



Vision Paper

of the

Joint Programming Initiative

More Years, Better Lives:

The Potential and Challenges of

Demographic Change



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Contact

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1. Summary

The Joint Programming Initiative (JPI) “More Years, Better Lives: The Potential and Challenges of Demographic Change” addresses one of the most important trends in modern societies: The Demographic Change resulting from the rise in life expectancy and the decrease in birth rates at the same time. This development will lead to a huge shift in the population structure of societies and to a predominance of older generations in the total number of citizens. It is clear that major sectors of society will be affected by this change significantly. There is a lack of full impact assessment and the need for developing appropriate answers to the upcoming challenges. It is the understanding of the JPI members that ageing of the European population and its consequences can only be tackled by a joint effort of European States. Research and development could provide the necessary data, research results and solutions to cope with the change and the necessary technical and societal adaptation. Furthermore, the JPI believes that Demographic Change not only represents challenges and the danger of decline in economic capabilities and social cohesion of the affected societies. It has also the potential to bring about a positive change for citizens of all generations. That is, if appropriate measures to deal with it are found and right decisions are taken in time. Therefore, the JPI fosters a positive vision of ageing in Europe.

Realising this vision requires joining forces in ageing-related research and establishing coordination and collaboration between the national research programmes and scientists dealing with the key areas. Areas affected by Demographic Change cover a wide range of research fields and policy topics ranging from health to social welfare, education & learning, work & productivity to housing, urban-rural development & mobility. Demographic Change is a complex, multidimensional and highly intertwined phenomena, and no simple explanation or solution can be expected. The JPI therefore follows a transnational, multi-disciplinary approach, bringing together different research programmes and researchers from various disciplines in order to understand the different facets of the phenomenon of individual and societal ageing as well as to provide solutions for the upcoming challenges and make use of the potential of societal change in Europe. In the JPI, the following main areas will be in focus:

Health & Performance

Good health is the most important factor to live independently in old age. A better understanding of ageing processes and the related plasticity of individual performance, the prevention for age-related illnesses and healthcare strategies are the basis for keeping European citizens healthy and active throughout the course of their lives.



Welfare & Social Systems

The basis of social and welfare systems in Europe is threatened by the demographic development. New welfare arrangements are necessary to cope with the demands of a changing population and to guarantee social security for all citizens.

Work & Productivity

Longevity confronts the multifaceted reality of work: generational segregation needs to be countered and economic productivity and societal inclusion must be maintained and enhanced. The correlation between health and work across one's life span has to be reconsidered.

Education & Learning

Continuous education is essential to ensure economic and social inclusion when people become older. Learning and professional training in work and educational contexts must be interlinked more intensively, taking into account the cognitive capabilities and characteristics of older people.

Housing, Urban-Rural Development & Mobility

Home and residential environments are important places for self-determined ageing. Social inclusion needs to be ensured both in urban and rural contexts. Mobility in everyday life encourages people to participate in social, political, and economic exchange processes.

Interdisciplinary research in each of these fields and a continuous exchange among themselves is of utmost importance for the JPI. The aim of all researches on Demographic Change will be to develop strong relationships between academia, policy makers and other public and private stakeholders including older people. Only this combination will allow a change "from guessing to knowing" in the real world. The JPI seeks to bring together national resources and the brightest European minds in order to lay the foundation for medical, technological and social innovations in the coming decades and to provide data for an evidence-based policy:

- **"What is needed?"** Exploring the room for positive change in direct interaction with the population.
- **"What can be done?"** Scientific findings as evidence for policy.
- **"How to implement?"** Policy means that can be used in order to improve the situation.
- **"How to measure?"** Evaluation in order to adapt the policies.



Furthermore, Joint Programming and the establishment of a common European knowledge base in demographic and ageing-related research can also achieve Europe's economic competitiveness and its ability to conquer the future and global "silver markets".



2. Preliminary remark

Joint Programming Initiatives are Member States' initiatives to achieve a better coordination and cooperation of national research funding programmes. On 1st and 2nd of December 2008, the Competitiveness Council of the European Union under the French Presidency adopted the Council's conclusions concerning Joint Programming of research in Europe in response to major societal challenges.

In its conclusions of 26th May 2010, the Council praised the progress made by the High Level Group on Joint Programming (GPC) at its meeting on 4th of May 2010 by identifying and substantiating a new set of themes for Joint Programming Initiatives (JPI), including the theme "More Years, Better Lives - The Potential and Challenges of Demographic Change".

JPI's "More Years, Better Lives" was initiated in November 2009 to start a European workshop as a first expert event to set the possible scope and thematic issue of the future JPI. The workshop was held on 28th/29th of January 2010 in Berlin with 130 participating experts from 20 Member and Associated States of the European Union. It was the aim of the workshop to discuss, comment and broaden a thematic input which afterwards – according to feedback and information from the workshop – resulted in a preliminary synthesis paper. Two meetings of the preliminary General Assembly of the JPI on 28th June and on 21st September 2010 shaped the general profile of the Vision Paper that has been written by multinational expert task forces based on the synthesis paper and input from further discussion. The Vision Paper was approved by the officially constituted JPI General Assembly on the 27th of January 2011.

The Vision Paper establishes the reference framework for the JPI and addresses its visionary objectives and societal goals in order to relate them to R&D and policy-making issues. It has been elaborated and approved by the 15 Member States of the JPI "More Years, Better Lives" and represents the initiative's common understanding of the potentials and challenges of Demographic Change in Europe. The document outlines the needs and opportunities for new solutions and the contribution of research and development in order to assess the consequences for evidence-based decisions. It will form the basis of the Strategic Research Agenda of the initiative.



3. Aims and scope of the JPI

The background and motivation for the Joint Programming Initiative “More Years, Better Lives: The Potential and Challenges of Demographic Change” is one of the most far-reaching and long-lasting processes in many societies around the world: Whereas at the beginning of the 20th century, the average life expectancy of a woman born in Western Europe was 48 years, and that of a man was 45 years, today, they can expect to live 82 and 77 years, respectively. On the one hand this gain in years has resulted in overcoming child mortality, and on the other hand in an increased life expectancy of older age-groups. Around 1900, 60-year-olds had another 13 to 14 years to live on average, whereas today, they can expect about 23 further years, 25 among women and 21 among men.

Continuing the very desirable trend of rising life expectancy on the one hand and falling birth rates on the other have led to a clear shift in the population's age structure. This shift is often referred to as demographic change. It is one of the most determining megatrends all over the world. Whereas only a few nations/world regions show a juvenescence of their societies (e. g. Arabian countries, India, but as well Ireland), the majority of countries are marked by ageing populations. Many countries that were typically characterised by high birth rates have turned – sometimes rapidly – into the opposite.

This demographic trend has an exceptional impact also on Europe. In fact, some of the most dramatically changing nations are European. Hence, the perspective of each Member State and consequently that of the European Union as a political, economic and social entity will be affected by this transition. As politics, economy and social welfare are strongly related, it is desirable to find a common approach and to join forces to face the megatrend of demographic change. By unleashing its potential and by reacting appropriately to the changing circumstances that come with an ageing population, challenges can be mastered before they turn into a problem.

Demographic change will affect several social sectors and contexts. In account of this, it will influence people's understanding of inclusion, participation, welfare, equality, and the life course, or – in other words – the character and the self-concept of society and its members. In order to guarantee and further develop the future of Europe as an idea and a reality, approaches to demographic change need an active participation of politics, public authorities, economy, and research as well as of each individual. The following areas deserve particular attention:

- Health & Performance
- Welfare & Social Systems
- Work & Productivity
- Education & Learning
- Housing, Urban-Rural Development & Mobility



Various national and European programmes and activities have dealt with the topic of demographic change, some of them with the particular interest on finding answers to the basic question: “What is ageing?” The ageing process is based on the interaction between biological and socio-cultural influences as well as the decisions and action taken by each individual across the life course. Thus, ageing is not a determined but a modifiable process. To investigate the potential it therefore needs an interdisciplinary investigation in order to understand the biological, psychological, and socio-cultural dimensions of ageing and the systemic consequences induced by an ageing population on the political and institutional level. Only a holistic systemic perspective will broaden the understanding of the multidimensional processes, their dependencies and the possibilities to positively influence them.

