMI), with or without consequential worries. Initially non-demented subjects reporting SMI and SMI-related worries have a 3.5 fold increased risk of incipient dementia within the next 48 months.



LIST OF PARTICIPANTS

Research institutions:

University of Bonn, Department of Psychiatry

University Medical Centre Düsseldorf, Department of General Practice

University Medical Centre, Hamburg-Eppendorf, Department of Primary Medical Care

Central Institute for Mental Health, Mannheim

University of Leipzig, Department of Psychiatry

Technical University München, Department of Psychiatry

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

The project started in 2002 and was extended in 2006, in order to also study the course, burden, and costs of incident degenerative dementias. The total duration is planned until 2019. The project is a part of the German competence network on degenerative dementias (speaker: W. Maier, Bonn), funded with 12,9 Million Euro by the Federal Ministry of Education and Research, BMBF.

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Cross-validation of findings in other European cohorts, cross-national comparisons in different health care settings, development of uniform measures for integrated EU cohort studies, joint analyses (genome-wide association studies, blood biomarker identification).

CONTACT: Department of Psychiatry, **Prof. Dr. Wolfgang Maier**

University of Bonn

5.1 DIGITAL SIGNAL PROCESSING IN AUDIOLOGY (AUDIS)

ABSTRACT

Rapid advances in embedded digital signal processing technology have led to significantly enhanced hearing devices. However, besides dealing with the very basic task of restoring loudness, modern hearing aids and cochlear implants also feature a range of advanced processing capabilities, such as beam-forming microphone arrays, noise reduction and automatic controls.

While some of these features have already resulted in improved performance, further advanced approaches to signal enhancement, auditory scene analysis and signal reproduction promise even greater user benefits. Nevertheless, applying advanced signal processing to hearing instruments to improve the rehabilitation of hearing-impaired users requires close research collaboration in the domains of digital signal processing, audiology and psychoacoustics. The Initial Training Network (ITN) AUDIS will perform research and training in digital signal processing for applications in hearing instruments. Its unique approach lies in the research and development of advanced statistical signal processing algorithms in the interdisciplinary area of audiology.

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: October 2008 - September 2012

Costs: 2,95 Mio. Euro

Funding: 2,95 Mio. Euro

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Establish lasting cooperations between European research labs, visiting scientists and industry.

Train research fellows in this interdisciplinary field and thus help to maintain European research's leading edge in digital signal processing and to support European hearing device companies.

LIST OF PARTICIPANTS

Ruhr-Universität Bochum
Prof. Dr. Rainer Martin, Bochum, Germany

Siemens Audiologische Technik GmbH,
Dr. Henning Puder, Erlangen, Germany

Cochlear Research and Development,
Dr. Bas van Dijk, Mechelen, Belgium

Katholieke Universiteit Leuven (Catholic University),
Prof. Dr. Jan Wouters, Leuven, Belgium

Kungliga Tekniska Hoegskolan (KTH Royal Institute of Technology),
Prof. Dr. Arne Leijon, Stockholm, Sweden

University of Southampton,
Prof. Dr. Mark Lutman, Southampton, United Kingdom

Ruhr-University Bochum

5.2 NEUROBIOLOGICAL MECHANISMS OF MEMORY LOSS IN ALZHEIMER'S DISEASE (MEMOLOAD)

ABSTRACT

The MEMOLOAD project will focus on the molecular and biological mechanisms underlying memory loss that occurs in Alzheimer's disease, the leading cause of dementia and an enormous medical, social and economic challenge to Europe. Several lines of evidence point to accumulation of beta-amyloid peptide (Aß) in the brain as the key pathologic event in the disease. There is growing evidence that Aß causes memory loss by directly or directly interacting with the known key signalling pathways involved in memory consolidation.

However, at present the data is fragmentary and consists mainly of single observations in particular models (cell culture, brain slice, in vivo). In most cases, we still lack the evidence that a clear molecular level interaction translates into memory impairment in vivo. The objective of this proposal is to elucidate the molecular level mechanisms by which accumulation of Aß in the brain results in impaired synaptic plasticity and memory loss. The MEMOLOAD consortium consists of a well-balanced mixture of the seven best available European research groups in terms of research experience on both the mechanisms of memory consolidation and the pathophysiology of Alzheimer's disease. The current research topic is thus the primary research interest of all partners.

LIST OF PARTICIPANTS

UNIVERSITY OF KUOPIO	FINLAND (COORD.)
KAROLINSKA INSTITUTET, STOCKHOLM	SWEDEN
TRINITY COLLEGE, DUBLIN	IRELAND
RUHR-UNIVERSITAET BOCHUM	GERMANY
UNIVERSITY OF SZEGED	HUNGARY
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE, ORSAY	FRANCE
UNIVERSITY OF EDINBURGH	UNITED KINGDOM

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: February 2008 - February 2012

Costs: 3,93 Mio. Euro

Funding: 3 Mio. Euro

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

The rapid ageing of the European population comprises a major societal, economical and medical challenge for the well-being of our citizens. Ageing is accompanied by numerous small changes in the central nervous system, which make the aged brain function differently from a young adult brain even without any major diseases. Neurodegenerative diseases such as Alzheimer's disease will cause additional and often dramatic changes in certain brain functions, especially memory. Regarding the importance and timeliness of the topic, it is striking how little research is currently ongoing in Europe aimed at understanding the basic neurobiological changes that take place in the ageing brain. Almost all research in the field is carried out by American or Japanese scientists.

A particularly challenging and little studied issue is the interaction between normal ageing processes with specific pathogenic mechanisms of neurodegenerative diseases that are common among the ageing population. It is likely that a young and otherwise healthy brain (as is the case with usual laboratory rodents) tolerates compromised brain circulation, trauma or accumulation of extra protein like amyloid quite well, while similar challenges in a brain with already compromised energy balance, immune system and handling of reactive oxygen species may have serious consequences. However, in almost all biomedical research, ageing associated disease processes are studied in young organisms. This is obvious, because in experimental studies the use of aged subjects means extra waiting time and substantial extra costs. As a whole, we need strong EU support and guidelines to establish colonies of aged laboratory animals for research of ageing-related diseases in Europe and strong support in general, for basic research on the ageing brain.

Ruhr-University Bochum

5.3 SOCIAL CHANGE AND THE FUTURE OF AGEING SOCIETIES

ABSTRACT

At the beginning of 2007, set against the challenges represented by an ageing society, the Mercator Foundation launched the project "Social Change and the Future of Ageing Societies". The aim of this project is to stimulate discussion about demography and the build-up of a science network that can develop sustainable and future-oriented solutions to age-related problems. As a model region, these activities have been concentrated on the Ruhr Area.

During the project the following milestones have been pursued:

Milestone 1 – Build-up of a transfer- and clearing point: This milestone involves activities to improve the cooperation between scientific disciplines and praxis. To serve this purpose an online information market has been developed to exchange demographic data and activities in the Ruhr Area and beyond. Additionally, the network has held regular public symposia about selected questions in which scientific and praxis-related perspectives were merged as well as project and organisational ideas.

Milestone 2 – Realisation of Summer Schools: In two one-week Summer Schools, committed students and doctoral candidates from the Ruhr Area had the opportunity to work on demographic problems. The focus was on the exchange between different scientific fields and the development of solutions when presented with the facts. In order to develop contacts to scientific experts, the internal study program was complemented by public symposia.

Milestone 3 – Development of advanced training: There is a growing demand for on-the-job training concerning demographic change. In cooperation with advanced training institutions at the Ruhr-University Bochum and the Technical University Dortmund, programs were developed that meet this demand. The goal of the series of seminars on "Ageing Society" is to enable the participants to deal with demographic challenges on a scientific level through on-the-job training.

Milestone 4 – Development of a Masters degree program: preliminary work is being conducted for the introduction of a university degree program with a focus on age research. The MA program will be ministered by the Technische Universität Dortmund and the Ruhr-University Bochum. Students of both universities will be able to take part in the program.

Milestone 5 – Concept development of a Ruhr Graduate School of Ageing: A scientific program bridging different fields and universities has been developed to deal with the challenges of an ageing society. Concerning the target group, the graduate school follows an innovative approach. Besides alumni of university diploma and Master programs, the graduate school is intended to appeal to professionals who want to obtain a doctoral degree in ageing science while still working in their regular jobs. The aim is to provide a good professionally and practically orientated academic education.

LIST OF PARTICIPANTS

Ruhr-University Bochum:

Prof. Dr. Rolf G. Heinze, Faculty of Social Science, Chair for Labour and Economic Sociology

Prof. Dr. Ludger Pientka, Faculty of Medicine, Dept. of Geriatrics, Marienhospital Herne, Clinical Centre at the Ruhr-University Bochum

PD Dr. Josef Hilbert, Faculty of Medicine, Ruhr-University Bochum and Institute for Work and Technology, Dept. of Health Industries and Quality of Life

Technical University Dortmund:

Prof. Dr. Gerhard Naegele, Faculty of Education and Sociology, Chair for Social Gerontology, Dortmund

Mercator Foundation GmbH, Essen

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: March 2007 – May 2009

Funding: 365,000 Euro

The execution of this whole program is possible through the financial support of the Mercator Foundation

Team of the project "Social Change and the Future of Ageing Societies".

Ruhr-University Bochum

5.4 ORTHOMIT:
MINIMALLY INVASIVE ORTHOPEDIC SURGERY / TP 7 INTRAOPERATIVE ULTRASOUND

ABSTRACT

With increasing life expectation the minimally invasive treatment of musculoskeletal diseases becomes increasingly important, especially implantation of artificial hipsand knee joints. The aim of the scientific, industrial, and clinical partners within the OrthoMIT project is to develop innovative technical solutions and standardized surgical methods for orthopedic surgery of spine, knee and hip. Special emphasis is put on innovative intraoperative imaging techniques with the aim of increasing accuracy and decreasing the invasiveness and radiation exposure of the interventions.

The main objectives of the project are - New intraoperative ageing and registration methods using ultrasound imaging and flat-panel CT.

- Standardized, minimally invasive surgical procedures.
- Integrated modular workstation for use in the operating room (OR).
- Modular mini-robot and intelligent OR-table to support orthopedic procedures.
- Innovative ergonomic concepts.

The aspects concerning ultrasound imaging within the project (TP7) are addressed by the consortial partners within the University of Bochum. The main emphasis is on three-dimensional intraoperative ultrasound imaging, either for direct imaging, or for the registration of pre-operative CT and MR images. By this approach, a preoperative plan can be transferred with high accuracy to the intraoperative situation allowing for low invasiveness and lower cost.

www.orthomit.de

LIST OF PARTICIPANTS

Aesculap AG & Co. KG, Tuttlingen

Centre of Excellence for Medical Engineering Aachen (AKM - Aachener Kompetenzzentrum Medizintechnik), Aachen

CAS Innovations AG, Erlangen

German Society for Biomedical Engineering (DGBMT - Deutsche Gesellschaft für Biomedizinische Technik im VDE), Frankfurt

Centre of Excellence for Medical Engineering Ruhr (KMR - Kompetenzzentrum Medizintechnik Ruhr), Bochum

qcMed GmbH, Aachen

Ruhr-University Bochum - Institute for Medical Engineering, Bochum

Ruhr-University Bochum - Institute for Neuroinformatics, Bochum

Ruhr-University Bochum - Neurosurgical Clinic, Bochum

Ruhr-University Bochum - Orthopedic Clinic, St. Josefs Hospital, Bochum

RWTH Aachen, Institute of Materials in Electrical Engineering, Aachen

RWTH Aachen, Helmholtz-Institute for Biomedical Engineering, Chair for Applied Medical Engineering, Aachen

SurgiTAIX AG, Aachen

Synagon GmbH, Aachen

Technical University Dresden, University Hospital Carl Gustav Carus, Orthopedical Clinic and Policlinic, Dresden

Teltra GmbH, Bochum

University Hospital Aachen – Orthopedic Clinic, Aachen

University HospitalAachen – Radiology, Aachen

University Hospital Aachen – Traumatology, Aachen

University Hospital Aachen – Clinic for Otorhinolaryngology and Plastic Head and Neck Surgery, Aachen

University Hospital Bonn - Orthopedical and Traumatological Clinic and Policlinic, Bonn

University Erlangen-Nürnberg - Institute for Medical Physics, Erlangen

VAMP GmbH, Erlangen

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: 2005 – 2010

Funding: The project is funded by the German Federal Ministry of Education and Research in the initiative SOMIT in total by close to 14 Mio. Euro. The subproject TP 7 of Bochum University receives 1,2 Mio. Euro funding.

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

- Extension of the successful national network to a European context.
- Use of the low-cost and mobile three-dimensional ultrasound imaging developed by this project for the home care of elderly patients.

CONTACT: Institute for Medical Engineering, Dept. of Electrical Engineering and Information Sciences, **Prof. Dr.-Ing. Georg Schmitz**

6.1 CONCEPTUAL DESIGN OF A PORTAL INCLUDING DIGITAL WORKFLOW MANAGEMENT SUPPORTING MEDICAL CARE FOR OLDER PEOPLE

ABSTRACT

Since the beginning of 2007, the University of Applied Sciences in Dortmund has been cooperating with the Bundesknappschaft, a health insurance institution, to find intelligent solutions in information technology that can support integrated caring that crosses the border between outpatient care and clinical treatment. Especially with regards to our ageing society, more efficiency and quality could be provided by workflow management and decision support based on valid information from shared patient records.

This project brings together various investigators with different backgrounds and competences. In this multi-disciplinary effort, a portal with integrated workflow management will be established. From the beginning a team composed of end-users (physicians, nurses, etc.) and partners from industry and science has worked together to consider different perspectives and demands towards the final goal of this project while ensuring consumer acceptance. The system will support transsectoral organised patient care and will empower clinicians to work closely with other care providers.

Over the next three years, this project will establish:

- Conceptual design and the building-up of a problem-oriented, geriatric patient record based on Health Level 7 Version 3 (HL7 V3).
- The required specifications for the modeling language needed to describe the entire processes in the geriatric patients' treatment.
- The development of a new modeling language following the required specifications (if none of the existing languages is suitable for this use).
- Building up a SOA-based infrastructure to provide services for different user groups in a portal.
- Establishment of a process management system, including scheduling and task management, transsectoral pathways (handling dynamic process changes, consistency-checks and process transactions).
- Screenings and assessments for the geriatric patients with the definition of transsectoral pathways based on the assessments results.
- Integration of primary systems, like hospital information systems (HIS).

Network proSenior:

- Founded by Knappschaft Bahn-See, Herner Ärztenetz e.V. and Marienhospital Herne in 2008.
- Accessible for elderly people of 75 years and over in Herne.
- Provides additional services like individual patient care (including preventive measures).
- Aims: improving the health-related quality of life, reduction of clinical treatments and the minimization of risk factors (with emphasis on the prevention and reduction of ill health).

LIST OF PARTICIPANTS

Project partners:

Network proSenior, Herne

Knappschaft Bahn-See, Bochum

Herner Ärztenetz e.V., Herne

Marienhospital, Herne

Fraunhofer Institute for Software- and Systems Engineering ISST, Dr. Wolfgang Deiters, Dortmund

University of Applied Sciences and Arts, Dortmund

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: January 2009 – January 2012

Funding: 202,000 Euro Grant

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

- Establish an interdisciplinary network of research institutions, clinics and industry, in order to build up a research pipeline from basic research to applications.
- Building up a repository for intersectoral pathways and assessments.

Prof. Dr. Britta Böckmann

CONTACT: Institute for Medical Informatics, **Prof. Dr. Britta Böckmann**

University of Applied Sciences and Arts Dortmund

6.2 DESIGNING THE DEMOGRAPHIC CHANGE

FUTURE DEMANDS ON CITY DEVELOPMENT AND SPATIAL PLANNING

ABSTRACT

Leading a network of 18 partners, we are looking at the future designs of the urban space necessary to address the current demographic change. Working to the motto: "older, less, more colourful", demographic change in all its complexity is both the subject and goal of our project. The combination of an ageing, shrinking, and more heterogeneous, population produces numerous consequences, especially with respect to the built-up environment (regarding economic, cultural, and social resources).

Together with our partners (scientific institutions, societal bodies, private companies), the aim of this project is to develop strategies to deal with the impact of demographic change. In particular, a main goal is to increase the attractiveness of agglomerations that are affected by all aspects of this demographic change (i.e. old industrial regions such as the Ruhr). We refer to the method of activating participation as a tool of integration and broad consensus.

In this regard, we are collecting examples of good practice and developing indicators to undertake our own field work on different levels: dwelling, living environment, the district's social and technical infrastructure, in order to identify problems and to propose improvements (e.g. for dwellers, landlords, housing associations, communities, city authorities).

LIST OF PARTICIPANTS

Network of 18 contract and associated partners:

City of Dortmund

Spar- und Bauverein Dortmund (building cooperative), Dortmund

Dogewo21 (building society), Dortmund

LBS West (building and loan association), Münster and Düsseldorf

SchürmannSpannel AG (architecture and planning office), Bochum

BDB NRW (professional association of architects and engineers), Düsseldorf

BDB, District Dortmund

Caritas Dortmund (social federation)

Kreuzviertel-Verein (accommodation advice), Dortmund

LEG AS (social counselling service), Düsseldorf

WohnbundBeratung NRW (accommodation counselling service), Bochum

Centre for Studies on Turkey, Essen

Handwerkskammer Düsseldorf, Handwerkszentrum - Wohnen im Alter - (Düsseldorf Chamber of Small Industries and Skilled Trades), Düsseldorf

Swiss Federal Institute of Technology (ETH), Prof Dr. Holger Wallbaum, Zürich, Switzerland

Master of Science in Town Planning, Urban Development, University of Siegen and the Universities of Applied Sciences Bochum, Dortmund and Cologne

Technical University Dortmund, Dr. Viktoria Waltz, Dipl.-Ing. Ivonne Fischer-Krapohl, Faculty of Spatial Planning - MuSt; Dr. Hermann Bömer, Faculty of Spatial Planning - Economy, Dortmund

University of Siegen, Prof. Dr. Hildegard Schröteler-von Brandt, Faculty of Town Planning and Architecture, Siegen

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: May 2007 – December 2009

Costs: 450,000 Euro (approximately)

Funding: 210,000 Euro

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Although as yet there is no clear goal at the European level, we intend to develop a European network that is based on the EQUAL-network "silver services" in which we have been participating (one of our contractual partners, LEG AS, was the responsible coordinator, and we are one of the strategic partners).

Through our existing European network CLR (European Institute for Construction Labour Research) we have already started to discuss the possibility of regarding its impact of this issue on the construction industry (with special consideration for a sustainable society).

Honestly speaking, we are not yet in a position to take a European perspective but we would be happy to do so.

Initial Project Meeting: Project Team and Project Partners

University of Applied Sciences and Arts Dortmund

7.1 BETWEEN JOB AND CARE: CONFLICT OR OPPORTUNITY? A STRATEGY FOR SECURING SUSTAINABLE FUTURE CARE AND PRODUCTIVITY POTENTIALS IN AN AGEING SOCIETY: A EUROPEAN COMPARISON

ABSTRACT

Reconciliation of employment and family care is highly relevant to future societies that are undergoing socio-demographic change since it affects the future working environment as well as the future provision of care for older people – both areas that are facing particularly serious challenges in the future. An EU-wide reconciliation of employment and family care could contribute to both maintaining and strengthening the employability of an ageing workforce and securing the provision of care for rising numbers of older people. The aim of this project is to show that reconciliation of employment and family care is possible if accompanied by support measures at the enterprise and social policy levels. Thus, a forward-looking and sustainable care provision can be guaranteed in an ageing society, and new productivity potentials in the form of highly motivated employees can be made accessible. Therefore this research compares individual- and enterprise-based reconciliation strategies in four European countries (Germany, United Kingdom, Italy, Poland) and will be realised in three stages:

1. International literature review and secondary data analysis (SHARE/ELSA and EUROFAMCARE) to identify gaps in existing know ledge about successful measures to enable family carers to combine paid work and care.

2. Analysis of the reconciliation problematic at the enterprise level: 10 case studies in German enterprises and a review of literature and examples of best practice. In addition, analysis of enterprise and collective bargaining agreements as well as expert interviews with representatives of works committees, trade unions and employers associations will be conducted in all four countries. Finally, an assessment of the resulting costs at the enterprise level will be carried out through expert reports.

3. Qualitative interviews with family carers: Based on the outcomes of the secondary data analysis, 60 interviews with employed family carers will be conducted in each of the four participating countries focussing on individual reconciliation strategies. Country reports will be produced on this basis, followed by a cross-national comparative analysis and report.

First project meeting in Dortmund, January 2009

LIST OF PARTICIPANTS

Prof. Dr. Monika Reichert & Annette Franke,
TU Dortmund, Department of Sociology,
Subject Area Social Gerontology and Life Course Research

Prof. Dr. Gerhard Bäcker & Dr. Angelika Kümmerling, University Duisburg-Essen, Department of Sociology, Chair for Social Policy

Dr. Hanneli Döhner & Susanne Kohler, University Medical Centre Hamburg-Eppendorf, Department of Medical Sociology

Dr. Giovanni Lamura & Dr. Andrea Principi, Department of Gerontological Research of the Italian National Research Centre on Ageing (Instituto Nazionale Riposo e Cura Anziani INRCA), Italy

Dr. Andreas Hoff & Kate Hamblin, University of Oxford, Oxford Institute of Ageing, United Kingdom

Dr. Jolanta Perek-Bialas & Justyna Stypińska, Jagiellonian University Krakow, Department of Sociology, Poland

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: January 2009 - December 2010

Costs: 400,000 Euro

This project is funded within the context of the Volkswagen foundation's call for proposals "Individual and Societal Perspectives of Ageing", with the thematic orientation "Flexibility and Diversity of the Life Course".

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Population ageing in the EU profoundly challenges the current balance between older and younger generations. Europe is responding with policies that promote active ageing (i.e. later retirement), intergenerational solidarity (i.e. family care), and equal (gender) opportunities, but these ideals may conflict in midlife when the needs of older parents can be hard to reconcile with paid work.

This project looks for transferable, innovative solutions that permit a reconciliation of work and care in four EU-member states. The more EU-enterprises develop good solutions, for example, with regard to work organisation and working time, the greater the likely contributions to societal innovations, competitiveness and productivity in ageing societies. In addition, the life for family carers and those they care for can be improved in a sustainable way. The findings of this project will be integrated and translated into policy recommendations that may help people to achieve a better work–family balance, and help Europe achieve the ambitions outlined in the Lisbon strategy.

7.2 TRAINING OLDER PERSONS

ABSTRACT

The aim of this project is to assess whether specific interventions can result in improvements to the impaired cognitive brain functions of aged people. Participants are healthy elderly residents of Dortmund, aged 65 and beyond. Their brain functions are measured by neuropsychological tests and by event-related brain potentials (ERPs), recorded during reaction tasks. There are three intervention groups: aerobic training, cognitive training, and relaxation training. The interventions last 4 months, with 2 sessions per week. A fourth group serves as a passive no-contact control group. The measurements are conducted before and after the training phase. By comparing pre- and post-training, the changes of different cognitive functions induced by the different interventions can be exactly measured and compared across the interventions. The ERP technique allows detecting subliminal changes and compensation strategies. The results are expected to explore the potential of qualitatively different training procedures to ameliorate age-related cognitive loss.

Elderly conducting physical training

LIST OF PARTICIPANTS

Leibniz Research Centre for Working Environment and Human Factors (IfADo) at the Technical University Dortmund

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: April 2008 - April 2010

Funding: 250,000 Euro by the "Gesamtverband der Deutschen Versicherungswirtschaft" (GDV) (German insurance association)

Elderly conducting physical training

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Different aspects of the interventions should be further assessed, in particular the intensity and amount of an intervention, as well as the combinations of different interventions.

TU Dortmund University

7.3 PFIFF – PROGRAM FOR PROMOTION AND PRESERVATION OF INTELLECTUAL ABILITIES OF ELDERLY WORKERS

ABSTRACT

This project has three objectives: a) the measurement of cognitive brain functions in elderly compared to young industrial workers, b) the collection of interventions to maintain and improve cognitive functions in the elderly, and c) the compilation of a combined training program for improving health and cognitive performance in elderly workers. Elderly assembly line workers in a large car plant (Opel Bochum) showed specific cognitive deficits, while elderly non-assembly line workers were unimpaired. On the basis of these results and the available literature, a combined cognitive training procedure was established and put on a web platform for public use (www.pfiffprojekt.de).

In the current second phase of the project the training procedure will be applied to about 150 employees with repetitive work structure. The results are expected to explore the potential of a combined training procedure to ameliorate age-related cognitive loss in workers that have an unfavourable working structure.

Elderly employee during EEG recording

LIST OF PARTICIPANTS

Leibniz Research Centre for Working Environment and Human Factors (IfADo) at the Technical University Dortmund

Ruhr-University Bochum

Gesellschaft für Gehirntraining, Ebersberg

Bundesanstalt für Arbeitsmedizin und Arbeitsschutz – BauA (Federal Agency for Occupational Health and Safety at the Workplace), Dortmund

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: May 2007 – March 2011

Funding: 960,000 Euro by the "Initiative Neue Qualität der Arbeit" (INQA) and the "Bundesministerium für Arbeit und Soziales" (BMAS) (German Ministry of Labour and Social Affairs)

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Different aspects of the interventions should be further assessed, in particular the intensity and amount of an intervention, as well as the combinations of different interventions.

CONTACT: Leibniz Research Centre for Working Environment and Human Factors, **Prof. Dr. med. Michael Falkenstein**

8.1 ALPHA-TO-OMEGA

ABSTRACT

The aim of this project was to develop and pilot new pathways for senior citizens to improve informally and casually acquired skills and competence through the promotion of volunteer work in order to support their social integration. The project uses communicative techniques for motivation and inter-generational work assignment. Ten modules have been developed that are suitable for lifelong-learning, based upon the needs of senior learners. These support the access of senior citizens to adult education. Special target groups are senior citizens facing social and economic disadvantages, senior citizens with migrant backgrounds, those belonging to segregated ethnic groups, or living in remote geographical areas.

LIST OF PARTICIPANTS

Project promoter:

IEIE e.V. International Education and Information Exchange e.V., Dr. Martin Kilgus, Stuttgart

Project partners:

Düsseldorf University of Applied Sciences, (Design, edi – Exhibition Design Institute, Düsseldorf

Exchange House Traveller Services, Dublin, Irland

Prolepsis Institute of Preventive Medicine, Environmental and Occupational Health, Athens, Greece

ANUP, Association of Romanian Popular Universities (network of adult education centres), Bucharest, Romania

Vivre à Koekelberg (social community centre), Brussels, Belgium

Akzente (social-profit organization), Salzburg, Austria

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: October 2006 – September 2008

Funding: Socrates Grundtvig project supported by the European Commission; total project budget 280,000 Euro, EU grant 190,000 Euro

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

The inclusion of senior citizens in adult learning and life-long learning through the design of suitable and needs-specific learning materials using layout, font-size etc., developed as a function of learning needs and the comprehensive proficiencies of senior citizens.

The development of visual learning presentations for senior citizens and learners with special needs.

Düsseldorf University of Applied Sciences

8.2 SENSORS AND COMMUNICATION MECHANISMS FOR AMBIENT ASSISTED LIVING (AAL)

ABSTRACT

This project aims at "ambient assisted living" systems in the home environment.

Acceptance of AAL systems is coupled to the following preconditions:

1. Simple to use: interfaces that are especially adapted to permit older people to communicate with the system.

2. Low charges: people with a small retirement pension cannot pay for expensive information technology (IT) systems and maintenance.

3. Trust in the IT system: central supervision and inadequate data security frighten off potential users.

4. Adaptive services: services can be installed dynamically on demand from a remote system.

The following concepts and architecture ensure that these conditions are fulfilled within the project:

1. Age-based user interfaces with extensive input components are provided via touch screens. Intelligent sensors, like RFID, provide additional inputs to sophisticated services.

2. The system is based on cheap hardware and public domain software. Hardware will be assembled within student laboratories, e.g. the AVR NET IO Module costs about 20 €. Software is based on the dynamic Java module system, OSGI, which is provided via open source. Within software engineering laboratories, students will implement suitable OSGI services, e.g. a medication reminder service.

3. To increase trust in the AAL system, the architecture caters specifically for family-like social groups. Members within a group help each other, e.g. after a given time of inactivity, another group member will contact the inactive person. Social interaction is supported by special interest forums and video conferencing. Communication within the social group is based on the distributed version of OSGI.