Due to the fact that demographic change is an enormous and systemic challenge, a stronger consolidation of these activities and a clear focus on high priority topics is needed. Until now, neither a consistent coordination of national activities nor a frequent interdisciplinary exchange of programmes, tools, results and good practices exist at European level. It is the aim of the Joint Programming Initiative to organise and to relate national R&D programmes and activities related to demographic change in order to address the most urgent and demanding challenges and fully exploit its potential. The general objective will therefore be to facilitate high quality research collaboration aimed at providing research evidence to underpin interventions to improve quality of life. This means that there has to be sorted out a way to maintain economic competitiveness by appropriate levels of high productivity and volume of labour input. A society with an ageing population has to develop more inclusive and flexible processes in work life and economy in order to assure the maintenance of individual productivity and broad social coherence which permits to everyone an appropriate and worthy life. Even if an “appropriate and worthy” standard of living can be defined in a general way, the means which are necessary to individually assure the given level will differ from person to person, depending on degree of fitness, economic status and income, social context, life style and personal preferences.



4. The benefits and contributions of research and development

The Joint Programming Initiative on Demographic Change coordinates and helps to identify R&D activities aimed at enabling older people to live an active and independent life and to have access to participating in social life. At the same time, it intends to find mechanisms which make the rich life and work experience of the older generation accessible. Thus, successful ageing is based on active intergenerational processes. These demanding objectives which need an alteration of several social routines, priorities and developments require a multidisciplinary overall strategic R&D approach which addresses innovative technologies and services, but also the development of health-promoting work conditions, new forms of organisation, new and flexible environments, etc.

This includes a new attitude towards Demographic Change – it has to be seen not only as a problem but as well as an opportunity: using the experiences, knowledge and demands of the older generations might offer chances to make European societies more inclusive, social and even competitive.

The success of a common European vision will depend on whether it combines research activities on the following areas in order to form a coherent overall concept: ageing, technology, education, qualifications (including lifelong learning), social environment (including care, mobility, independent living, network structure), services, training etc.

Complementary to the European and national level, the local/regional issues need a stronger promotion. As Demographic Change does not affect the different Member States in the same way and even the Member States are internally not homogenous, regions and municipalities become important entities especially in the field of decisions regarding infrastructure, etc. ("Europe of Regions"). Therefore, the perspectives of regional networks should be further evaluated and local authorities must be empowered to manage the challenges of Demographic Change.

All these tasks depend to a high degree on a reliable knowledge-base which has to be further developed and created through R&D activities: New chances and challenges need new solutions, settings, services and products. The added value for European citizens and European competitiveness that could result from a Joint Programming Initiative includes:

- High level of social interaction and medical care;
- Mobility - the basis for active social participation and leisure activities;
- Reduction in the cost of social security funds and individual customers;
- Prolonged stay in working life;



- Design for all;
- Higher quality of life.

The vision of an "active life in old age" will become one of the major social challenges in Europe and other highly industrialised regions of the world in the upcoming years. The EU Member States are now in charge to develop new solutions, policies and strategies for dealing with ageing and to implement them. R&D is a fundamental cornerstone when it comes to the precise definition of the benefits and challenges as well as to the exploitation of the potentials and capabilities of an ageing society. In this context the JPI will provide evidence based information to stakeholders and policy in order to increase the degree of certainty when it comes to decisions. The JPI stands for the advancement in quality of information applicable for concepts and actions related to the Demographic Change in Europe. It will make the next big step from guessing to knowing towards a future liveable for all generations.

The Demographic Change is a multidimensional process that needs an integral and interdisciplinary approach of investigation and understanding. Without intertwining the different disciplines, perspectives and data, the "systemic logics" of Demographic Change will never be understood. That's why the JPI addresses not only pan-European but also inter- and transdisciplinary collaboration. It is the aim of the JPI not only to provide some more high definition snapshots of different aspects of the Demographic Change but to allow us to see the whole picture.

To do so, the broad scope of Demographic Change is focused on 5 work packages representing the thematic areas given above. These work packages detail specific grand challenges to society and relate them to necessary R&D activities in order to turn the challenges into opportunities.



5. Work packages

5.1 Health & Performance

5.1.1 Grand challenges to society

The ageing population poses both challenges and opportunities in terms of health and performance. As figured out in the introduction, the remarkable gain of about 30 years in life expectancy in Europe stands out as one of the most important accomplishments of the 20th century. Even if survival conditions do not improve in the future, three-quarters of babies born in countries like Spain and Sweden will survive to celebrate their 75th birthdays. If the yearly growth in life expectancy continues through the 21st century, most babies born in developed countries since 2000 will be predicted to celebrate their 100th birthday. These scenarios are projections, but we do not have to look far into the future for challenges of ageing population: The oldest-old group (aged > 85 years) has over past decades been the most rapidly expanding segment of the population in developed countries. This group is also the most susceptible to disease and disability. Development of poor health, disease, disability and mortality in elderly people will therefore have a fundamental effect on sustainability of modern society.

Functional¹ limitations and disability are some of the most prevailing characteristics of the ageing societies. Decline of muscular strength, balance, vision and hearing are common problems among elderly causing difficulties in daily and – taking a longer working life period as a probable future – working performance, increasing the risk of injuries and the need of health and social services as well as of technical aids. If degenerative diseases become evident in the elderly, relatively normal functions can be maintained for long periods due to advances in therapeutic treatments. For this reason dedicated health policies, prevention, early diagnosis and strict monitoring/follow-up of ‘at risk’ subjects (i.e. those carrying genetic modification) should be considered.

Most of the current evidence concerning older people up to age 85 suggests a trend of delayed disability despite an increase in prevalence of chronic diseases. This apparent contradiction is at least partly explained by earlier diagnosis, better treatment, and amelioration of disease symptoms so that they are less disabling. Trends in disability may also reflect the influence of other underlying factors.

1 Following the ICF terminology of the WHO (see <http://www.who.int/classifications/icf/en/>), “Functioning” encompasses body functions, structures, activities and participation. It reflects as well contextual factors like environment related impacts on health. The concept of “Performance” used here integrates and complements the definition of “Functioning” by a neuronal/mental setting and directs the perspective towards plasticity.



The increased use of assistive technology as well as improvements in housing standards, public transport, accessibility of buildings, changes in social policies, and the social perception of disability may also impact on functional ability. Better accessibility to care and treatment has also played a role in delaying disability. Finally, increasing levels of educational attainment and income among the elderly, better occupation and workplace conditions and the reduction in poverty may have contributed to the decline in disability. Hence, people currently younger than age 85 will live longer and, on the whole, better but with longer disease periods. In the oldest-old group the situation is less clear. Data are sparse but there is widespread concern that exceptional longevity may have serious socio-economic consequences both for individuals and for societies, although the first sparse European data on the oldest-old do not suggest this development.

The prevalence of disease in the elderly population has generally increased over time. Many lifestyle and environment related diseases such as cardiovascular disease, diabetes and some cancers are among the main causes of morbidity and mortality in the elderly population. In addition neurodegenerative diseases such as Alzheimer's disease and other types of dementia, as well as Parkinson's disease are common in late life and share some of the same lifestyle related risk factors as the major chronic diseases. However, medical sciences have traditionally focused on curing disease during the "productive years". A grand challenge will be to better understand the relationship between the biology of ageing and the development of disease.

The recognition of interplay between the various factors such as genetic predisposition, nutrition, lifestyle and environment is crucial to obtain a comprehensive picture of ageing. The traditional focus of research on ageing was on questions such as: 'which factors cause disease?' which has resulted in significant advances in diagnosis and treatment of several major diseases. In the future it will be important also to investigate which factors keep people healthy, in particular which factors promote people's physical, social and psychological functional ability. This also includes greater knowledge about potentially reversible processes that might be used to preserve or restore lost capability. To this end, multidisciplinary research is required ranging from the fundamental mechanisms of the biology of ageing to highly informative model organisms to well characterised human populations – the concept of biodemography of ageing. Research programmes linking analyses in epidemiological cohorts with molecular and animal studies and clinical trials can further unravel the basis of ageing and age-associated morbidity.

Past research efforts have tended to concentrate on understanding the cause, diagnosis and treatment of age-related diseases and conditions. Different approaches are needed to understand and support healthy ageing, focusing on promoting mental and physical health in older age, life course



influences on healthy life expectancy and primary prevention. The shift away from the paradigm of *disease and cure* to the concept of *health, prevention and behaviour* concentrates on “upstream approaches” throughout the life course.

The main challenge addressed by the theme “health and performance” of the JPI “More Years, Better Lives” is to promote long lives with better health and performances. To be able to improve healthy lifespan we need a better understanding of the biological and environmental determinants of health and wellbeing at older ages and why healthy lifespan differs according to socio-economic conditions, migration, ethnicity and gender across different populations and regions within Europe.

5.1.2 Research needs

There is a need to increase knowledge on how to promote good health and performance among older people to increase quality of life for the benefit of both the individual and society, in particular in the following areas:

- Research on the **plasticity of human development and ageing** in various domains of physical and cognitive function.
- **Life course influences** on healthy life expectancy of a heterogeneous older European population including socioeconomic, environmental, technological, behavioural, cultural and biological (incl. genetic) determinants.
- The bases for the **male-female health survival paradox**, i.e. males live shorter than females but have better health than females in most domains.
- **Ethnicity and migration** in relation to health and performance among elderly.
- Reasons for the increasing disparity of morbidity and mortality between different **social classes** and the influence of education and work in this respect.
- Better understanding of how to maintain health in the **oldest-old** (aged > 85 years) considering prevention, diagnosis and treatment of age-related diseases including evidence-based medicine for the elderly.
- Investigating different **strategies for successful ageing** regarding the choice of healthy lifestyles, immunisation, injury and disease prevention, maintaining social networks and independent living.
- Development of **individualised/personalised health care systems**. Models for age-based health supply focused on promotion and prevention are needed taking into account the



- distinctiveness and diversity of health problems in old age and the need to preserve independence. R&D should contribute to the development of age-specific health promotion and prevention to extend the time of unimpaired ageing and to prevent or slow down the onset of ageing and age-related illnesses.
- Research on cost effective scalable technologies including communication and information technologies that can ameliorate disability in elderly. Although research on **technology and ageing** has increased in the last decade, there still is a great R&D need. The need for high-end R&D is well recognised, less attention is paid to the need for smaller innovations supporting life in old age and self-service-technology enhancing the productivity of households with older persons. “Ambient Assistant Living” technology is focused often on smart homes (see chapter “Housing, Urban-Rural Development & Mobility”) and telecommunication, justified in its own right and productive in the long run, but the challenge is to produce technologies for dependent older persons to help themselves in coping with daily life in a way accustomed to their life styles.
- Implementation of **holistic and integrated assisted living services** focused on promotion and prevention including technical approaches and research into the business models and service concepts are also to be addressed.
- Testing **‘proof-of-principle’ interventions** as a way of consolidating the best insights from prevention and high quality human cure and care. Critical for developing these interventions is the involvement of members of the target group to ensure that results are designed with this group in mind and consequently have a high degree of potential for successful implementation.
- In the area of **rehabilitation**, R&D efforts are required in respect to very old age and approaches that include activating care in the areas of physical and psycho-social wellbeing as well as accessibility of environment and services.
- Furthermore, R&D issues of the **social and economic impact** of Demographic Change need to be addressed. These might comprise models and scenarios of health economics or research into health disparities such as urban/rural.
- There is evidence that **working at older ages** can confer health and wellbeing benefits such as a sense of purpose, social engagement and maintaining physical and mental activity. However the generalisability of these effects will need to be explored in the context of the changing capabilities of a diverse ageing workforce, employment and retirement decisions, the effects of workplace environments on older workers, attitudes to ageing workers and health risks of employment at an older age.



5.1.3 Perspectives

Very long lives are not the distant privilege of remote future generations – very long lives are the probable destiny of most people alive now in developed countries. Increasing numbers of people at old and very old ages will be a major challenge for health-care systems. It has been estimated that the majority of premature morbidity and mortality due to chronic diseases could be prevented or postponed by healthy lifestyles. Less is known about the further potential of reducing disabilities and diseases among elderly. Therefore it is a key challenge to understand the contribution and interaction of the determinants that shape ageing across the life course and develop strategies and interventions to improve and extend cognitive and physical function and quality of life at an older age.

The recent findings challenge the traditional view that ageing is a permanent and unstoppable process of losses and degradation. It stresses the importance of maintenance of physical and mental performance of older people through prevention and interventions which ensure that the additional gained years result in healthier, more active years.



5.2 Social Systems & Welfare

5.2.1 Grand challenges to society

Despite first attempts of demographic reforms, Europe seems to be ill-prepared to deal with Demographic Change and the impact that it will have on social, political, and economic structures. As for labour markets, pension systems and social schemes in general, it has to be considered that Demographic Change means that the number of older people is growing while the general work force is decreasing. This affects both sides of the social systems: Less income due to a shrinking work force and higher expenditures for pensions, health and long-term care: If conditions remain unchanged, the ageing population will lead to more retired persons (including an increase in the proportion of people with disabilities or chronic illnesses and an increasing demand for care), which will at first glance increase the disparity between the production of prosperity and the distribution of welfare. Under the circumstances of continuous change, the challenge is to maintain and strengthen integrated and inclusive societies.

For social policy, a change of perspective towards a positive welfare (orientation to positive life-goals rather than only minimizing of risk) is necessary, politics of second chances (policies providing resources for people to “start again” in various areas of life), and preventive welfare (welfare policies that seek to intervene at source, rather than only coming into play after things go wrong). The role of state should be a social investment state, i.e. with state-provided or regulated investments in human capital and social quality to enhance the conditions for the pursuit of life quality.

In all European societies there is a sustainability gap between the existing welfare regimes organising the support of individuals and social groups in need - including the support for old age - and the financing system based on the economic system and the productivity of employed people. A central issue in the current debate is participation in the labour market, since unemployment produces demands and costs in the welfare state and, at the same time, reduces the resources for support based on the taxation of labour. But this perspective is too narrow: Societies have chosen quite different ways of taxation not only of individual labour, but also of other forms of private wealth; there is no agreement on the “right” share of wealth for public welfare vs. private provision by individuals or social groups; there is no consensus on generational equity, i.e. the ways of sharing wealth between current generations of young and old and with future generations by securing their life chances; there



is no consensus on the costs or limitations of ecological resources in view of possible technological innovations; and it is an open issue whether a welfare society could be maintained without economic growth or is in need of a new concept of “qualitative growth”. This would imply that the orientation towards economic growth expressed by an increase in Gross National Product (GNP) has to be substituted by a much more differentiated set of goals and a long term perspective on sustainability accepting responsibility for future generations. Framework conditions should refer to considerations of generating consensus and decisions as well as effective implementation and compliance.

Finally, the challenges of adapting the existing welfare regimes in Europe to the Demographic Change call for a new concept of social quality and socio-cultural sustainability. The production of welfare is not only a challenge for the economy or the public provision of welfare, but also for civil society, i.e. for individuals and social groups supporting each other to sustain quality of life over their life course and in culturally diverse life worlds with different degrees of social quality facilitating their “pursuit of happiness”.

- Because of the variability of the “welfare mix” in the production of welfare between private economy, public provision and non-for-profit organisations of civil society, the first challenge is to learn more about the options and trends toward ecological, economic, political and socio-cultural sustainable solutions and to identify major challenges as well as best practices by **comparative analysis**, analysing and modelling different trajectories taken by European countries.
- A second challenge is to clarify the differences in historical mandates which different societies have articulated (implicitly or explicitly) for welfare policies including their respective value base to enable an informed debate and **consensus on principles and goals** in welfare production or the vision of a good life.
- A third challenge is to bridge the conceptual and empirical gap between descriptions of a wealth of life styles indicating different socio-cultural understandings of a “good life” and specifications of social problems calling for responsibility of society (**new criteria for life quality**).
- A fourth challenge, **enhancing socio-economic security**, pertains to the provision of adequate material resources and environments and a fair sharing of opportunities and risks. This includes welfare programmes such as unemployment payments, pensions, social and health care services, age adapted assistive housing and mobility systems, social benefit schemes, etc. This research has to consider precisely the distributional effects of interventions and programmes.