4. Dynamic installation of services in a running IT system is the key feature of OSGI. Installation and maintenance can be performed at distance by students within their laboratories.

In 2009, we started an internal project that will obtain our first experiences through the implementation of a prototype. Based on these experiences, we will archive an appropriate architecture that works as a framework for the services and hardware components built by students in our laboratories. Currently, the AAL system has the following architecture:

- The hardware level consists of an OSGI-enabled gateway, currently Siemens Gigaset SX 765, and a sensor system, currently AVR NET IO Module with several sensors, e.g. motion detector and RFID tags. On demand, a PC is activated by the gateway, e.g. for multimedia communication. It is planned, that the PC can be substituted by a powerful embedded system. Thus, the total cost of the hardware will be in the area of 300 €.
- The local service level provides services that can be provided locally, e.g. reminder services and electric cooker monitoring.
- The group service level connects members of a given group, e.g. buying syndicates and establishing of contact in the case of inactivity.
- The overall communication level connects the members to people outside the group, e.g. emergency calls to relatives and hospitals.

Because services will be subsequently implemented on demand by students, the total cost of the AAL system will be acceptable for older people.

LIST OF PARTICIPANTS

In 2009, work is done within an internal project, cooperating with Prof. Dr. Kröger from the University of Applied Sciences Wiesbaden. For the next year, an AIF research proposal will be arranged together with Prof. Dr. Kröger.

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: March 2009 – February 2010

Costs and funding: 20,000 Euro

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

The project could be a starting point for an open source initiative in the area of AAL systems within the EU.

CONTACT: Department of Electrical Engineering, **Prof. Dr. Ulrich Schaarschmidt, Prof. Dr. Wolfgang Lux**

Düsseldorf University of Applied Sciences

8.3 AMBIENT INTELLIGENCE FOR MONITORING BIOMECHANICAL AND PHYSIOLOGICAL PARAMETERS OF PEOPLE

ABSTRACT

This project plans to use ambient intelligence to improve the quality of life in an ageing society. The main goals are the following:

- Personalized healthcare
- Illness prevention
- Illness detection
- Patient participation
- Safety of care
- Monitoring and interaction with the elderly and people with disabilities
- Advancement of assistive technology

The Düsseldorf University of Applied Sciences will concentrate on:

- Analysis of medical sensor systems and development of a web-oriented system structure for physiological and medical sensor data.
- Web-based applications for remote monitoring and diagnosis.

LIST OF PARTICIPANTS

Academic partners:

University of Alcalá, Spain

University College Cork, Ireland

University of the Algarve, Faro, Portugal

University Blaise Pascal, Clermond-Ferrant, France

Düsseldorf University of Applied Sciences, Germany

University of Antwerpen, Belgium

Budapest University of Technology and Economics, Hungary

Aalborg University, Denmark

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

The project participants are planning to apply for a COST project (www.cost.esf.org) to the next call (Domain: Information and Communication Technologies (ICT), Sub-domain: Societal aspects of ICT)

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

- Establishing an interdisciplinary network of research institutions.
- Building a research community in ambient intelligence for monitoring the biomechanical and physiological parameters of people.
- Opening of further web-based and real core facilities for special infrastructures.
- Building a multi-functional patient monitoring system for illness prevention and detection.

Düsseldorf University of Applied Sciences

CONTACT: Department of Electrical Engineering, **Prof. Dr.-Ing. Reinhard Langmann, Prof. Dr.-Ing. Hartmut Haehnel**

9.1 THERAPY AND PREVENTION OF ALZHEIMER'S DISEASE BASED ON D-ENANTIOMERIC PEPTIDES

ABSTRACT

Alzheimer's disease (AD) is a chronic neurodegenerative disorder and the most common cause of dementia, affecting more than 20 million people worldwide. Ageing is the main risk factor. Today, AD can only be diagnosed post mortem with certainty, thereby revealing insoluble β-amyloid peptide (Aβ) aggregates and neurofibrillary tangles in the patient's brain tissue. Additionally, only palliative therapies for AD are currently available.

We aim to identify substances that target toxic Aβ species with the ultimate goal of completely avoiding their formation or at least decreasing their concentration in the human brain.

To do this, we have employed mirror-image phage displays and selected from a huge peptide library (> 1 billion different peptides) just one peptide, called "D3", that binds with high affinity and specificity to Aβ. Peptide D3 modulates Aβ (1-42) oligomer aggregation and reduces Aβ cytotoxicity in vitro. We could already show that upon application of D3 to the brains of transgenic AD mice, reduced amyloid plaque load and cerebral damage is observed. In more recent studies, we found that next to plaque load and inflammation reduction, oral application of D3 improves cognitive performance of the mice. The main targets are various Aβ species that are thought to be relevant to the disease progression.

LIST OF PARTICIPANTS

Phillips University Marburg,
Prof. Dr. Richard Dodel, Clinic for Neurology, Marburg

University Bonn,
Dr. L.-Cornelia Andrei-Selmer, Institute for Anatomy, Bonn

University of Alabama,
Dr. Thomas van Groen, Dr. Inga Kadish, Dept. of Cell Biology, Birmingham, USA

Heinrich-Heine-University,
PD Dr. Carsten Korth, Institute for Neuropathology, Düsseldorf

Heinrich-Heine-University,
Prof. Dr. Christian Lange-Asschenfeldt and Dr. Philipp Görtz, Institute for Psychiatry and Psychotherapy, Düsseldorf

Probiodrug, Prof. Dr. Ulrich Demuth, Halle

University of Duisburg-Essen,
Prof. Dr. Thomas Schrader, Institute for Organic Chemistry, Essen

Friedrich Alexander University of Erlangen-Nürnberg,
Prof. Dr. Heinrich Sticht, Institute for Biochemistry,
Dept. for Bioinformatics, Erlangen

University of Maastricht and VU Medical Centre Amsterdam,
Dr. Pieter Jelle Visser, Dr. Charlotte Teunissen, The Netherlands

VU Medical Centre,
Prof. Dr. Rien Blankenstein, Dr. Robert Veerhuis, Amsterdam,
The Netherlands

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

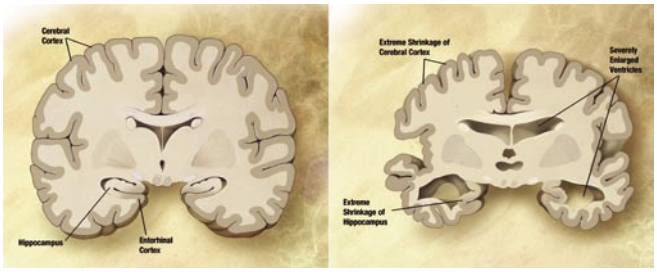
Project: 2006 - 2012

Funding:

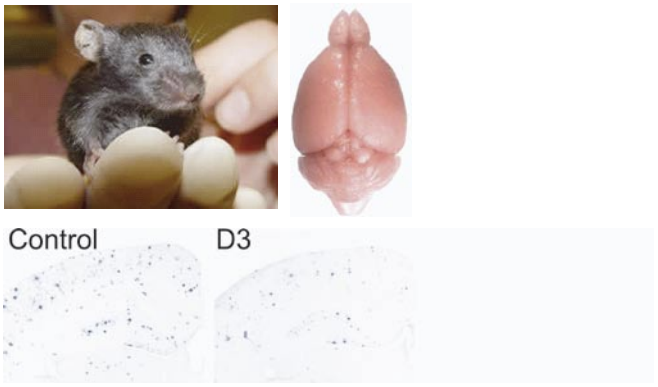
- Heinrich-Heine-University Düsseldorf (basic funding)
- Forschungszentrum Jülich (program oriented funding of Helmholtz Association of German Research Centres)
- Volkswagen Foundation (I/82 649)
- DFG Research Training Group 1033 (Graduiertenkolleg 1033) "Molecular Targets of the Ageing Process and Strategies for the Prevention of Ageing"
- Stiftung für Alternsforschung, Heinrich-Heine-Universität Düsseldorf

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Building a highly interdisciplinary cooperation network, including research institutions, clinics and industry.



The picture shows a healthy brain (on the left) in comparison to an AD affected brain (right).



On the pictures above, an AD transgenic mouse and a respective brain can be seen. Below, the influence of D3 on Aβ load in brain tissue sections of transgenic APPswe-PSΔ9 mice is shown. Saline (Control) or D3 were infused into the brains of the mice for four weeks. Animals were transcardially perfused at the end of the infusion period, and coronal sections were cut through the brain, one series of sections was stained with W0-2 (anti human amyloid-β). Representative sections showing the hippocampus and dorsal cortex are shown. Please note the decrease in Aβ staining in the D3 infused brain compared to the control brains.

CONTACT: Institute of Physical Biology, **Dr. Susanne Aileen Funke, Prof. Dr. Dieter Willbold**

Heinrich-Heine-University Düsseldorf

9.2 AMYLOID FORMATION AND EARLY DIAGNOSIS OF AGE RELATED NEURODEGENERATIVE DISEASES

ABSTRACT

Mechanism of amyloid formation

Amyloid protein aggregates play a major role in many age-related neurodegenerative diseases, like Creutzfeldt-Jakob disease (CJD), Alzheimer's disease, or Parkinson's disease. Characteristic of these diseases is the aggregation and deposition of certain naturally occurring proteins in the central nervous system. Prion protein (PrP) aggregates can be found in the brain of CJD patients, while in AD, aggregates of amyloid-beta and, in PD, aggregates of alpha-synuclein, occur. We analyse the mechanisms of protein aggregation. Recently we have focused on prion diseases.

The main event in prion diseases is the conversion of the native isoform of the prion protein (PrP^{C}) to its disease-related isoform (PrP^{SC}). CJD occurs in three etiologies: spontaneous, genetically caused, or by infection. The median age of death for the spontaneous form of CJD (sCJD) is 68 years. Within this work we have established an *in vitro* conversion system for PrP, which allows us to analyse the mechanism of amyloid fibril formation. The assay is based on well balanced NaCl and SDS concentrations, which provide a permissive environment for *de novo* fibrillization of rec PrP monomers. Within this system we were able to analyze the conversion and aggregation in detail and characterize several intermediates. Whilst the latter refers to the spontaneous case of prion diseases, the infectious form is represented by an additional seeding assay. Here we have introduced natural PrP^{SC} as a seed to accelerate the fibrillization in the afore-mentioned conversion assay as a model system for the infectious case.

We want to systematically analyze the mechanism of amyloid formation. Insights into this mechanism will open the way to strategies for inhibiting or even reversing this process. In the next steps we will also analyse the effect of aggregation processes on different disease- and ageing- specific proteins.

Early diagnosis

Prion diseases, Alzheimer's disease, and Parkinson's disease are age-related neurodegenerative diseases that are characterized by the formation of protein aggregates during the progress of the disease. Although it is still not known whether these aggregates are causative for, or symptoms of, the disease. Many studies show that aggregates or even oligomers of these proteins are neurotoxic, and thus may lead to neurodegeneration. To understand disease-associated or causative mechanisms in respect to protein aggregation, an ultrasensitive tool to quantify these disease-related aggregates is required. We have developed an assay which can identify and count even single aggregates in tissue homogenate and body liquids. This assay has been successfully used in the detection of prion protein aggregates in cerebrospinal fluids. In the subsequent steps we will further enhance the sensitivity of the assay in order to detect aggregates even at very low concentrations in blood. Furthermore we will adapt the assay to detect different aggregates e.g. alpha-synuclein as a biomarker in Parkinson's disease.

LIST OF PARTICIPANTS

EU Network of Excellence Neuroprion

Veterinary Laboratories Agency (VLA), United Kingdom

Commissariat à l'Énergie Atomique (CEA), France

Universitätsklinikum Düsseldorf, Germany

Ludwig-Maximilians-Universität München (LMU), Germany

University of California, San Francisco (UCSF), USA

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

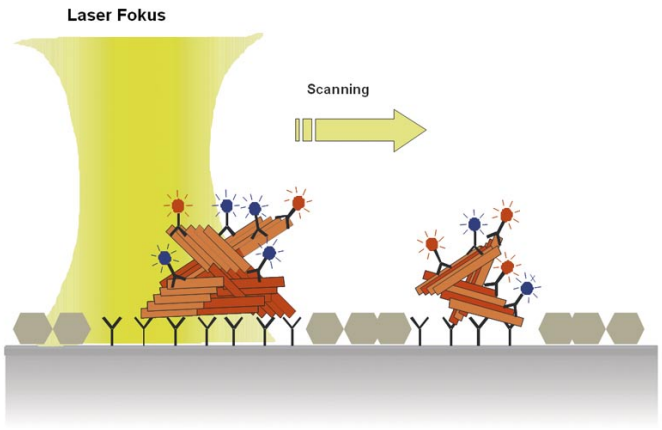
Project: 2005 - 2011

Funding:

- Heinrich-Heine-University Düsseldorf (Research and Science Fund)
- Forschungszentrum Jülich (program oriented funding of Helmholtz Association of German Research Centres)
- DFG Research Training Group 1033 (Graduiertenkolleg 1033) "Molecular Targets of the Ageing Process and Strategies for the Prevention of Ageing"
- EU Network of Excellence: NeuroPrion
- Food Standard Agency, United Kingdom

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Extending the project further into a highly interdisciplinary cooperation network that includes research institutions, clinics and industry.



Single particle detection via surface-FIDA (Birkmann et. al., 2007, Vet. Microbiol. 123, 294-304)

CONTACT: Institute of Physical Biology, **Dr. Eva Birkmann, Prof. Dr. Dieter Willbold**

Heinrich-Heine-University Düsseldorf

9.3 EARLY DIAGNOSIS OF ALZHEIMER'S DISEASE

ABSTRACT

Alzheimer's disease (AD) is a chronic neurodegenerative disorder and the most common cause of dementia, affecting more than 20 million people worldwide. Ageing is the main risk factor. Today, AD can be diagnosed with certainty only post mortem, detecting insoluble β-amyloid peptide (Aβ) aggregates and neurofibrillary tangles in the patient's brain tissue.

We want to establish a reliable method to diagnose AD at stages as early as possible. Also, a method to monitor disease progression and therapy success is urgently needed to develop therapeutic approaches or potential prevention strategies for AD.