- The fifth challenge, enhancing **social empowerment**, refers to programmes, structures and procedures which serve to enable older persons to effectively use their opportunities and to develop their potentials and capabilities, including forms of participating in decision making in their own interests and in the community.
- The sixth challenge is to find innovative strategies to raise the **productivity of the welfare sector**. Not only is a focus on the sustainability of costs in given arrangements needed, but also a focus on innovative and productive ways to achieve more with less cost.
- Closely related is a seventh challenge asking for the improvements of the **interrelation of public welfare providers with other providers of welfare**. One important element concerns the facilitation of moving not only back into the labour force after dropping out, but also back and forth at different stages of the life course.
- An eighth challenge, finally, is concerned with the situations of care (not only) for older persons. The special problem is the asymmetric relationship - also on a level of personal interaction - between providers of care and care recipients. We need a **new culture of help and valuing help** to motivate and to give recognition to the carers and to give emotional security, trust and self-respect to the care recipients.

5.2.2 Research needs

The following research needs focus on the welfare regime or the “welfare mix” of public provision, private economy and civil society.

- There is an urgent need for **comparative analysis** of strategies in European countries and in other OECD countries on coping with the Demographic Change. In a comparative perspective, the national welfare mix, i.e. the interrelationships of welfare principles and values and definitions of social problems, and of the development of strategies within and between the institutional setting and the life worlds of civil society, has to be addressed to learn more about the conditions for best practices in different welfare settings.
- There is a need for **conceptual analysis, modelling and measurement** of social quality and quality of life, and the relationships between the two levels. While welfare strategies tend to focus on input of the welfare system, research should also focus on the outcomes for people; both perspectives need the development of more effective and efficient strategies, measurement instruments and comparative databases. Important is the complementation of the predominant concern with economic factors, such as income and employment, and human capital, such as health and education, with factors and indicators of socio-cultural and psycho-emotional needs.



- **Social security** draws the main attention in welfare research and has to be substantiated by further research focusing on **social equality** under economic-ecological **limits to growth** (not only) in old age and across the life course. New concepts of “qualitative growth” will have major impacts on the “mix” and productivity of welfare production, and is often expected to involve great adjustments in the life styles of civil society (e.g. health and nutrition behaviour)
- There is a great need for research on **adequate rights, structures and procedures** for the possibility and capability of older persons to execute effective influence for their interests in decision making on the level of their everyday life (e.g. in institutions) and in the wider community. The development of empowerment in old age should, moreover, not neglect the empowerment of other age groups. In as much as ageing society requires a new generational contract to assure generational equity, all generations should be able to participate with equal rights and capabilities.
- A central theme for research remains the conditions for **effective policies to prevent age discrimination**, abuse in old age, and the vulnerability especially of ageing ethnic minorities. In many cases this discrimination is still supported by discrimination against gender and reflects regional disparities.
- Modern societies have to develop **new life worlds of social support**. Systematic research is essential on the very diverse forms of civil society already developing under quite different institutional settings in European regions. Involved are new definitions of gender roles and life styles in old age, but also new forms of public consultation and support in municipalities. An important element is the development of a new culture of recognition and valuation of help and accepting help, and effective strategies to promote a new solidarity. In view of the historically “gained 30 years”, this new culture amounts to a substantial socio-cultural innovation still to be achieved.
- A central concern for research should be the efficiency of **welfare production**. This includes the integration of new technologies, professional formation and qualification in the welfare sector, and integration of social and health care services to provide seamless and need-responsive care to the changing needs over the life course. Under conditions of an ageing society a particular concern are structures and strategies for sustainable long term care with social monitoring and quality assurance not only in professional care, but also in informal care. Integration should also be considered with respect to the coordination and cooperation within the welfare mix, e.g. by new models of public-private partnerships, combination of private sponsorship and civil society initiatives and/or public with non-profit organisations including informal and formal care provision. It is still a great challenge to develop



performance measures for long-term care that are really true to the objectives and nature of care.

- The requirement of **user and stakeholder involvement** has a special significance in the context of social and health care services, since here the concern are personal services and social interactions under conditions of increasing dependence on old age, which enhance the dangers of paternalistic solutions also in R&D. And finally, without participation of all generations, it is hopeless to try to create any consensus of a vision for the future European social model.

5.2.3 Perspectives

The general perspective of European Joint Programming activities should be a focus on the life-course perspective in social policy including all generations and on the opportunities and risks for the differing welfare regimes in Europe under the impact of the Demographic Change. There is a need to learn from each other and to find sustainable solutions which are responsive to the social risks, problems and opportunities over the life course as defined by different societies and the solutions pursued in coping with them in changing institutional settings. In the current discussion it is widely recognised that we have to pay attention not only to economic but also to socio-cultural sustainability of European welfare models, as well as to a tentative adaption of the ecological limits to the growth. The GNP is not anymore enough to inform about the progress of societies, and not suitable to satisfy the increasing requirements of orienting and fine-tuning the monitoring of social change in modern European societies. To measure not only public welfare but also quality of life and social quality, a new set of standards and principles, and new instruments of measurement of the success and sustainability of social policies and interventions are necessary. The measures should combine economic and ecological sustainability with political and socio-cultural sustainability to deliver a more multifaceted picture of the success of the welfare model in question.

The JPI will aim at providing the basis for an intensified cooperation not only on the European and national level, but also between regions, municipalities and agencies to develop a valid and reliable knowledge base for the proliferation and implementation of innovative solutions which are adapted to local situations and responsive to socio-cultural life worlds, and at the same time conducive to a common European perspective on the problem of Demographic Change and globalisation.



5.3. Work & Productivity

5.3.1 Grand challenges

Demographic Change affects many social sectors and contexts. The historically unprecedented longevity in relatively good health is a blessing and a sign of progress. But for the individual to enjoy these achievements we have to become aware of these challenges and the urgent need for action on the societal level. Especially in Europe longevity is accompanied by long standing low birth rates although they are beginning to rise in some countries. Some countries are already faced with shrinking populations and eventually, although there are great regional differences, the total European population will decline. This ageing society will deeply affect the area of Work and Productivity. Enhancing productivity of a shrinking workforce is therefore the main challenge of ageing Europe especially in view of a global economy. Falsely, a commonly known view on population ageing predicts a loss of productivity and innovative potential. Additionally, it is seen as an excessive burden resulting from pension and health costs and a slackening of societal and governmental reform forces. This view will not hold true if population ageing is matched by consistent policies and by entrepreneurial, societal, and individual action. In short, in order to maintain the social welfare state and meet the demands of today's global economy, work productivity in Europe needs to increase. All resources, especially human resources, need to be used more efficiently. High labour force participation is the most important macroeconomic precondition for maintaining the living standard. That can be achieved by a shorter first education phase and an earlier entry into working life, inclusion of more women in the labour market and later retirement.

Therefore many EU countries are already going to raise the formal retirement age. To increase the participation of older people in gainful employment is essential for future prosperity and for financing the pension system in the long run. There is also evidence that working at older ages can confer health and wellbeing benefits. But recruiting older people and keep them longer-term is not enough, it is necessary to combine gainful employment with a “fading out” from work life over longer periods of time. The relative competitiveness of older people has to be enhanced by: lifelong learning, work organisation and staff and wage policy. Employment of older employees needs to be made attractive for companies.

Workers are increasingly stimulated to extend working life by means of financial incentives such as reforms of early retirement schemes, unemployment benefits, and disability pensions. However, the extension of working life is also influenced by work characteristics, health, and the social context. Given the financial context, we need to know which factors motivate workers to extend working life,



and in what circumstances workers are able to do so. In addition to motivation and ability, the extension of working careers will be influenced by the opportunities offered by employers and society, consequently more insight in the impact of different opportunities is essential. Moreover one may raise the fundamental question whether paid or competitive jobs are the only way to participate in an ageing society. Volunteering, caring responsibilities (grandchildren, sick parents or friends), participating in the informal economy, being self-employed or in part-time retirement and other various combinations contain a great deal, but under-utilised potential of productivity. These informal activities can be an important contribution to wellbeing and mitigation of the negative effects of Demographic Change on economic development. Paid professional provision and unpaid services are not mutually exclusive. They complement each other.