Project 1: In vivo imaging of Aβ deposits in the living brain.

D-peptides are known to be extremely protease resistant and less immunogenic than the respective L-enantiomers. Employing mirror-image phage display with a huge peptide library (> 1 billion different peptides), we have identified ligands consisting of non-natural amino acids, binding with high affinity and specificity to Aβ. These peptides show interesting properties making them suitable for in vivo diagnosis of AD. Peptide D1 binds to aggregated Aβ forms and is currently being developed into a probe suitable for the imaging of amyloid plaques in the brains of AD patients.

Project 2: Ultra-sensitive single aggregate detection assay for the quantitation of Aβ aggregates in body fluids.

We are developing an ultra-sensitive and highly specific assay to determine number, size and composition of Aβ aggregates in body fluids, e.g. cerebrospinal fluid (CSF) and blood for early and nearly non-invasive diagnosis of AD. The assay is based on highly sensitive fluorescence detection methods. Preliminary experiments analysing CSF samples show a clear distinction between AD diseased people and non-demented controls.

LIST OF PARTICIPANTS

AC Immune,
Prof. Dr. Andrea Pfeifer, Dr. Andreas Muhs, Lausanne, Switzerland

Forschungszentrum Jülich,
Prof. Dr. Heinrich H. Coenen, Dr. Dirk Bier, INB-3, Jülich

Phillips University Marburg,
Prof. Dr. Richard Dodel, Clinic for Neurology, Marburg

University of Alabama,
Dr. Thomas van Groen, Dr. Inga Kadish, Dept. of Cell Biology, Birmingham, USA

Lund University,
Dr. Oskar Hansson, Clinical Memory Research Unit, Department of Clinical Sciences Malmö, Lund, Sweden

Heinrich-Heine-University,
PD Dr. Carsten Korth, Institute for Neuropathology, Düsseldorf

Heinrich-Heine-University,
Prof. Dr. Christian Lange-Asschenfeldt and Dr. Philipp Görtz, Institute for Psychiatry and Psychotherapy, Düsseldorf

Probiodrug, Prof. Dr. Ulrich Demuth, Halle

University of Duisburg-Essen,
Prof. Dr. Thomas Schrader, Institute for Organic Chemistry, Essen

Friedrich Alexander University of Erlangen-Nürnberg,
Prof. Dr. Heinrich Sticht, Institute for Biochemistry, Dept. for Bioinformatics, Erlangen

Rheinische Kliniken Düsseldorf,
PD Dr. Tillmann Supprian, Dept. for Geriatric Psychiatry, Düsseldorf

University of Maastricht and VU Medical Centre Amsterdam,
Dr. Pieter Jelle Visser, Dr. Charlotte Teunissen, The Netherlands

VU Medical Centre,
Prof. Dr. Rien Blankenstein, Dr. Robert Veerhuis, Amsterdam, The Netherlands

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: 2006 - 2014

Funding:

- Heinrich-Heine-University Düsseldorf (basic funding)
- Forschungszentrum Jülich (program oriented funding of Helmholtz Association of German Research Centres)
- Volkswagen-Foundation (I/82 649)
- DFG Research Training Group 1033 (Graduiertenkolleg 1033) "Molecular Targets of the Ageing Process and Strategies for the Prevention of Ageing"
- Stiftung für Alternsforschung, Heinrich-Heine-University Düsseldorf

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Building a highly interdisciplinary cooperation network to include research institutions, clinics and industry.

CONTACT: Institute of Physical Biology, **Dr. Susanne Aileen Funke, Prof. Dr. Dieter Willbold**

Heinrich-Heine-University Düsseldorf

9.4 COLLABORATIVE RESEARCH CENTRE

SFB 728 "ENVIRONMENTAL AGEING PROCESSES"

ABSTRACT

The SFB 728 on "Environmental Ageing Processes" is the first collaborative research centre for molecular ageing research funded by the German Research Council (DFG). Scientists from various disciplines including environmental toxicology, physiology, preventive medicine, clinical chemistry, molecular medicine, pathology, molecular genetics, dermatology and radiotherapy have joined forces to study the contribution of extrinsic noxae such as radiation, oxidative stress, xenobiotics and nanoparticles to the human ageing process. During the first four years we will focus on the basic mechanisms of extrinsic ageing at the molecular and cellular level and their relevance for skin ageing. Subsequently, these findings will be applied to other organs, typically subjected to extrinsic ageing (e.g. the cardiovascular and central nervous systems). Our ultimate aim is the extension of population health through the implementation of strategies for the protection, prevention or reversal of extrinsic ageing in routine medical care.

LIST OF PARTICIPANTS

Heinrich-Heine-University Düsseldorf,
Medical and Natural Sciences Faculties

Inst. of Molecular Preventive Medicine at the
Heinrich-Heine-University (IUF gGmbH)

University of Cologne

Research Institute for the Biology of Farm Animals (FBN),
Dummerstorf, Germany (collaboration partner)

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: July 2007 – June 2011

Funding: 8 Mio. Euro

Extension for two more funding periods envisioned

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

To date, the SFB 728 is the only collaborative research endeavour within the EU that focuses on extrinsic ageing. A future expansion into an EU-wide network is therefore feasible and will comprise cooperations with the Welcome Ageing Institute in Newcastle Upon Tyne (UK) and others.

Collaborative Research Centre SFB 728
Environmental Aging Processes

Molekulare Präventivmedizin
Institut für umweltmedizinische Forschung
IUF
an der Heinrich-Heine-Universität gGmbH
Molecular Preventive Medicine

Heinrich-Heine-University Düsseldorf

10.1 ENHANCING QUALITY OF LIFE OF OLDER PEOPLE: DEVELOPING THE EUROPEAN SILVER ECONOMY

ABSTRACT

The Institute for Work and Technology is an application focused R&D institute. Its main objectives are to identify and evaluate innovative solutions for current structural changes both in the economy and society. Not least, we aim to find sustainable and efficient solutions for the challenges of demographic and social change in Germany and Europe. In this respect many projects on the regional, national and European level have been conducted: Meeting the "Needs of Older People" (on behalf of the European Commission) has delivered a survey on demographic change in European member states and the related adaptations to adequately meet the changing needs of older people. Therefore policy recommendations have been made concerning independent living and home-based services, mobility and (public) transport, and healthy ageing. The ongoing project, Enhancing capacity for innovation of SME's in an ageing society, will develop methods and instruments to support SMEs to assure their success regarding ageing markets and an ageing workforce. The projects e-Health@home – development of business models for a self-determined life in an ageing society and Livescience.biz – development and management of hybrid business models in health care and wellness industries are dealing with systems of ambient assisted living (AAL) and microsystems technology. The main focus of these projects is the bridging of technological and social innovations to develop new products and services to enhance the quality of life of older (and handicapped) people. Telemedicine and AAL applications will be registered, reviewed, and classified, in order to optimize the methods in service engineering for future applications. Both telemedicine and AAL applications must be easily accessible for older people if these services are to be socially beneficial. Although both projects are mainly funded by the German government these projects perfectly fit into the Seventh Framework Programme of the European Union. The Institute for Work and Technology is part of the European Reserch Network Active Ageing of Migrant Elders across Europe. The main objective of this network is to conduct studies on active ageing and migration in European member states. The Institute for Work and Technology is also a partner of the WHO-based networks, Age-friendly Cities (AFC), and Ageing in a Foreign Land (AFL). Furthermore the Institute for Work and Technology is engaged as a scientific advisor in the Silver Economy Network of European Regions (Sen@er).

To sum up: The research of the Institute for Work and Technology is centred on the development and evaluation of new and innovative products, services and technologies for enhancing the quality of life of older people in the fields of housing and home-based services (independent living), health (care and cure), mobility and travel, culture and education.

LIST OF PARTICIPANTS

Academic partners:

Brooklyn College, New York, USA

Dundalk Institute of Technology, Ireland

Fraunhofer Institut Software und Systemtechnik(ISST), Dortmund

Institute of Gerontology, Dortmund

McCaughey Centre School of Population Health at the University of Melbourne, Australia

New York Academy of Medicine, New York, USA

Rhein-Ruhr-Institute (RISP), Duisburg

University of Bochum

University of Dortmund

Non-academic partners:

Age Concern England

Chambers of Trade and Crafts

European cities and municipalities of the WHO network Age-friendly Cities

German Federal Ministry of Education and Research

German Federal Ministry of Health

Health and Social Services Department, Istanbul Metropolitan Municipality

Ministry for Intergenerational Affairs, Family, Women and Integration of the State of North Rhine-Westphalia

Network German Health Regions

Silver Economy Network of European Regions

World Health Organisation, Geneva, Switzerland

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Ongoing projects, funded by the European Commission, German Federal Government, the Government of the State of North Rhine-Westphalia as well as third party funds and agencies.

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

The Institute for Work and Technology will continue working on age-related issues. As partners in the European research network, Active Ageing of Migrant Elders across Europe, and the WHO based network, Ageing in a Foreign Land, we will participate in future research on ageing and migration.

The development of socio-technical systems and the evaluation of technological solutions to support independent living at home will remain the main focus of our R&D in the near future. The Institute for Work and Technology is seeking to establish further contacts with European partners.

CONTACT: Institute for Work and Technology, **PD Dr. Josef Hilbert**

University of Applied Sciences Gelsenkirchen

11.1 "ROLE OF UBIQUITIN AND UBIQUITIN-LIKE MODIFIERS IN CELLULAR REGULATION" – RUBICON

ABSTRACT

RUBICON is a European Union-funded Network of Excellence that aims to establish a European forum for research upon the molecular principles and regulatory roles of protein modifications due to the linkage of ubiquitin and ubiquitin-like molecules.

RUBICON brings together investigators from different backgrounds who will work together in a multi-disciplinary effort for the discovery of novel mechanism-based therapeutic approaches to disease, such as infectious and inflammatory conditions, cancer, and neurodegenerative disorders (Alzheimer's and Parkinson's diseases).

Over the next five years, RUBICON will establish:

- Multicentre research projects that will foster the exchange of knowledge between partner labs and the integration of different disciplines.
- Virtual core facilities that will facilitate the access to specialized infrastructures in key areas such as proteomics, DNA microarrays, and structural genomics.
- A virtual repository for reagents and experimental protocols and research data that will facilitate the access to research tools and the rapid spread of scientific knowledge.
- Multidisciplinary training courses that will bring together a new generation of young researchers.
- A communications platform that will foster interactions between the research community, the pharmaceutical industry, and the general public through the RUBICON website (www.rubicon-net.org), dedicated meetings, workshops, and a teaching programme for schools.

LIST OF PARTICIPANTS

Coordination of the Network:

Karolinska Institutet, Prof. Maria Masucci, Stockholm, Sweden

Academic partners:

French National Centre for Scientific Research (CNRS), France

Georg-August University, Göttingen

Hebrew University of Jerusalem, Israel

IFOM- FIRC Institute of Molecular Oncology, Milan, Italy

Institut Pasteur, Paris, France

Karolinska Institutet, Stockholm, Sweden

Max Delbrück Center for Molecular Medicine (MDC), Berlin

Max Planck Society for the Advancement of Science

MRC Human Genetics Unit, Edinburgh, United Kingdom

Technion-Israel Institute of Technology, Haifa, Israel

The Netherlands Cancer Institute, Amsterdam, The Netherlands

University Medical Centre Utrecht, The Netherlands

University of Cologne / CECAD

University of Dundee, United Kingdom

University of Konstanz

University of Stuttgart

SMEs:

Biomol / Affiniti

Cytomics Systems

Drug Discovery Factory

Pepscan systems BV

roteologics

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: January 2006 – December 2010

Funding: 12 Mio. Euro Grant

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Establishment of an interdisciplinary network, including research institutions, clinics and industry. Building up a research pipeline from basic research to application.

- Opening of further virtual and real core facilities for special infrastructures.
- Building up a real repository for reagents, experimental protocols and research data.

CONTACT: CECAD at the Institute for Genetics, **Prof. Dr. Thorsten Hoppe**

University of Cologne

11.2 CECAD COLOGNE – CLUSTER OF EXCELLENCE: CELLULAR STRESS RESPONSES IN AGEING-ASSOCIATED DISEASES

ABSTRACT

The mission of **CECAD Cologne** is to unravel the molecular mechanisms underlying lifespan regulation and ageing-associated diseases to set the ground for achieving its long-term objective: the development of novel therapeutic interventions. **CECAD Cologne** has four core research areas:

(A) cellular stress signaling and dysfunction during ageing,

(B) senescence of membranes and age-related impairment of pathogen defense,

(C) inflammation in ageing-associated diseases, and

(D) metabolic pathways in ageing-associated diseases.

These research areas are supported by three central areas ensuring (1) access to state-of-the-art technology and model organisms, (2) coordination of education and training activities, gender equality programs, and public outreach, and (3) translation of basic to clinical research. **CECAD Cologne** has already integrated four new chairs and independent junior research groups into its ranks to complement and extend the expertise of groups currently established at the University of Cologne and the Max Planck Institute for Biology of Ageing in Cologne. Such measures make **CECAD Cologne** the first ever research centre in Europe to dedicate itself solely to discovering the underlying mechanisms of ageing along with those triggering ageing-associated diseases. It is therefore envisioned that this cluster will develop to be an internationally recognized leader at the forefront of ageing research, paving the way for the development of preventive and novel therapeutic interventions.

LIST OF PARTNERS

University of Cologne:
- Faculty of Medicine/University Clinics
- Faculty of Mathematics and Natural Sciences

Max Planck Institute for Biology of Ageing, Cologne

The integration of further partners especially from industry is planned.

Prof. Dr. Jens Brüning, the coordinator of CECAD *Photo: Oliver Schmauch*

New CECAD Laboratory Building (planning state June 2009) (Medfacilities GmbH, Cologne and gmp Generalplanungsgesellschaft mbH, Aachen)

PROJECT START, DURATION AND FUNDING

Funded through the DFG within the Excellence Initiative of German federal and state governments:

Project: November 2007 – October 2012

Funding: 34,2 Mio. Euro

Investments for new buildings - funded through the German state government and the federal state of North Rhine-Westphalia: 96,1 Mio. Euro, thereof for the new CECAD Laboratory Building: 85,1 Mio. Euro (Project period: November 2007 - December 2012).

Furthermore, extra funding through the University of Cologne.