Another major issue is raising productivity by innovation in the work place, through technical as well as social innovations, doing smart things in a smart way by full utilisation of the human potential, thus enhancing the vitality of the worker and the flexibility of the organisational structure. Clearly, the work context represents the most important developmental context of adult life. Whatever is done in the work context to develop and maintain the capabilities, skills and qualification of the employees will have enormous consequences on their productivity. Measures aimed at training, education, and at adapting work organisation will fall short if they are implemented in isolation: systematic or comprehensive career management is needed. This could be incorporated in diversity management approaches at a higher level to make use of advantages of all types of heterogeneity. A significant part of this research has been inspired by the concept of socio-technical systems design, integrating human resources, organisation, and technology issues in order to develop work systems suitable for sustainable employment along the working life cycle. Learning and competence development as fostered by an appropriate design of work systems and environments has always been one of the paramount objectives in this domain. In this regard, close inter-connections exist to issues of education and learning (see chapter on Education & Learning). The other issue is participation and social inclusion at the institutional level allowing for more tailor-made post-60 careers.

The relationship between the development of the individual worker and the relationship with the company needs to be thought over. The field of occupational health and safety should not only look at existing and emerging risks in the rapidly changing world of work but in particular at the factors of working life that keep people healthy. This is also the paradigm shift in the area of health and performance: not only focusing on reduction of ill health to reduce productivity loss but also on improving health during the whole working career in order to enhance healthy aging and sustained performance (prevention). Therefore, the fast increase in the number of disability benefit claims in



most OECD countries, often at a relative young age, is alarming and making disability an issue for policy-makers. Work careers can be extended or made more employable in the beginning, middle or end of the traditional work careers or on the borders of the main life transitions between education, labour market, unemployment, private household and disability retirement.

Working conditions, work organisations and the work itself have to be improved in such a way that work ability is maintained and people are motivated to participate in the working life. The development of future solutions to extend the work careers needs to consider also the more demanding requirements of future generations. That will press ahead with the development of flexible work models and to promote wellbeing at work as a part of general good living. Diversity and different knowledge bases must be taken into account when developing and organising the duties of aging workforce as well as combating obsolescence of qualifications by life long learning, etc.

(Elder)People have to get the option to move from one branch to another or to change the occupational field. Therefore it would be helpful to certify the acquired experiences and skills in a regularly updated portfolio. In addition, it has to be made easier to take up so called “second careers” in new fields of work or in new branches at all ages. Even this could be promoted by more intensely recognised vocational knowledge and experience (in comparison to formal certification). Diligence and motivation for new opportunities will be an essential quality in prolonging one’s active working life.

5.3.2 Research needs

Based on the substantial amount of knowledge provided by the long-standing research traditions described above, the following research and development issues have emerged:

- **Identification of factors that support the prolongation of working life while maintaining good productivity.** In order to support workers’ extended working life, more insight is needed into the work-related, health-related, social, and financial factors that influence the motivation, ability, and opportunity of continued working until older ages. In addition, we need to know how these mediating factors influence in turn a person’s capability of continuing working or leaving the workforce early. At the same time, it is essential to gain insight into the circumstances in which workers remain highly productive during their prolonged working life.



- Huge gaps exist in our knowledge of the mutual **relationship between work and working conditions, health and well-being** of older persons. To support workers' prolonged working life in the best of health, we need to know the work-related factors affecting health in older workers, positively or negatively. A longer working life will also prolong the exposure to these work-related factors. Therefore, more insight into the health effects of a prolonged exposure is needed. This also involves the prevention of work-related physical diseases like **musculoskeletal disorders** or stress-related **mental conditions** (i.e. depression, burnout syndrome).
- These gaps in knowledge also exist with respect to healthcare and health-and-safety practices for **employees with disabilities and chronic diseases**. When in an active approach job retention and an early return to work are emphasised as primary goals in medical rehabilitation, research is needed to look at the feasibility and effects of different measures to modify work and enhance collaboration between the worker, his or her supervisor, the health care providers and the insurance system. An important component is the dialogue between worker, employer and health care provider in case of disabilities and prolonged sickness absence to prepare enduring return to work.
- More insight into factors that are amenable to change and influence sustainable employability in good health may support the **development of work-related interventions or regulations**. Whenever needed, interventions should be tailored to different groups of workers in our highly diverse work force. Interventions are recommended to focus not only on older workers, but to take a life course perspective. Estimations of productivity gains due to prolonged employment and the cost-effectiveness of these interventions could help to extend the opportunities offered to older workers.
- While studying these cohorts for factors in remaining in paid employment, there should be equal attention for factors enhancing **participation in volunteering or caring responsibilities** (grandchildren, sick parents or friends), participating in the informal economy, being self-employed or in part-time retirement. What are the benefits and unfavourable consequences people experience from these 'career paths'? What is their contribution to society?
- Development in close co-operation with companies of combined interventions aimed at **working conditions, lifestyle and health** especially aimed at the lower socio-economic groups. While looking at lifestyle interventions the focus in healthcare is primarily on the individual at risk. Results are often disappointing. Therefore we should incorporate the work organisation, management and culture at work and working conditions (making the healthy behaviour the rewarded behaviour).



- Development of **tools and indicators to measure positive (occupational) health** beyond mere absence of disease in terms of e.g. a combination of excellent mental (positive emotions, work engagement, positive relationships) and functional health. Also the financial logic and advantages of Occupational Safety and Health (OSH) systems need closer examination.
- The role of **workplaces as resource-building arenas** for the promotion of well-being, mental health, productive careers and engagement has been studied very little. Are employees able to be adaptive and proactive enough and take responsibility for their own career development in an increasingly unpredictable career environment?
- New **work-life-balance-models** (income, job rotation, new tasks, lateral careers etc.) are necessary to avoid loss in productivity due to over-exertion or over-routinisation. Flexible working time arrangements, working time banks and e.g. part-time retirement are promising candidates to support the aging workers' decision to participate, stay and continue working. The use of individual flexibility in working hours together with company controlled flexibility have been shown to support the well-being and work careers of (also disabled) workers.
- Insights into the **labour productivity of older people** are important: there is no convincing scientific evidence for the widespread prejudice that older people are less productive than the younger ones. Thus it is necessary to question this common prejudice, eliminate stereotypes, and further to develop the art of distributing work among the old and the young.
- Productivity of older employees can be maintained and sustainably improved by establishing **age-heterogeneous and cross-generational teams**. This enables the systematic transfer of experience when employees leave the company! Insight is needed into the factors determining success and failure and the added value of implementation of these teams in companies.
- **Training measurements and lifelong learning** are essential for all employees and at each step of their working life. Therefore a workplace has to promote the development and use of new qualifications. Tools like competence and skill portfolios should be further developed.
- How can **skill and competence oriented design of work systems and processes** be more systematically integrated with more formal off-the-job forms of learning? How can a working life cycle design of work systems be more closely connected to products, process, and social innovation processes? More specifically: How can this domain be better exploited as fruitful R&D arena for technological and technology-related innovation? Theoretical concepts and empirical evidences are needed regarding opportunities and limits of intervention into the design processes of work systems.



- There remain many uncertainties about the **consequences of future applications of new technologies in the work place**. Therefore an assessment model should be developed to translate these technologies to opportunities for improving employability and prolonged careers.
- There is a need for **changes in the systems of solidarity**: how to encompass the ever changing work settings of workers. How to link solidarity issues to individualisation of careers? Due to this flexibility investments in OSH systems or education made by the employer lose their revenues to other employers or institutions. This will discourage extensive investments by employers. This calls for innovation of the current corporate policies to give more room to the individual worker and his / her responsibilities for OSH. This issue is strongly linked to tax and savings arrangements and financial incentives and will also be dealt with in the chapter Welfare & Social Systems.

5.3.3 Perspectives

Longevity, demographic ageing and regional shrinking populations confront the multifaceted reality of work with new challenges as well as new opportunities. Fundamental changes to the domain of work are necessary for people's quality of life to improve – generational segregation needs to be countered and societal productivity and well-being maintained and enhanced. This calls for urgent and comprehensive policies of both governments and business communities as well as of individuals and families. From a general perspective these policies can be aimed at:

- Prolonging working life in good health and postponing the average retirement age of the working population
- Enhancing labour force participation of women and assuring enduring participation of the various disadvantaged groups in the labour market, e.g. the disabled, the under skilled and the long-term unemployed
- Raising productivity by social innovation and workplace system innovation by making full use of human potential
- Raising educational level and life-long learning (see chapter "Education & Learning"), while at the same time making the labour market more flexible and efficient
- Introducing new arrangements in the distribution of work across life, in combinations of competitive jobs and volunteering and caring responsibilities, or participating in the informal economy or being self-employed or in part-time retirement, etc.



Therefore the research perspective is concerned with the identification of factors that support prolongation of working life in good health and maintaining good productivity – in general as well as considering major issues as work related musculoskeletal and mental disorders or chronic diseases and precarious working conditions. This will lead to (evidence based) effective policy measures, interventions and (financial) incentives. In fact in this research a paradigm shift has to be induced. Therein work is seen (and practiced!) as a source of vitality and empowerment in order to promote healthy ageing and participation in society – and not as a risk factor for ill health or merely exhausting. From this point of view Occupational Safety and Health (OSH) and Human Resource Management can be seen as sound investments where research should provide cost-benefit analyses. Bridging the gap between healthcare and OSH may render both healthcare and OSH more efficient. The paradigm shift will also refer to new systems of 'flexicurity' where public, corporate and individual responsibilities have to be redefined given the diversity and flexibility of working careers.

Basing on a successful implementation of these measures society may gain with this Demographic Change. In the future productivity of the elderly worker will increase due to more healthy years free of functional limitations. A knowledge-based society needs more experience, social skills and organisational talents. These trends promise considerable opportunities for an ageing society.



5.4 Education & Learning

5.4.1 Grand challenges to society

At least three trends need to be considered when discussing the challenges and opportunities for society in terms of education and learning: (1) The pace of technological and knowledge development has dramatically increased. This has consequences for the economy and the labour market. (2) The volatility of global economic markets has dramatically increased. Again, this produces even more pressure for innovation and flexibility. And (3) we have gained 30 years in average life expectancy in the last 100 years. This has consequences for the demographic composition of modern industrialised societies. In order to tap the potential embedded in this gift, however, we have to take measures to adapt as individuals, but also in terms of educational and work contexts.

What are the consequences for education and learning? Looking at the (new) Lisbon Agenda, education and training are core instruments in promoting Europe's innovativeness and competitiveness, within the knowledge triangle of education-research-innovation, and particularly so in times of Demographic Change.

It seems obvious that longer lives in volatile and rapidly changing economies are not successfully mastered by one period of education at the beginning of life. Education and learning thus have to be considered in a lifespan perspective, and the lifelong learning process has to be conceptualised as a sequential and consecutive process ranging from pre-school education to specific training programmes across the life span.² Not only will such learning biographies strengthen the success of individuals in the labour market and increase the productivity of the economy but continued learning across the whole life span has been demonstrated to also replenish personal resources (e.g., physical fitness, cognitive performance, personal openness) that help to buffer and delay age-related declines.³ Overall research findings support positive effects of cognitive and physical activity, social engagement, and therapeutic nutrition in optimising cognitive and physical ageing. So it is not surprising that there is a strong link between life expectancy and well-being on the one hand and education level on the other. It is important to realise that lifelong learning does not just start at 55 years of age but it starts after the completion of the first step of the educational biography. And in order to minimise the effects of socioeconomic background it is advisable to start age-adequate educational attention as early in life as possible.

² More Years, More Life. Recommendations of the Joint Academy Initiative on Ageing; Nova Acta Leopoldina Neue Folge Band 108, Nummer 372, Deutsche Akademie der Naturforscher Leopoldina – Nationale Akademie der Wissenschaften Halle (Saale), Wissenschaftliche Verlagsgesellschaft mbH Stuttgart 2010.

³ Baltes, P. B., Staudinger, U. M., & Lindenberger, U. (1999). Life-span psychology: Theory and application to intellectual functioning. *Annual Review of Psychology*, 50, 471-507.



Besides general improvements in education and training outcomes, scientific and technological literacy⁴ is crucial for the innovativeness effects as addressed in the Lisbon agenda. The following aspects need particular attention:

- Primary and secondary schools are affected – especially in rural regions – by shrinking pupil populations, which may impose challenges regarding short distance provision of educational facilities for all pupils. On the other hand, improved (science and technology) education in schools can help to boost human resource potentials and thereby increase the quality of human resources in times of smaller birth cohorts.
- Pre-primary education becomes more crucial for several reasons. Firstly, with shrinking populations, the potential of talents needs to be as exhaustively exploited as possible. Especially for disadvantaged learners, pre-primary education improves the likelihood of successful educational and employment careers. Pre-primary education therefore has to start building skills and competences to develop the abilities (social techniques) needed for an individual “life management”. Secondly, pre-primary resources and institutions are vital infrastructures to balance working life and family life, thus influencing (women’s) labour market participation, and fertility rates.
- Vocational education and training (VET) is a core element in providing skills needed in industry. Demographic Change will make it more difficult to attract young people into VET; this effect is already clearly visible in some European regions, like Eastern Germany. As a consequence, more effort is required to include disadvantaged learners into VET, and the attractiveness of VET needs to be improved, e.g. by more advanced and flexible pathways into continuing education, including permeability into higher education.
- Higher education institutions are also facing shrinking student populations. Not all institutions will be affected by this trend in the same way, but especially institutions remote from metropolitan regions will need to consider addressing new groups of students, including non-traditional students, e.g. vocationally educated persons seeking higher education programmes as a means of continuing education. Here, a substantial additional reservoir can be found for urgently needed Science & Engineering graduates. Generally, the involvement of universities in lifelong learning activities will have to expand substantially.

⁴ High Level Group on Science Education (2007): Science Education Now: A renewed Pedagogy for the Future of Europe. European Commission, Directorate-General for Research, Brussels
 Buhr, R., Hartmann, E.A. (ed.)(2008): Technische Bildung für Alle – Ein vernachlässigtes Schlüsselement der Innovationspolitik. Berlin. [Technological education for everyone – a neglected issue of innovation policy, German]



- Institutions providing continuing and adult education will be challenged to maintain, expand and enhance programmes for lifelong learning and education, regarding functional learning outcomes to support elderly workers' labour market participation, and programmes designed for active ageing after the working life phase. Particular emphasis should be given to continuous education in information & communication technologies (ICT) in order to avoid the exclusion of large portions of older cohorts from new ICT developments. This may be particularly important for currently older adults and may become less important in the future. But we cannot exclude the possibility that the future will bring more major ICT innovations that make it difficult for people at the end of the working lives to keep up.
- It is pivotal that sustainable financial models of lifelong learning are established.
- Companies need to be acknowledged and developed as important locations for lifelong learning. Training needs to become an important and normal part of working life. Work contexts need to be constructed so that they support learning rather than debilitate it.
- Times of unemployment or of parental leave as well as sabbaticals need to be combined with training spells in order to facilitate re-entry and success in the labour market.
- Small and medium-sized companies need to be supported by regional networks in terms of their lifelong learning strategies.
- General competences that are necessary to successfully master longer lives (e.g., health-related skills, information skills, life management skills) need to be distributed among the population at large in order to avoid an increase in social stratification with regard to morbidity and survival.
- Last but not least, the views and general beliefs about learning and aging as well as the role of learning during adult life need to be changed and updated.