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

- Establisment of an interdisciplinary network, including research institutions, clinics and industry.
- Building up a research pipeline from basic research to application.
- Opening of further core facilities for special infrastructures.
- Integration of other scientific areas (e.g. human and social sciences) into ageing research.

CONTACT: CECAD at the Institute for Genetics, **Prof. Dr. Jens Brüning, Dr. Christopher Schippers**

University of Cologne

12.1 CONNECT CREATIVITY – SHAPING THE WAY WE WILL LIVE AND WORK 2020

ABSTRACT

Targeted development of tomorrow's products requires an in-depth study of trends and the long-term changes in both markets and the general environment. Leading companies in various industries have combined forces to establish the "future_bizz" network as a broad platform for jointly developing business concepts for tomorrow's lifestyle, both inside and outside the workplace. In Connect Creativity, an international and interdisciplinary team of science and industry partners have presented innovative and real-world product ideas for life in the year 2020. Their aim is to generate new ideas for applications, based on sound future scenarios in defined sectors, and eventually to develop new products.

Ageing society's needs have been one focus of the work using the example of the Silver Business Generation: How does the successful 70- year-old "young" senior organize his life and his living space?

PICKNICKER is a portable multifunctional furniture for the Silver Business Generation, a folding table for both home use and on the go; the FITNESSBOX can be used for individual sport at home especially in the cities; with its projection walls it is adapting flexibly to the needs of the runner – the ideas result in positive and usable impetus for future product development. After less than five months, the project has resulted in positive, creative and viable ideas. Selected concepts have already been taken to the pre-development stage.

A particularity of the project is the interdisciplinary exchange and collaboration of the universities in combination with the inter-company cooperation and support. Creating a network of universities from different academic fields – such as art, design, architecture and interior architecture – has proved to be a big plus, beyond the capacity of a single company to deliver comparable quality in such a short time span. In conclusion, interdisciplinary networking has proved to be a win-win project for universities, students and industrial partners alike.

LIST OF PARTICIPANTS

Coordination of the network:

Dr. Friedhelm Böttcher, Burgweg 13, 65779 Kelkheim

Cooperating universities:

Ostwestfalen-Lippe University of Applied Sciences

Technical University Dortmund

University of Applied Sciences Cologne

University of Applied Sciences Pforzheim

University of Applied Sciences Coburg

University of Applied Sciences Halle

Technical University Braunschweig

Cooperating companies:

Henkel AG & Co. KGaA

Bayer MaterialScience AG

Duravit AG

REHAU AG + Co.

Grohe AG

Hettich International

Böttcher Consulting

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: March 2008 – March 2009

Total costs: 100,000 Euro

The project was organized by future_bizz and financed and supported by the participating companies Henkel, Bayer MaterialScience, Duravit, Rehau, Grohe, and Hettich International.

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

The current scenarios have basically been developed for the German and central European market. There is a strong need to investigate the requirements of further product development for the global market. More complex urban and spatial concepts should be developed in a common research project for different target groups in the Ageing Society - taking into consideration not only social changes, but also the urban and architectonical framework for living and working. The existing interdisciplinary network should be established on a European level with further institutions.

The projection walls are adapting flexibly to the needs of the user: Beach or Forest.

CONTACT: Detmolder Schule für Architektur und Innenarchitektur, **Prof. Dr.-Ing. Uta Pottgiesser**

13.1 SEVERAL PROJECTS CONCERNING THE EFFECTS OF DEMOGRAPHIC CHANGE (BASIC RESEARCH PROJECTS). E.G.: FIT FOR 2025

ABSTRACT

Based on several applied research projects over the past 13 years in the field of demographic change (especially the influence of the job market and the role of smaller and medium-sized enterprises), the project has started to implement solutions for outmoded personnel policies and organizational development in the handicraft sector. Ergonomically, the current demographic change presents challenges to personnel policy and work design if they are to improve the employment opportunities of elder workers.

Organisational development, especially in personnel policy and job design, is permanently confronted with the task of creating health and age-related work organizations while, at the same time, including the maintenance and upgrading of available personnel qualifications, motivations, work abilities, and the innovative capacity of the company.

The main aim of the project is the analysis of supported implementation and evaluation of developed modular human resource management models for the craft trade sector oriented towards a successful recruitment, retention and employability of employees up to the statutory retirement age.

LIST OF PARTICIPANTS

ISF München,

Systemkonzept Köln

GhT Braunschweig

GfaH Dortmund

iso Saarbrücken

University of Bremen

University of Hamburg

University of Darmstadt

German Centre of Gerontology (DZA)

German Electrical and Electronic Manufacturers' Association (ZVEI)

German Engineering Federation (VDMA)

Federal Institute for Occupational Safety and Health (BAuA)

IG Metall (trade union)

German Social Accident Insurance (DGUV)

Bundesvereinigung dt. Arbeitgeberverbände (BDA)

Federal Institute for Vocational Education and Training (BIBB)

Central Office of Craft and Trade (ZDH)

Chambers of Crafts and Trades (HWK)

SMEs

Partners in Fit for 2025:

West German Chambers of Crafts and Skilled Trades' Council (WHKT)

Augenoptikerverband NRW

Fachverband Metall NW

Baugewerbliche Verbände Nordrhein

Fachverband Sanitär Heizung Klima NRW

Fachverband des Tischlerhandwerks NW

Fachverband Elektro- und Informationstechnische Handwerke Nordrhein-Westfalen

Landesinnungsverband für das Zahntechniker-Handwerk NRW

SMEs

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Basic research projects: 1996 - 2005, approx. 4 Mio. Euro

Federal Ministry of Education and Research (BMBF)

Fit for 2025: December 2007 - March 2010, funding 250,000 Euro

Ministry for Intergenerational Affairs, Family, Women and Integration (MGFFI NRW)

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

- Compare and evaluate different national approaches to the upgrading of employees' working abilities, especially in small and medium-sized enterprises.
- Develope an international interdisciplinary framework for local strategies that help small and medium-sized enterprises deal with the challenges of demographic change.

A.U.G.E. INSTITUT

FIT FÜR 2025

CONTACT: Institute of Human Engineering and Human Resource Management, **Prof. Dr. Lutz Packebusch**

14.1 RESEARCH CENTRE "DEMOGRAPHIC CHANGE: INDIVIDUAL, ENTREPRENEURIAL AND SOCIAL CHALLENGE OF AN AGEING POPULATION"

ABSTRACT

Transition from working life to retirement entails rapid socio-cultural and psycho-social changes. The classification of one`s curriculum vitae into job training, professional life and retirement blurs and peoples résumés become more flexible / adjustable.

The work of the interdisciplinary research group is based on three main questions:

1. What measures empower senior employees to stay longer in employment?
2. Which tasks, based on their longer experience, are especially suitable for older people at the end of their working life and beyond?
3. Which conditions do older people need to optimize their productivity?

The researchers will develop solutions together with individuals, public organizations and municipalities for the transition from working life into the post-professional life situation. They analyze the requirements of the different protagonists who participate in this process. This requires the combination of health science, psycho-social, economical and socio-political approaches: The focus is on a multidisciplinary approach.

LIST OF PARTICIPANTS

Berlin School of Economics

Cologne University of Applied Sciences

City of Münster

Münster Chamber of Commerce

Münster Chamber of Skilled Crafts and Small Businesses

Marie-Luise and Ernst Becker Foundation

Alexianer Hospital Münster GmbH

Johanniter-Unfall-Hilfe e.V.

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project start: January 2006

Permanent project/research centre

In-house funding by Münster University of Applied Sciences (total costs 24 Million Euro)

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

- Establish an interdisciplinary network with other universities, organisations and municipalities.
- Editing the subject to be included in the curriculum.

CONTACT: Research Centre "Demographic Change", **Prof. Dr. Henner Hentze**

Münster University of Applied Sciences

14.2 MIAS – EUREGIO PLATFORM FOR MEDICAL TECHNOLOGY INNOVATION FOR AN AGEING SOCIETY

ABSTRACT

The aim of this project is to further develop existing transnational cooperation, facilitating transfer of knowledge in the field of medical technology.

The core objective of the project is to promote the development of new products, processes and services in enterprises.

The project is divided into two parts:

1. Construction of a transnational innovative medical technology platform and
2. specific promotion of cooperative projects between SMEs and research establishments (S&B, B&S)

An innovation platform to promote

a) the transnational transfer of technology and knowledge,

b) transnational clustering in the field of medical technology and

c) the further transnational networking of research and development establishments.

The platform aims at linking the individual activities and needs for innovation on the demand side (companies, clinics) and the supplier side (R&D establishments), and at promoting transnational cooperation at the various levels of collaboration.

From this platform, the main issues of cooperation are to be developed and advanced, and specific cooperative projects between enterprises and R&D establishments are to be initiated. The platform's activities will be coordinated and widely publicised by a network manager. Drawing on previous experience from the TIMP project, the specific activities comprise the establishment/advancement of focus groups, the realisation of topical workshops and symposia and the support of the cluster by external consultants (business development).

Secondly, the project specifically promotes three cooperative projects between SMEs and R&D establishments:

1. "Laser Micromachining for Medical Technology"

(Informing SMEs about innovative possibilities of laser micromachining in medical technology, advising individual enterprises, industrial research with companies).

2. "Active Assistive Devices" aims at supporting elderly people in performing their everyday activities independently. It involves the development of medical-technical products that offer individually controllable support through intelligent technology.

3. "Active Therapeutic Devices" entails the development of new therapeutic devices for the recovery of upper limb function following neurological impairment (e.g. stroke patients).

LIST OF PARTICIPANTS

Fachhochschule Münster (Laserzentrum der Fachhochschule Münster), Indes BV, Roessingh Research and Development (RRD), Innotronic GmbH, Use-lab GmbH, Handicare, JoyinCare, Universiteit Twente, Demcon Twente BV, tic Medizintechnik, OOST NV, Stichting TIMP

Netherlands: Indes, RRD, Handicare, JoyinCare, Universiteit Twente, Demcon Twente BV, OOST, Stichting TIMP

Germany: Innotronic, Use-lab, tic

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project:	July 2008 – June 2012
Funding:	2,9 Mio. Euro by EU
Nordrhein-Westfalen:	898,862.60 €
Provinz Overijssel:	898,862.60 €
Regional funds	
public:	715,448.62 €
private:	1,411,651.96 €
Total cost:	6,919,650.53 €

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

This project is based on measures previously funded within INTERREG in the field of medical technology/health care (e.g. TIMP-Transnational Initiative for Medical Productdevelopment EUREGIO, EUREGIO Laser Demonstration Centre, ECE:AIM; People-to-people project "Application cluster sensors and diagnostics"). The individual projects, which in the past have not been closely linked together, will contribute to an effective transfer of knowledge and technology by combining established capacities. Cooperation between the regional actors within an innovation platform should enhance and promote clustering in the region. Transnational collaboration is to be further strengthened.

Münster University of Applied Sciences

CONTACT: Transferagentur der Fachhochschule Münster GmbH, **Stephanie Koch**

15.1 THEORY AND POLITICS OF NATION STATES' OLD-AGE PROVISION IN TIMES OF GLOBALIZATION AND DEMOGRAPHIC CHANGE

ABSTRACT

The research works of Dr. Tim Krieger, assistant professor of International Economic Policy, clearly demonstrate the consequences of demographic change and globalization to the institutions of nation states, especially to their pension schemes. The main question is why the structure of pension schemes changes over time, particularly why it has become less redistributive intra-generationally (as has been shown empirically)? At first sight, two alternative reasons can be identified: firstly, a harmful international systems competition (in terms of social dumping) and secondly, a change of preferences for redistribution. Theoretical, as well as experimental research, is used to better explain the observed developments in terms of changing preferences – particularly in connection with politico-economic explanations.

LIST OF PARTICIPANTS

University of Bremen, Prof. Dr. Stefan Traub, Bremen

Fraunhofer-Institut for Applied Information Technology,
Dr. Sven Stöwhase, research group MIKMOD, St. Augustin

Research promotion:
The German Federal Pension Insurance's Research Network on Pensions (FNA) funded the project of Dr. Tim Krieger under the title "An experimental investigation of preferences for redistribution in social security systems" in the year 2008.

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

The main project is finished. Further project applications are in preparation.

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

There is a need for international comparisons with respect to preferences for redistribution; therefore, similar experimental studies should be conducted in other EU-countries. From a theoretical, institutional and empirical perspective, the need for pan-European harmonization of pension systems should be investigated, given existing national differences in pension schemes and in preferences for redistribution as well as increasing mobility of workers.

Junior Prof. Dr. Tim Krieger (left), Prof. Dr. Stefan Traub (right)

CONTACT: Faculty of Business Administration, Economics and Business Computing, **Junior Prof. Dr. Tim Krieger**

15.2 MUSICAL LEARNING ABILITY OF OLD HEALTHY PERSONS AND PERSONS WHO ARE SUFFERING FROM ALZHEIMER'S DISEASE

ABSTRACT

Music accompanies people for their whole life. But the contribution of music or musical activity to life satisfaction and to healthiness in old age has not yet been researched in detail. Particularly, the effect of music on the development and the progression of Alzheimer's disease needs to be analyzed in greater detail. Before Alzheimer's disease becomes manifest, musical activity as a cognitive reserve strategy can have a protective effect. If a human being is affected with dementia, music can contribute to non-linguistic communication and to maintaining life satisfaction and well-being. Until now, the subjects of music and seniority, or music and Alzheimer's disease have been especially analyzed in a music therapeutical context. Learning abilities of old people will be studied in the present research.

The first step has been realized within a dissertation work by Astrid Söthe-Röck. In this work, fundamental abilities dealing with responses to short musical rhythms of healthy old people, slightly diseased persons and a young control group have been analyzed.

In the next step, differences in the execution of musical tasks between healthy old people, people suffering Alzheimer's disease and young participants are specified in greater detail. For this research imageing methods are used.

In particular, protective factors of musical activities in healthy old ages are to be analyzed in the future. In 2008, Heiner Gembris created a huge data base with an extensive questionnaire study with senior orchestras. Cooperation between the institutions will be intensified in the future.

LIST OF PARTICIPANTS

Project Partners:

Hospital of the University of Heidelberg,
Prof. Dr. Johannes Schröder, Dept. of Psychogeriatrics, Heidelberg

German Cancer Research Centre (DKFZ),
Prof. Dr. Marco Essig, Radiology, Heidelberg

NAR (Network Ageing Research),
University of Heidelberg and partners:
http://www.nar.uni-heidelberg.de

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Essential research objectives:

- The contribution and advantages of music for healthy and satisfied ageing.
- The possibilities and limits of music therapy before dementia sets in and during the progression of dementia.