5.4.2 Research needs

Research on the plasticity of the adult development and ageing is central for a re-evaluation of lifelong learning and effective practices, including its interdisciplinary links to health and well-being, productivity, and regional development. There is a huge demand for clarification and public awareness, even though there already exists a solid body of knowledge about how to support the plasticity of cognitive functioning. More needs to be investigated with regard to the exact mechanisms



supporting plasticity. Close connections between the physical and cognitive but also the motivational and the cognitive level of functioning need to be further uncovered. And we need to learn more about which conditions at the work place may support cognitive plasticity and learning. Plasticity of motivation and personality is very much underrepresented so far and needs to be developed. Long-term studies on the effects of lifelong learning are yet missing as well. Social interaction and social participation cannot be overestimated in their effect on cognitive functioning as well as well-being and health. There is, furthermore, a marked absence of practical implementation. Practical examples that could serve as a model and bring about a transformation in thinking and behaving are currently portrayed without reference to scientific insights and hardly fulfil a standard-setting role.

- Comparative research on learning conditions and learning impacts should disclose the existing regional and cultural diversity. This research should include a common quality control for educational programmes. R&D projects should set up the corresponding methodology on how educational systems, including life long learning programmes (before and after retirement) are to be assessed.
- Research requirements concerning specific target group/ age groups have to be mapped out. It will also be important to monitor the specific needs and expectations of adults in terms of Life-long Learning (LLL). For instance, which role may peer-teaching play in LLL in later life? Moreover, prognoses for future cohorts also have to be devised. A more streamlined cooperation between education and the world of work has to be advanced. Research into economic and social welfare effects of lifelong learning should be advanced both on the business case and public/national level. To achieve these goals, strong incentives, wide selection of choices and improved access as well as advanced guidance are of the utmost importance. Measures such as diversity management, work based learning, age-heterogeneous and age-sensitive employment structures have to be further established and will serve as benchmarks.
- The implementation and frequent repetition of a “PISA for Adults” in order to evaluate the knowledge base of adult and elderly people will be a first milestone towards empirical and comparable data sets or even a pan-European database on knowledge distribution throughout this population share. Diagnosis of individual competencies needs to be further developed from an interdisciplinary perspective. While the JPI should make use of existing tools to promote R&D issues in education and learning and good practices, a harmonisation of



- monitoring tools for lifelong learning (cross-cultural, cross-lingual, cross-national) is meaningful. There is currently no common understanding on measuring variables and indicators which strongly limits the European comparability, let alone comparisons with the EU competitors. An interdisciplinary orientation and cooperation on the continuous research into the potentials of the elderly and ageing as a process on a broad basis are urgent needs.

5.4.3 Perspectives

Traditional concepts of lifecycles are outdated. The three-phase-model of a lifecycle will become ever more obsolete. Instead, there will be increased **alternation** between the phases. Learning, work and leisure will overlap and be much more integrated. The full lifespan will have to be considered. The educational policies will have to take into account these changing conditions. The assessment and prediction of individual, behavioural and structural change is to be improved. Factual knowledge on these processes will better outline the required competencies and thus give the input for the required adaptation of the educational systems.

In the future we have to achieve an integrated view of the whole educational chain, in order to describe, identify and measure **innovation-related learning outcomes** – as e.g. in the domain of science and technology literacy –, and how such an approach can be implemented and integrated in indicator and reporting systems.

The many providers of further education should be linked in a much more transparent and efficient way, including an increase in the **permeability between secondary and tertiary education** and evaluation of prospective outcomes for the individual participant. Company programs, vocational training, and general further education should be structured such that clients can combine different measures into a larger certificate or degree and can spread them out over time. In the framework of lifelong learning, permeability has to be improved within and across educational sectors, also regarding the specific **permeability between vocational and higher education**. Formal, **non-formal, and informal learning** settings and outcomes have to be more comprehensively and systematically integrated in educational policies, and corporate personnel development strategies and programmes. Learning and innovation processes in work and educational contexts have to be more intensively interlinked. During adult life, learning more and more occurs on the job. In the future, it will be even more important to interpret **working environments as learning environments** and design them correspondingly. Learning and education must be coherently integrated into one's work life and into work time. Thus lifelong education and training has to become a regular component of gainful employment. This obviously means that a longer life doesn't only mean a longer working life, but a **longer educational life**.



Meta-competences have to be built up that permit individuals an independent orientation and navigation through the permanently changing life and work constellations. Therefore we need to develop training and counselling capacities that provide this **meta-knowledge**. This also requires adequate further education of executives and decision-makers and the setting up of standards. Traditional models of personnel management have to be replaced by skill oriented and potential promoting decisions and preferences: **Diversity management** is more adequate and future orientated. Potentials and skill in the course of working life have to be fostered and used efficiently. The acquisition of skills should be made **certifiable** and **transferable** throughout sectors and European Member States.

Prevalent images of old age and the learning climate in a company will have to undergo crucial transformations. Longevity should be taken as opportunity to increase **self-determination and independence** in all life phases. On the one hand we have the prospect of increasing **productivity, capacity and efficiency**. On the other hand we look toward a **healthier and more liveable future** during the whole lifecycle for the individual. Based on solid scientific findings, European societies can take up the opportunities of Demographic Change in a highly dynamic manner and advance **satisfaction, success and quality** in all our future lives.

5.5. Housing, urban-rural Development & Mobility

5.5.1 Grand challenges to society

The process of urbanisation in the developed world, especially in Europe, has dramatic implications both in its quantitative dimension and in its qualitative significance. The urban population in general is ageing, residential conditions are being transformed rapidly and mobility is becoming an essential reference in demographic behaviour, pushing the boundaries of urban areas. At the same time, rural areas find themselves in a position subsidiary to the cities, but they also have a very large elderly population in proportion. Both contexts, urban and rural, thus represent threats to an ageing society that requires 'friendly' spaces and environments. Achieving cities and spaces that are friendly, healthy, accessible, safe, sustainable, organic, inclusive, etc. constitutes one of the great challenges of the coming years, and the older people are going to be protagonists in this process.

- The first grand challenge to society concerns **adequate living spaces of the older population**. Although the movement generated by the 'housing' paradigm comes from the field of long-term care and reflects concern at the increasing number of people needing help and having difficulty continuing living in their own homes, this movement draws on the conceptual framework of another paradigm, that of 'active ageing' as a social construction that promotes the autonomy of older people as a real social value. Boosting people's



autonomy and empowering them to pursue their projects and their preferences in sustainable environments is another major challenge for the future. Therefore, intervention planning and the research on which it is based must take into account the preferences of citizens and in particular of the elderly. There are more and more citizens who feel that if they come to need help living their lives as they age, they would like to receive that help in their own homes. In many European societies, particularly in the south, there is a certain resistance to institutional residential alternatives when people get older and have to decide whether to stay at home or not. Designing models of care tailored to the needs of people staying in their own homes and, if that is not possible, to enable access to accommodation and ways of living as if "at home" (see chapter "Health & Performance") is another major challenge.

- The **mobility of older people** is the second grand challenge for many European countries. At a time and a space in which the phenomena of globalisation conditions many social behaviours, mobility is an inherent feature of populations, especially of adults, but also of older people because of their sociodemographic characteristics, prior experience and behaviours acquired over the course of their working lives. While moving in adulthood and older age is a selective behaviour, which only affects a percentage of the population, its effects can be of great importance to states, regions and municipalities. The economic activity that revolves around the mobility of older people is very important, especially in Europe due to the ongoing socio-political integration and unification.
- **Senior tourism** is one of the well-known practices in a culture that promotes 'active ageing' of the population and adapting retirement to the enjoyment of leisure time. Behind this basic motivation there are behaviours of enormous economic importance, such as the potential for a policy of promoting the mobility of senior tourism between states, the adaptation of senior tourism to conditions of decreasing personal autonomy, the adaptation of tourist environments according to the principles of 'design for all' that can generate more tourism products specifically for senior citizens, the adaptation of hotels and tourist establishments to promote accessibility, the design of tourist activities related to enjoying European culture and heritage. Many of these initiatives would open ample business opportunities. There is mobility, in many cases **migration**, of older people seeking to settle in amenable environments, such as coastal or rural areas in search of quality of life and freedom from ailments. We have yet to study from a general European perspective the economic, social and individual consequences of such movements in residential environments as well as



scenarios of the portability of rights among states when people emigrate within Europe. No less important is the formation of residential environments for older people in certain municipal areas, especially given the effort involved in providing the services to which rights as European citizens entitle them.