Working objectives:

- To establish a strong connection between the research and geropsychiatric and gerontologic expertise.
- Imaging methods are included.
- High interdisciplinarity.
- To emphasise the network operation.

Prof. Dr. Heiner Gembris

CONTACT: Institute for Research on Musical Ability (IBFM), **Prof. Dr. Heiner Gembris, Astrid Söthe-Röck, M.A.**

16.1 THE LONGITUDINAL DEMENTIA CAREGIVER STRESS STUDY (LEANDER)

ABSTRACT

This study aimed initially at the development of a theory-driven, multidimensional inventory of care-giving stress. Secondly, the care-giving process was documentated over a period of 36 months based on a longitudinal design with 5 points of measurement, in order to provide a differential description of various caregiver subgroups. Third, different caregiver interventions were evaluated (e.g. day care, support groups). Fourth, the resulting inventory was transmitted into praxis in order to enable institutions to evaluate and improve the quality of their work.

The Berlin Inventory of Caregiver Stress (BIZA-D) consists of 23 subscales with 88 items. The inventory has proven to be reliable, valid and sensitive towards change. Meanwhile, this inventory has been used in many studies in Germany, Austria, Switzerland, and Luxembourg. The longitudinal study started with 888 subjects who were investigated at five measurement points over 36 months. An educational program for institutions was successfully established.

LIST OF PARTICIPANTS

Deutsches Institut für angewandte Pflegewissenschaften Köln

German Universities:
Bremen, FU Berlin, TU Dresden, Hamburg, Heidelberg, Jena

European Universities: Luxembourg, Klagenfurt, Vienna, Zuerich
Penn State University, USA

Approximately 50 institutions
(nursing homes, day-care, social services)

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: 2002 - 2009

Funding: 800,000 Euro

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

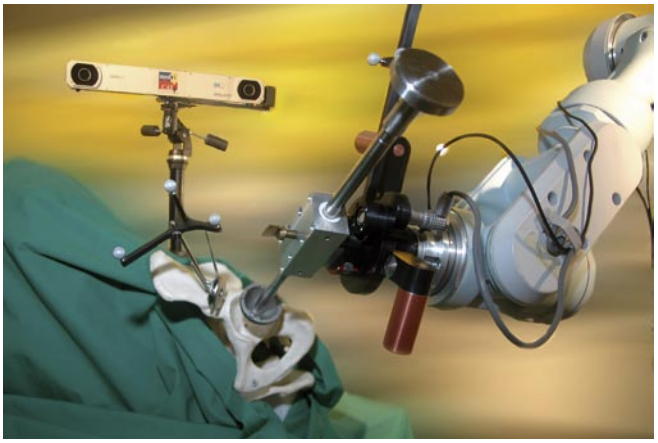
Translating the inventory into different European languages in order to further investigate the caregiver burden and to evaluate differential needs for support.

CONTACT: Chair of Clinical Psychology, **Prof. Dr. Susanne Zank**

16.2 modiCAS – A FLEXIBLE, INTERACTIVE MECHATRONIC ASSISTANCE SYSTEM FOR SURGICAL INTERVENTIONS

ABSTRACT

The modiCAS system represents an integral solution for computer and robot-assisted surgery. It has been developed during the past years at the Centre For Sensor Systems, University of Siegen. Based on a patented technology that combines navigation and robotics, the system facilitates instrument positioning and alignment exactly according to preoperative planning. Interactive operating modes and advanced haptic features enable the surgeon to have complete control over the intervention. The system has already been tested successfully in the OR and supports new surgical techniques such as minimal or less invasive surgery in various areas.



Implantation of an artificial hip joint using the modiCAS assistance system

LIST OF PARTICIPANTS

In the course of this multidisciplinary project cooperations with various partners at different locations have been established.

Clinical partners (surgeons of different surgical disciplines) in Frankfurt, Tübingen, Leipzig, Hannover, Berlin

Medical companies in Nürnberg, Tuttlingen, Barbing/Regensburg, Leeds (UK)

Robot manufacturers in Dortmund, Augsburg and Kobe (Japan)

Scientific research partners in Berlin, Leipzig, Karlsruhe, Frankfurt

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

The project was started after reception of the first grant in September 2000. It has been supported by funding of different public and industrial sources, including BMWA (German Ministry for Economy and Labour), BMBF (Federal Ministry of Education and Research), DFG (German Research Association), grants from industrial companies. From 2001 – 2008 a total funding of appr. 1,65 Mio. Euro has been received.

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

The modiCAS surgical assistance system is well suited for supporting excellent, state-of-the-art treatment of elderly people. Two main application areas are of particular importance.

a) Robotic support for surgical interventions, e.g. for total joint replacement procedures (in Germany, more than 250,000 artificial hip and knee joints are implanted per year), but also for neurosurgical procedures (the focus of our research activities thus far).

b) Robotic support of rehabilitation procedures (additionally planned research).

Plans exist to set up new research consortia composed of European partners to combine the modiCAS solution with other technologies in order to exploit its potential in the best and most efficient way.

CONTACT: Centre for Sensor Systems, **Dr.-Ing. Jürgen Wahrburg**

17.1 DEMOGRAPHIC CHANGE IN THE WUPPERTAL REGION "BERGISCHES LAND"

ABSTRACT

In this project, the consequences of the demographic change for the Wuppertal Region "Bergisches Land" shall be surveyed and possible solutions shall be developed. It is organised as a post graduate programme. The first three doctorands are engaged with the following issues:

1) Dipl.-Ing. Stefanie A. Kötting surveys the impacts of the demographic change on the residential real estate values. Hereby opportunities for a better derivation of marketable standard ground values shall be created. It is thereby of particular interest whether under these circumstances young families and elderly people can be motivated to remigrate into the city.

2) Dipl.-Ing. Architektin Monica A. Schulte Strathaus examines the changes for schools and homes for the elderly which arise from ageing of the population and its numeral decline. An important aspect thereby is the question whether private investors and operators can e. g. in Public Private Partnerships (PPPs) contribute to a provision of high quality schools and social facilities.

3) Dipl.-Ing. Ralf Seidenspinner is concerned with the municipal public road infrastructure. On the one hand, there are escalating investment needs; on the other hand, local budgets are "empty". The consequence is a delay in urgent building operations that leads to deterioration in the state of the roads. In the future the situation may be aggravated due to demographic change. The target of this work is to generate better financing and organisational models that might ameliorate the situation. As such, the current means of providing infrastructure will be analysed and optimised, and new models will be developed.

LIST OF PARTICIPANTS

University of Wuppertal

City of Wuppertal

North Rhine-Westphalian Ministry of Transport and Building

Wuppertal Institute for Climate, Environment and Energy

Dr. Werner Jackstädt-Stiftung (foundation), Wuppertal

Economic Tri-city-area Remscheid-Solingen-Wuppertal

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: November 2007 – November 2010

Funding: 120,000 Euro by the Foundation "Dr. Werner Jackstädt-Stiftung"

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

The range of topics will be extended to other fields affected by demographic change, like technical infrastructures, sewerage etc.

GRADUIERTENKOLLEG
Demografischer Wandel im Bergischen Land
Bergische Universität Wuppertal

University of Wuppertal

17.2 HEALTH AND WORK ABILITY AMONG OLDER NURSES

ABSTRACT

Ongoing demographic change in the Western world and, in particular, Europe, is causing several challenges and problems for the nursing profession. Currently the nursing profession lacks nurses and many nurses are leaving their profession prematurely. At the same time more and more older people are in need of care.

In most European countries the active nursing profession is growing older. Many employers as well as the public are prejudiced about the work capabilities of older workers. In nursing, these prejudices predominantly concern reduced physical capacity, less flexibility and more absence due to sickness. On the other hand, social interaction skills are usually expected to be better in older workers. Nursing is a highly demanding profession with respect to both emotional and physical demands. Furthermore, the nursing profession is known to be at higher risk of adverse psychological health than other professions.

The underlying question is: Is nursing possible at an older age?

This question is currently being systematically investigated taking advantage of two unique existing epidemiological data bases: the large longitudinal European NEXT-Study (www.next-study.net, questionnaire data from 56,000 nurses in 11 European countries) and the 3Q-Study (www.3q.uni-wuppertal.de, 3 wave prospective investigation from > 50 nursing homes in Germany).

LIST OF PARTICIPANTS

University of Wuppertal, Prof. Hans Martin Hasselhorn, Prof. Bernd Müller (Coordinators) Empirical Work Research Group, Institute for Safety Engineering, Wuppertal

Berufsgenossenschaft für Gesundheitsdienst und Wohlfahrtspflege, BGW (insurance association) Hamburg

Johanniter GmbH, Berlin

Université Catholique de Louvain, Professor William D'Hoore (Coordinator WOQUAL), Brussels, Belgium

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: 2007 - 2010 within the European NEXT-Study (2002-2006, funded by the European commission within the 5th framework programme (QLK6-CT-2001-00475)), the 3Q-Study (2007-2010), the NEXT-BGW Study (2008-2010) and the Belgian WOQUAL-Study (2008-2009).

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

Joint prospective research projects focusing on "Health and work ability among older nurses"

www.next-study.net

Prof. Dr. med. Hans Martin Hasselhorn

17.3 WORK, AGE & HEALTH" – A GERMAN COHORT STUDY

ABSTRACT

This project investigates, from an interdisciplinary perspective, the long-term effects of work on the health of the ageing working population in Germany. In this respect, it fills an important research gap, especially when considering demographic transformation in the labour market and the changes in work context brought about by social, political and economic influences. Based on work-health hypotheses, factors related to a healthy workforce, healthy ageing at work, and a healthy economy are to be investigated.

The cohort sequential study design was chosen, examining nationwide representative cohorts of 6,000 workers (and unemployed) born in 1959 or 1965. This design (known as Schaie's "Most Efficient Design") allows for a tri-factor model isolating the impact of the factors: age, cohort and time, on work-related health. Follow-ups will be made at 3-year intervals.

The survey comprises a computer-assisted personal interview covering work, work history, individual factors and health data, both subjective and objective. The individual data will be linked with existing data from social security registries (i.e. records on employment history and rehabilitation) and the individuals' health insurance claims data. In addition, a "Work and Health Matrix" of aggregated work exposure and aggregated health insurance claims data (matrix by age, gender and profession) will help to monitor the development of work and health over time in an ageing population.

LIST OF PARTICIPANTS

University of Wuppertal, Prof. Hans Martin Hasselhorn, Prof. BH Müller (project coordinators), Empirical Work Research Group, Institute for Safety Engineering, Wuppertal

Infas, Institute for Applied Social Sciences (Institut für angewandte Sozialwissenschaft), Dr. Helmut Schröder, Dr. Jacob Steinwede, Bonn

Institute for Employment Research (Institut für Arbeitsmarkt- und Berufsforschung, IAB, der Bundesagentur für Arbeit), Angela Rauch, Johanna Dornette, Stefan Bender, Dr. Mark Trappmann, Dr. Markus Promberger, Nürnberg

University of Magdeburg, Dr. Enno Swart, Institute for Social Medicine and Health Economics (ISMHE, Institut für Sozialmedizin und Gesundheitsökonomie), Magdeburg

University of Ulm, Professor Richard Peter, Institute for Epidemiology, Ulm

Professor Tage Kristensen, formerly National Research Centre for the Working Environment, Copenhagen

Professor Töres Theorell, formerly Stress Research Institute, Stockholm

PROJECT START AND DURATION, TOTAL COSTS AND FUNDING

Project: 2009 – 2014

Funding occurs within the German research programme "Longitudinal studies in health research" by the Federal Ministry of Education and Research (BMBF). The extension of the project until 2020 (4 waves) is expected.

Total Costs: ca. 6 Mio. Euro for the first 6 year period, of which approx. 4 Million Euro are contributed by the BMBF.

PERSPECTIVES, APPROACHES AND IDEAS FOR FURTHER DEVELOPMENT AT THE EU LEVEL

- Establishment of an interdisciplinary European research network on "Work, age and Health", currently an underdeveloped field in scientific research.
- Identification of relevant indicators for epidemiological monitoring and reporting on "Work, age and Health".
- Translational research for workplace health promotion and occupational health practice.

University of Wuppertal

RWTH AACHEN UNIVERSITY

RWTH Aachen University, Templergraben 55, D-52062 Aachen

Prof. Dr. med. Rolf Rossaint
Vice-Rector for Research
Phone: +49 (0)241 80-94002, Fax: +49 (0)241 80-92102
E-Mail: rossaint@rektorat.rwth-aachen.de

Dr. Regina Oertel
Department 4.0 - Office of Technology Transfer and Research Funding
Phone: +49 (0)241 80-94023, Fax: +49 (0)241 80-92122
E-Mail: regina.oertel@zhv.rwth-aachen.de

1.1, 1.2 Prof. Dr. med. Dr. rer. soc. Frank Schneider
Department of Psychiatry and Psychotherapy
Phone: +49 (0)241 80-89633, Fax: +49 (0)241 80-82401
E-Mail: fschneider@ukaachen.de
Internet: www.jara-excellence.de, www.psychiatry.ukaachen.de

1.3 Prof. Dr. phil. Martina Ziefle (Research Leader)
Communication Science; Human Technology Centre
Phone: +49 (0)241 80-25511, Fax: +49 (0)241 80-22493
E-Mail: Ziefle@humtec.rwth-aachen.de
Internet: www.humtec.rwth-aachen.de

1.4 Univ.-Prof. Dr. phil. Eva-Maria Jakobs (Project leader)
Institute of Linguistics and Communication Studies (ISK)
Textlinguistics & Technical Communication
Phone: +49 (0)241 80-96051, Fax: 49 (0)241 80-92563
E-Mail: e.m.jakobs@tk.rwth-aachen.de
Internet: http://www.tl.rwth-aachen.de

Fachhochschule Bielefeld
University of Applied Sciences

**University of Applied Sciences Bielefeld,
Kurt-Schumacher-Straße 6, D-33615 Bielefeld**

Prof. Dr.-Ing. Joachim Bahndorf
Vice-Rector for Research and Development
Phone: +49 (0)521 106-7774/38, Fax: +49 (0)521 106-7791
E-Mail: joachim.bahndorf@fh-bielefeld.de

Dr. Stefanie Terstegge
Research - Innovation - Technology Transfer (FITT)
Phone: +49 (0)521 106-3344, Fax: +49 (0)521 106-7796
E-Mail: transfer@fh-bielefeld.de

2.1, 2.2 Prof. Dr.-Ing. Ralf Hörstmeier
Department of Engineering Sciences and Mathematics
Phone: + 49 (0)521 106-7445, Fax: +49 (0)521 106-7180
E-Mail: ralf.hoerstmeier@fh-bielefeld.de
Internet: http://www.fh-bielefeld.de/fml

2.3 Prof. Dr. Christian Schröder
Department of Engineering Sciences and Mathematics
Phone: +49 (0)521 106-7391, Fax: +49 (0)521 106-7160
E-Mail: christian.schroeder@fh-bielefeld.de
Internet: http://www.fh-bielefeld.de/fb2/schroeder

2.4 Prof. Dr. Annette Nauerth, Prof. Dr. Ursula Walkenhorst
Phone: +49 (0)521 106-7436, Fax: +49 (0)521 106-7178
E-Mail: Annette.nauerth@fh-bielefeld.de,
ursula.walkenhorst@fh-bielefeld.de
Coordination: Dr. Kordula Marzinzik
Phone: +49 (0)521 106-7432
E-Mail: kompass@fh-bielefeld.de
Internet: www.kompass.fh-bielefeld.de

Universität Bielefeld

Bielefeld University, Postfach 100 131, D-33501 Bielefeld

Prof. Dr. Martin Egelhaaf
Vice-Rector for Research
Phone: +49 (0)521 106-4143/3952, Fax: +49 (0)521 106-6445
E-Mail: martin.egelhaaf@uni-bielefeld.de

Ulrike Garus
Department for Research Administration and Technology Transfer (ZFF)
Phone: +49 (0)521 106-4158/4143, Fax: +49 (0)521 106-6445
E-Mail: ulrike.garus@uni-bielefeld.de

3.1 Prof. Dr. Doris Schaeffer, Dr. Klaus Wingenfeld, Norbert Seidl, Angelika Ammann
Faculty of Health Sciences,
Department 6: Health Services Research/Nursing Science.
Nursing Research Network North Rhine-Westphalia
Phone: +49 (0)521 106-3896, Fax: +49 (0)521 106-6437
E-Mail: doris.schaeffer@uni-bielefeld.de,
klaus.wingenfeld@uni-bielefeld.de, norbert.seidl@uni-bielefeld.de,
angelika.ammann@uni-bielefeld.de
Internet: www.uni-bielefeld.de/gesundhw/english/

3.2 Prof. Dr. Doris Schaeffer, Dr. Michaela Brause, Dr. Andreas Büscher, Dr. Annett Horn
Faculty of Health Sciences, Department 6: Health Services Research/Nursing Science
Phone: +49 (0)521 106-3896, Fax: +49 (0)521 106-6437
E-Mail: doris.schaeffer@uni-bielefeld.de,
michaela.brause@uni-bielefeld.de, andreas.buescher@uni-bielefeld.de,
annett.horn@uni-bielefeld.de
Internet: www.uni-bielefeld.de/gesundhw/english/

3.3 Prof. Dr. Doris Schaeffer, Dr. Gabriele Müller-Mundt, Gunnar Geuter
Faculty of Health Sciences,
Department 6: Health Services Research/Nursing Science.
Nursing Research Network North Rhine-Westphalia
Phone: +49 (0)521 106-3896, Fax: +49 (0)521 106-6437
E-Mail: doris.schaeffer@uni-bielefeld.de, gabriele.mueller-mundt@uni-bielefeld.de, gunnar.geuter@uni-bielefeld.de

3.4 Dr. Jörg Haslbeck
Faculty of Health Sciences,
Department 6: Health Services Research/Nursing Science
Phone: +49 (0)521 106-4818, Fax: +49 (0)521 106-6437
E-Mail: joerg.haslbeck@uni-bielefeld.de
Internet: www.uni-bielefeld.de/gesundhw/ag6/mitarbeiter/haslbeck.html

universitätbonn

University of Bonn, Regina-Pacis-Weg 3, D-53113 Bonn

Prof. Dr. Jürgen von Hagen
Deputy Rector for Research and Academic Staff Development
Phone: +49 (0)228 73-9199, Fax: +49 (0)228 73-7953
E-Mail: vonhagen@uni-bonn.de

Rüdiger Mull
Department of Research Affairs
Phone: +49 (0)228 73-2210, Fax: +49 (0)228 73-992210
E-Mail: forschung@uni-bonn.de

4.1 **Prof. Dr. Georg Rudinger** ZAK
Centre for the Cultures of Ageing (ZAK)
Phone: +49 (0)228 73-4151, Fax: +49 (0)228 73-4599
E-Mail: rudinger@uni-bonn.de
Internet: www.zak.uni-bonn.de

4.2 **Dr. Michael Fuchs (IWE)**
Institute of Science and Ethics
Phone: +49 (0)228 3364-1921, Fax: +49 (0)228 3364-1950
E-Mail: fuchs@iwe.uni-bonn.de
Internet: http://www.iwe.uni-bonn.de

Prof. Dr. Georg Rudinger ZAK
Centre for the Cultures of Ageing (ZAK)
Phone: +49 (0)228 73-4151, Fax: +49 (0)228 73-4599
E-Mail: rudinger@uni-bonn.de
Internet: http://www.zak.uni-bonn.de

4.3 **Prof. Dr. Wolfgang Maier**
Department of Psychiatry and Psychotherapy
Phone: +49 (0)228 287-15723, Fax: +49 (0)228 287-16097
E-Mail: wolfgang.maier@ukb.uni-bonn.de
Internet: www.knd-demenzen.de

Ruhr-Universität Bochum, Universitätsstraße 150, D-44780 Bochum

Prof. Dr. Ulf Eysel
Vice Rector for Research
Phone: +49 (0)234 32-27045, -23849, Fax: +49 (0)234 32-14504
E-Mail: prorektor-forschung@ruhr-uni-bochum.de

Dr. Karl Grosse
rubitec - Gesellschaft für Innovation und Technologie der
Ruhr-Universität Bochum mbH
Stiepeler Strasse 129, 44801 Bochum
Phone: +49 (0)234 32-11935, Fax: +49 (0)234 32-14194
E-Mail: karl.grosse@ruhr-uni-bochum.de

5.1 **Prof. Dr.-Ing. Rainer Martin** AUDIS
Institute of Communication Acoustics, Department
of Electrical Engineering and Information Science
Phone: +49 (0)234 32-22496, Fax: +49 (0)234 32-14165
E-Mail: Rainer.Martin@rub.de
Internet: www.ika.ruhr-uni-bochum.de/index_en.htm

5.2 **Prof. Denise Manahan-Vaughan**
Medical Faculty, Department of Experimental Neurophysiology
Phone: +49 (0)234 32-22042, Fax: +49 (0)234 32-14490
E-Mail: dmv-igsn@rub.de
Internet: www.ruhr-uni-bochum.de/lmr
http://www.uku.fi/MEMOLOAD/

5.3 **Prof. Dr. Rolf G. Heinze**
Faculty of Social Science, Chair for labour and economic sociology
Phone: +49 (0)234 32-22981, Fax: +49 (0)234 32-14285
E-Mail: rolf.heinze@rub.de
Internet: www.rub.de/zuda

5.4 **Prof. Dr. Georg Schmitz**
Institute of Medical Engineering
Department of Electrical Engineering and Information Sciences
Phone: +49 (0)234 32-27573, Fax: +49 (0)234 32-14872
E-Mail: Georg.Schmitz@rub.de
Internet: www.mt.ruhr-uni-bochum.de/index-Dateien/english/index.html

Fachhochschule Dortmund
University of Applied Sciences and Arts

University of Applied Sciences and Arts Dortmund
Sonnenstr. 100, D-44139 Dortmund

Prof. Dr. Gisela Schäfer-Richter
Vice-Rector for Research, Development and Transfer
Phone: +49 (0)231 9112-101, Fax: +49 (0)231 9112-335
E-Mail: schaefer-richter@fh-dortmund.de
Internet: www.fh-dortmund.de/~schaefer-richter

Raimond Filges
Transfer Office
Phone: +49 (0)231 9112-268, Fax: +49 (0)231 9112-342
E-Mail: raimond.filges@fh-dortmund.de

6.1 **Prof. Dr. Britta Böckmann**
Institute for Medical Informatics
Phone: +49 (0)231 755-6708, Fax: +49 (0)231 755-6710
E-Mail: britta.boeckmann@fh-dortmund.de
Internet: http://www.fh-dortmund.de/de/studi/fb/4/personen/lehr/boeckmann/index.php

6.2 **Dr. Stefan Hochstadt**
Research Centre "Planning and Building the Transformation Process"
Phone: +49 (0)231 755-4445, Fax: +49 (0)231 755-4430
E-Mail: hochstadt@fh-dortmund.de,
stefan.hochstadt@master-staedtebau-nrw.de
Internet: www.demografie-im-raum.de

technische universität dortmund

TU Dortmund University, D- 44221 Dortmund

Prof. Dr. Metin Tolan
Prorector Research
Phone: +49 (0)231 755-7572, Fax: +49 (0)231 755-7579
E-Mail: prorektor_forschung@tu-dortmund.de

Michael Asche
Transfer Office
Phone: +49 (0)231 755-2425, Fax: +49 (0)231 755-2327
E-Mail: michael.asche@tu-dortmund.de

7.1 **Prof. Dr. Monika Reichert**
Faculty of Education and Sociology,
Department of Sociology, Subject Area
Social Gerontology and Life Course Research
Phone: +49 (0)231 755-2824, Fax: +49 (0)231 755-6559
E-Mail: mreichert@fb12.uni-dortmund.de
Internet: http://www.sozialegerontologie.fb12.uni-dortmund.de

7.2, 7.3 **Prof. Dr. med. Michael Falkenstein, Dipl.-Psych., Dipl.-Ing.**
Leibniz Research Centre for Working Environment and Human Factors at TU Dortmund University,
Research Group Ageing and CNS Alterations
Phone: +49 (0)231 1084-277, Fax: +49 (0)231 1084-401
E-Mail: falkenstein@ifado.de
Internet: www.ifado.de/en/research_applications/research_groups/neurophys/index.html

FH D
FACHHOCHSCHULE DÜSSELDORF
UNIVERSITY OF APPLIED SCIENCES DÜSSELDORF

Düsseldorf University of Applied Sciences
Universitätsstr., Geb. 23.31/32, D-40225 Düsseldorf

Prof. Dr. Andreas Jahr
Vice-Rector for Research and Development
Phone: +49 (0)211 81-14918
E-Mail: andreas.jahr@fh-duesseldorf.de

Prof. Dr. Reiner Hagedorn
Institut für Forschungstransfer GmbH (IFT)
Phone: +49 (0)211 81-14097,Fax: +49 (0)211 81-15389
E-Mail: reiner.hagedorn@ift-duesseldorf.de
Prof. Dr. Norbert Markowski
Phone: +49 (0)211 81-14097,Fax: +49 (0)211 81-15389
E-Mail: norbert.markowski@ift-duesseldorf.de

8.1 **Prof. Uwe J. Reinhardt MA**
Chair of Creative Writing
Head of edi Exhibition Design Institute
Düsseldorf University of Applied Sciences, Faculty of Design,
edi Exhibition Design Institute
Phone: +49 (0)211 4351-254, Fax: +49 (0)211 4351-203
E-Mail: fhd@uwejreinhardt.de
Internet: www.fh-duesseldorf.de/ujr

8.2 **Prof. Dr. Ulrich G. Schaarschmidt, Prof. Dr. Wolfgang Lux**
Düsseldorf University of Applied Sciences,
Department of Electrical Engineering
Phone: +49 (0)211 4351-334 (Schaarschmidt), -378 (Lux)
Fax: +49 (0)211 4351-303
E-Mail: aal@inflab.et.fh-duesseldorf.de
Internet: http://et.fh-duesseldorf.de, http://inflab.et.fh-duesseldorf.de

8.3 **Prof. Dr.-Ing. Reinhard Langmann, Prof. Dr.-Ing. Hartmut Haehnel**
Düsseldorf University of Applied Sciences,
Department of Electrical Engineering
Phone: +49 (0)211 4351-308, Fax: +49 (0)211 4351-303
E-Mail: reinhard.langmann@fh-duesseldorf.de,
hartmut.haehnel@fh-duesseldorf.de
Internet: www.pi-lab.de, www.hartmut-haehnel.de

HEINRICH HEINE UNIVERSITÄT DÜSSELDORF

Heinrich-Heine-University Düsseldorf,
Universitätsstraße 1, D-40225 Düsseldorf

Prof. Dr. Lutz Schmitt
Pro-Rector for Research and Innovation
Phone: + 49 (0)211 81-10773
E-Mail: lutz.schmitt@uni-duesseldorf.de

Dr. Stefanie Niemann
Research Management
Phone: +49 (0)211 81-13265, Fax: +49 (0)211 81-12422
E-Mail: Niemann@verwaltung.uni-duesseldorf.de

9.1 **Dr. Susanne Aileen Funke, Prof. Dr. Dieter Willbold**
Heinrich-Heine-University Duesseldorf, Institut of Physical Biology / Forschungszentrum Jülich, Institute of Structural Biology and Biophysics (ISB), ISB-3: Structural Biochemistry
Phone: +49 (0)2461 61-2100, Fax: +49 (0)2461 61-2023
E-Mail: A.Funke@fz-juelich.de, d.willbold@fz-juelich.de
Internet: http://www.biologie.uni-duesseldorf.de/Institute/Physikalische_Biologie

9.2 **Dr. Eva Birkmann, Prof. Dr. Dieter Willbold**
Heinrich-Heine-University Duesseldorf, Institut of Physical Biology / Forschungszentrum Jülich, Institute of Structural Biology and Biophysics (ISB), ISB-3: Structural Biochemistry
Phone: +49 (0)2461 61-2100, Fax: +49 (0)2461 61-2023
E-Mail: birkmann@uni-duesseldorf.de, d.willbold@fz-juelich.de
Internet: http://www.biologie.uni-duesseldorf.de/Institute/Physikalische_Biologie

9.3 **Dr. Susanne Aileen Funke, Prof. Dr. Dieter Willbold**
Heinrich-Heine-University Duesseldorf, Institut of Physical Biology / Forschungszentrum Jülich, Institute of Structural Biology and Biophysics (ISB), ISB-3: Structural Biochemistry
Phone: +49 (0)2461 61-2100, Fax: +49 (0)2461 61-2023
E-Mail: A.Funke@fz-juelich.de, d.willbold@fz-juelich.de

9.4 **Prof. Dr. Jean Krutmann**
Institute of Molecular Preventive Medicine at the Heinrich-Heine-University Düsseldorf (IUF, gGmbH)
Phone: +49 (0)211 3389-0, Fax: +49 (0)211 31909-10
E-Mail: krutmann@uni-duesseldorf.de
Internet: http://www.iuf.uni-duesseldorf.de/SFB728/start.htm

Fachhochschule Gelsenkirchen

University of Applied Sciences Gelsenkirchen
Neidenburger Str. 43, D-45877 Gelsenkirchen

Prof. Dr. Michael Brodmann
Vice-President Research and Development
Phone: +49 (0)209 9596-355, Fax: +49 (0)209 9596-357
E-Mail: vizepraesidenten@fh-gelsenkirchen.de
Internet: http://www2.fh-gelsenkirchen.de/FH-Sites/FH-Main/index.php?id=1625

Dr. Elisabeth Birckenstaedt
Technology Transfer Office
Phone: +49 (0)209 9596-463, Fax: +49 (0)209 9596-563
E-Mail: elisabeth.birckenstaedt@fh-gelsenkirchen.de
Internet: www.fh-gelsenkirchen.de/technologietransfer

10.1 PD Dr. Josef Hilbert
University of Applied Sciences Gelsenkirchen
Institute for Work and Technology
Phone: +49 (0)209 1707-120, Fax: +49 (0)209 1707-140
E-Mail: hilbert@iat.eu
Internet: www.iat.eu

University of Cologne

University of Cologne, Albertus-Magnus-Platz, D-50923 Cologne

Prof. Dr. Thomas Krieg
Pro-Rector for Research
Phone: +49 (0)221 470-4501
E-Mail: thomas.krieg@uni-koeln.de

Joachim Zielinski
Third-party Funds and Research Transfer
Phone: +49 (0)221 470-4380, Fax: +49 (0)221 470-5279
E-Mail: j.zielinski@verw.uni-koeln.de

11.1 Prof. Dr. Thorsten Hoppe
CECAD Cologne at the Institute for Genetics
Phone: +49 (0)221 470-1503, Fax: +49 (0)221 470-3402
E-Mail: thorsten.hoppe@uni-koeln.de
Internet: http://www.genetik.uni-koeln.de/groups/Hoppe

11.2 Prof. Dr. Jens Brüning, Dr. Christopher Schippers
CECAD Cologne at the Institute for Genetics
Phone: +49 (0)221 470-2465, Fax: +49 (0)221 470-1632
E-Mail: jens.bruening@uni-koeln.de, c.schippers@uni-koeln.de
Internet: www.exzellenzcluster.uni-koeln.de

Hochschule Ostwestfalen-Lippe
University of Applied Sciences

Ostwestfalen-Lippe University of Applied Sciences
Liebigstraße 87, D-32657 Lemgo

Prof. Dr.-Ing. Uta Pottgiesser
Vice-President for Research & Transfer and International Relations
Phone: +49 (0)5261 702-215, Fax: +49 (0)5261 702-223
E-Mail: uta.pottgiesser@hs-owl.de

Anke Serr
Research Office
Phone: +49 (0)5261 702-5922, Fax: +49 (0)5261 702-223
E-Mail: anke.serr@hs-owl.de

12.1 Prof. Dr.-Ing. Uta Pottgiesser
Detmolder Schule für Architektur und Innenarchitektur
Phone: +49 (0)5231 769-653, Fax: +49 (0)5231 769-682
E-Mail: uta.pottgiesser@hs-owl.de
Internet: http://www.hs-owl.de/fb1/studium/lehrgebiete

Hochschule Niederrhein
University of Applied Sciences

Niederrhein University of Applied Sciences
Reinarzstraße 49, D-47805 Krefeld

Prof. Dr. Wilhelm Mülder
Vice-President for Research and Transfer
Phone: +49 (0)2151 822-1502
E-Mail: vizepraesident-II@hs-niederrhein.de

Markus Menkhaus-Grübnau
Research Coordinator
Phone: +49 (0)2151 822-1521
E-Mail: Markus.Menkhaus@hs-niederrhein.de

13.1 Prof. Dr. Lutz Packebusch
Institute of Human Engineering and
Human Resource Management
Phone: +49 (0)2151 822-6625, Fax +49 (0)2151 822-6631
E-Mail: lutz.packebusch@hs-niederrhein.de
Internet: http://www.iap-institut.de, http://www.auge-institut.de

Fachhochschule Münster University of Applied Sciences

Münster University of Applied Sciences
Hüfferstraße 27, D-48149 Münster

Prof. Dr.-Ing. Karl-Richard Korff
Vice-President for Teaching, Research and Continuing Education
Phone: +49 (0)251 83-64052
E-Mail: praesidium@fh-muenster.de

Carsten Schröder
Director of Knowledge Transfer and Partnerships
Phone: +49 (0)251 83-64600, Fax: +49 (0)251 83-64699
E-Mail: schroeder@fh-muenster.de

14.1 Prof. Dr. Henner Hentze
Research Center "Demographic Change"
Phone: +49 (0)251 83-65607, Fax: +49 (0)251 83-65502
E-Mail: hentze@fh-muenster.de
Internet: https://www.fh-muenster.de/forschung/forschungskatalog/fsp.php?fsp_id=26

14.2 Stephanie Koch
Transfer Agency Münster
Phone: +49 (0)251 83-64603, Fax: +49 (0)251 83-64699
E-Mail: koch@transfer.fh-muenster.de

UNIVERSITÄT PADERBORN
Die Unternehmer der Informationsgesellschaft

University of Paderborn, Warburger Str. 100, D-33098 Paderborn

Prof. Dr. Wilhelm Schäfer
Vice-President for Research and Young academics
Phone: +49 (0)5251 60-3313, Fax: +49 (0)5251 60-3530
E-Mail: wilhelm.schaefer@uni-paderborn.de

Bernd Seel
Technology and Knowledge Transfer UNICONSULT
Phone: +49 (0)5251 60-2804/-2076, Fax: +49 (0)5251 60-2077
E-Mail: transfer@upb.de

15.1 Junior Prof. Dr. Tim Krieger
Faculty of Business Administration,
Economics and Business Computing
Fakultät Wirtschaftswissenschaften
Department Economics Junior Prof. Dr. Tim Krieger
Phone: +49 (0)5251 60-2117, Fax: +49 (0)5251 60-5005
E-Mail: tim.krieger@notes.upb.de
Internet: wiwi.upb.de/www/fb5/WiWi-Web.nsf/id/F5B6629A1F8C87AAC12571380037F549

15.2 Prof. Dr. Heiner Gembris, Astrid Söthe-Röck, M.A.
Institute for Research on
Musical Ability (IBFM)
Phone: +49 (0)5251 60-5210, Fax: +49 (0)5251 60-5209
E-Mail: heiner.gembris@uni-paderborn.de
Internet: http://groups.uni-paderborn.de/ibfm/

UNIVERSITÄT SIEGEN

University of Siegen, Herrengarten 3, D-57072 Siegen

Prof. Dr.-Ing. Peter Haring Bolivar
Vice-Rector for Research Advancement and Junior Scientist Programmes
Phone: +49 (0)271 740-2157, Fax: +49 (0)271 740-2410
E-Mail: peter.haring@uni-siegen.de

Frank Ermert
Research Transfer Office
Phone: +49 (0)271 740-4900, Fax: +49 (0)271 740-4904
E-Mail: frank.ermert@uni-siegen.de

16.1 Prof. Dr. Susanne Zank
Chair of Clinical Psychology
Phone: +49 (0)271 740-4490, Fax: +49 (0)271 740-4555
E-Mail: zank@psychologie.uni-siegen.de
Internet: www.uni-siegen.de/fb2/zank/

16.2 Dr.-Ing. Jürgen Wahrburg
Center for Sensor Systems
Phone: +49 (0)271 740-4442, Fax: +49 (0)271 740-2336
E-Mail: wahrburg@zess.uni-siegen.de
Internet: www.zess.uni-siegen.de/modicas

BERGISCHE UNIVERSITÄT WUPPERTAL

University Wuppertal, Gaußstr. 20, D-42119 Wuppertal

Prof. Dr.-Ing. Petra Winzer
Pro-Rector IV - Transfer and International Relations
Phone: +49 (0)202 439-3940
E-Mail: prorektor4@uni-wuppertal.de

Dr. Peter Jonk
Knowledge Transfer Office
Phone: +49 (0)202 439-2857, Fax: +49 (0)202 439-3205
E-Mail: jonk@uni-wuppertal.de

17.1 Univ.-Prof. Dr.-Ing. Felix Huber
Institute of Urban Studies and Sustainable
Infrastructure Planning, University of Wuppertal
Phone: +49 (0)202 439-4112, Fax: +49 (0)202 439-4220
E-Mail: huber@uni-wuppertal.de
Internet: http://www.graduiertenkolleg.uni-wuppertal.de/

17.2, 17.3 Prof. Dr. med. Hans Martin Hasselhorn, Prof. Dr.-Ing. Bernd Hans Müller
Institute of Safety Technology, Empirical Work Research Group
Phone: +49 (0)202 439-2123, Fax: +49 (0)202 439-3828
E-Mail: hasselhorn@uni-wuppertal.de, bmueller@uni-wuppertal.de

NAME - INDEX

NAME, PROJECT NO. (PAGE)

SUBJECT – INDEX

KEYWORDS, PROJECT NO. (PAGE)

SUBJECT – INDEX

KEYWORDS, PROJECT NO. (PAGE)

NRW INNOVATION ALLIANCE

Aachen University of Applied Sciences

RWTH Aachen University

University of Applied Sciences Bielefeld

Bielefeld University

Bochum University of Applied Sciences

Evangelische Fachhochschule Rheinland-Westfalen-Lippe
University of Applied Sciences

University of Bonn

University of Applied Sciences Bonn-Rhein-Sieg

University of Applied Sciences and Arts Dortmund

Hochschul-Transfergesellschaft Dortmund mbH

TU Dortmund University

University of Duisburg-Essen

Düsseldorf University of Applied Sciences

Institut für Forschungstransfer GmbH (IFT)

University of Düsseldorf

University of Applied Sciences Gelsenkirchen

Rhine-Waal University of Applied Sciences

Cologne University of Applied Sciences

KoelnTech Gesellschaft für angewandte Forschung mbH

Catholic University of Applied Sciences (KatHO NRW)

Rheinische Fachhochschule Köln University of Applied Sciences

Ostwestfalen-Lippe University of Applied Sciences

Münster University of Applied Sciences

Transferagentur der Fachhochschule Münster GmbH

University of Münster

South Westphalia University of Applied Sciences

Niederrhein University of Applied Sciences

University of Paderborn

University of Siegen

University Wuppertal

Forschungstransfer-Stelle kirchlicher Fachhochschulen in NRW e.V.

NRW INNOVATION ALLIANCE – KNOWLEDGE PROMOTES PROGRESS

North Rhine-Westphalia (NRW) aims to become Germany's number one Innovation State. Cooperation between science and industry is crucial in achieving this objective. Transfer processes contribute towards creating effective synergy, thereby fully exploiting existing potential - on both sides. The NRW Innovation Alliance offers companies and other institutions a platform linking R&D to the respective application so that an effective and purposeful knowledge transfer may be realised between research institutes and their partners.

The NRW Innovation Alliance, founded in January 2007, was initiated and is supported by its 26 member universities with a view to developing innovation transfer, as well as opening up more to cooperation and networking. A major objective is to give North Rhine-Westphalia's universities a clearly more important role within the framework of EU support programmes.

Universities in North Rhine-Westphalia have outstanding research competences. This enables the Alliance to provide the national and international partners with a broad spectrum of R&D services. The NRW Innovation Alliance pools the knowledge of its member universities.

Today, numerous exchange processes and activities are proof that good cooperation leads to sustainable and successful outcomes. Based on this experience, the NRW Innovation Alliance guarantees common quality standards, which are met by all universities.

These standards provide the framework for new projects emerging throughout the state of North Rhine-Westphalia, and encourage progress for a further development and professionalisation of transfer activities. At present and in future, companies and other institutions have and will continue to have a reliable partner providing certainty and building confidence among the parties involved.

InnovationsAllianz
DER NRW-HOCHSCHULEN E.V.

IMPRINT

EDITOR

NRW Innovation Alliance

InnovationsAllianz der NRW-Hochschulen e.V.

c/o VDI Technologiezentrum GmbH

P.O. Box 10 11 39

40002 Düsseldorf

Germany

COORDINATION AND EDITING

Dr. Karin Hollricher, Neu-Ulm, Germany

Dr. Jeremy Garwood, Strasbourg, France

Alison Blewitt, Freiburg, Germany

Hartmut Koch, Bonn, Germany

DESIGN, COVER GRAPHICS AND LAYOUT

Steff Adams, Köln, Germany

COVER IMAGE

University of Applied Sciences and Arts Dortmund, Germany
www.demografie-im-raum.de

PRINT

Druckverlag Kettler, Bönen, Germany

ISBN: 978-3-00-028877-7

© InnovationsAllianz der NRW-Hochschulen e.V., Düsseldorf, Germany

InnovationsAllianz
DER NRW-HOCHSCHULEN E.V.

CONTACT

NRW Innovation Alliance, Service Bureau

Hartmut Koch

Riemenschneiderstr. 11

53175 Bonn

Germany

Phone: +49 – 700 - 46 66 67 91

E-Mail: innovationsallianz@inno-nrw.de

NRW Innovation Alliance funded by:

Ministerium für Innovation,
Wissenschaft, Forschung und Technologie
des Landes Nordrhein-Westfalen

NRW Innovation Alliance supported by:

e·on · œrlikon leybold vacuum · MITSUBISHI ELECTRIC Changes for the Better · ALTANA · QIAGEN

ISBN: 978-3-00-028877-7