- The **ageing of the population in rural areas** addresses the third grand challenge facing Europe. While research on urban ageing in Europe is well developed, there has not been so much interest in analysing the older population in rural environments. The older rural
- population may not be so numerous as those in urban settings, but it reaches fairly high proportions. Designing the best model of care and services under the principle of remaining in the accustomed residential environment is an important challenge. Furthermore, in many Member States a continuous population decrease occurs in rural areas leaving over-aged villages with major challenges regarding the social inclusion of the population. The low population density results in big and costly problems because central infrastructures must be maintained in order to not cut off the residual population from public life and participation. Here it is a central issue to design solutions without the need for expensive long-term investments in order to obtain more flexible and adaptive infrastructures as well as transportation systems.

5.5.2 Research needs

Research in the field of “Housing, Urban-Rural Development & Mobility” has to focus on essential aspects of people's lives as they age, such as

- **Creating security** among people who need help,
- **Achieving age-friendly environments:** Buildings, streets and neighbourhoods that promote the mobility of people in their environment, especially to ensure closeness and efficient **access to everyday services**,
- Designing transport systems that **facilitate mobility**,
- Maintaining and promoting **inclusion** and **social and family networks** in community spaces.

Many of these research requirements might fit into the movement for age-friendly cities and environments promoted by WHO in its "Global Age-friendly Cities"⁵, which outlines a wide range of research possibilities related to several thematic areas such as outdoor spaces and buildings, transport, housing, social support networks, inclusion, participation and communication and

⁵ See http://www.who.int/ageing/application_form/en/index.html



information. All this complements other development initiatives in the field of urban planning and universal design that should generate new knowledge in this field.

The given general outline of future requirements can be focused more concretely. A first complex of R&D issues deals with the “built environment” in micro and macro dimensions as parts of the living space for elderly persons. The micro dimension represents the private home and the conditions to maintain an autonomous and independent living in a familiar setting. These aspects are fundamental for wellbeing and self-esteem of (elderly) people – the value of the own home/domestic space becomes fully visible when it is lost suddenly. Therefore, the following topics need to be investigated:

- The perception of subjective well-being generated in the domestic space
- Identifying the factors determining the use of the home (gender, health, idiosyncrasy, social and family networks)
- Assessing the new needs and responses in the domestic sphere in relation to different models of family and couples and the socio-demographic contexts of development
- Reflection on the model of integrated care in the family and the role of formal and informal caregivers, especially immigrant caregivers, who enable people needing care to stay at home
- Concepts to ensure socially included elderly people (through mobility and ICT).
- Assistance for daily life (housing and beyond) of older people by the development and deployment of “Ambient Assisted Living” solutions including new business and cost share models to make these offers accessible for mostly all elderly people.
- A commitment to design that favours accessibility, safety in use, the integrated provision of services in the home and the implementation of technologies tailored to specific needs, with an ethical approach that facilitates living at home through the development of sustainable, economical and inclusive designs.
- Assessment of alternative housing models in relation to the cultural environment in which they are set up, considering their potentials and impacts as good practice strategies.
- The development of policies for housing for all ages in different cultural and geographical environments.

The macro dimension of living space concerns settlement structures and planning in terms of friendly local (residential) environments – especially in rural areas due to the additional problem of low population density and related cost drivers when it comes to infrastructure investments. Thus the main



challenge in this area of research is research into the design of future environments to support health and wellbeing and the provision and accessibility of services for older people in rural areas, emphasising:

- Geographical distribution patterns of the elderly population in rural areas
- Analysis of physical infrastructure and transportation
- Assessing the density of social networks as basic support structures in elderly care: the role played by social support organisations (social capital) in the model of care
- Public policies of providing services to dependent persons
- Integration with private operators and specialised companies regarding the financing of services
- The development of a model of care based on proximity and on maintaining people in their usual environment.

A review of some European models of care for older people in rural areas can be an essential strategy to assess not only the performance of services, but also the consequences that accrue to the population served and the public administration and the business sector.

Demographic Change will have various impacts on urban/rural transport systems like different needs, expectations, economic limits and demand patterns of costumers. Reduced mobility and orientation leads to a segregated society, where people with low mobility are rarely seen in public. The related aspects necessary to be developed are:

- Combined concepts of personalised housing and personalised mobility.
- Improvement of mobility and safety for older drivers, training of their skills and overcoming impairments by assistance systems (mixture of stimuli and assistance).
- Improvement of the access to the self-service society for old and disadvantaged people.

5.5.3 Perspectives

Ageing in Europe varies considerably among nations, regions, towns, and local communities and these regional disparities are growing. They require an intensive dialogue on the conditions of ageing at local level and on the principle of the equality of living conditions in a society with an ageing population. There are two particularly important issues: First, it is essential to accept that the minimum standards of public services will in the future differ more by region than to date. Second, sufficient



scope is required at communal and regional level for local communities, public agencies, and private service providers to develop appropriately adapted and concerted solutions.

The area disparities and regional conditions for ageing need to be given more attention. Regular surveys (e.g. age monitoring) that include information on local disparities in the conditions of ageing are required. Towns and villages should be places for all generations. The aim cannot be to develop some of them exclusively for the specific needs of older people. The development of age homogeneous retirement communities is seen as problematic. However, it is commendable for local communities to become more sensitive to age-related requirements. Such sensitivities are increasingly becoming a factor contributing to communities' attractiveness and their prospects for the future. The principles of sustainable regional and urban development and an orientation toward the model of a "city of short distances" are suitable approaches. Such concepts do intertwine the aspect of "built environment", infrastructure and mobility. New technological developments in combination with (commercial, volunteer or peer-to-peer) services and organisational means will be a precondition for seamless and consistent mobility chains suitable for the needs and settings of elderly people. Mobility in everyday life secures people's participation in societal, political, and economic exchange processes. In old age, slowing perception and reactions as well as reduced physical abilities demand appropriate mobility aids. Assistive technology and access to the internet can be an answer. Their further distribution has to be ensured. Additionally, regarding the aspects of safety and accessibility, an integrated mobility policy is required that brings housing and transport policies closer together at local-community level. Appropriate assistive technology and traffic facilities need to be provided for people of very old age in particular, and also for younger people with physical disabilities.



6. Outlook

The Joint Programming Initiative on Demographic Change prepares R&D activities that aim at enabling all people to live an active and independent life, to enjoy social participation and a high quality of life up into old age (irrespective of income, gender or ethnic background). At the same time, it intends to find mechanisms to make better use of the rich life and work experience of the older generations for the benefit of society. Thus, ageing needs to be implemented as an active intergenerational process. This also implies a lifespan perspective of the JPI, recognising the crucial role of early prevention, intervention and action in general, not least to diminish the social gradient emerging at higher ages. These demanding objectives need an alteration of several social routines, priorities and developments and therefore require an interdisciplinary overall strategic R&D approach addressing innovative technologies and services, the development of productivity and health promoting working conditions, new models of work and social security organisation, the development of new regional facilities and infrastructures, etc.

This endeavour necessitates a new attitude towards Demographic Change – we need to come to see it not only as a challenge but as well as a chance: using the experiences, knowledge and demands of the older generations opens opportunities to make European societies more inclusive, and yet globally more competitive and have them provide for yet better quality of longer lives.

The success of a common European strategy will depend on whether it combines research activities in the main areas in order to form a coherent overall concept: health and performance (including the biological foundations of the plasticity of ageing), employment, work and productivity, welfare & social systems, education and learning, housing and mobility and technology. For example, the creation of a common new market besides the highly regulated healthcare sector might become an attractive economic option for new business models and alliances, e. g., between health providers and housing. The JPI is about to remove classical barriers which inhibit European R&D cooperation and to facilitate the creation of a common knowledge base. Compatibility, exchange and comparisons of data need to be achieved by establishing a common terminology and by consolidating the used indicators. The same holds true for interdisciplinarity that is considered as crucial, indispensable but challenging feature of any R&D setting in the demographic context.

Due to the fact that the phenomenon of Demographic Change needs to be explained by empirical data and evidence, it must be decided if additional indicators should be developed in order to measure the



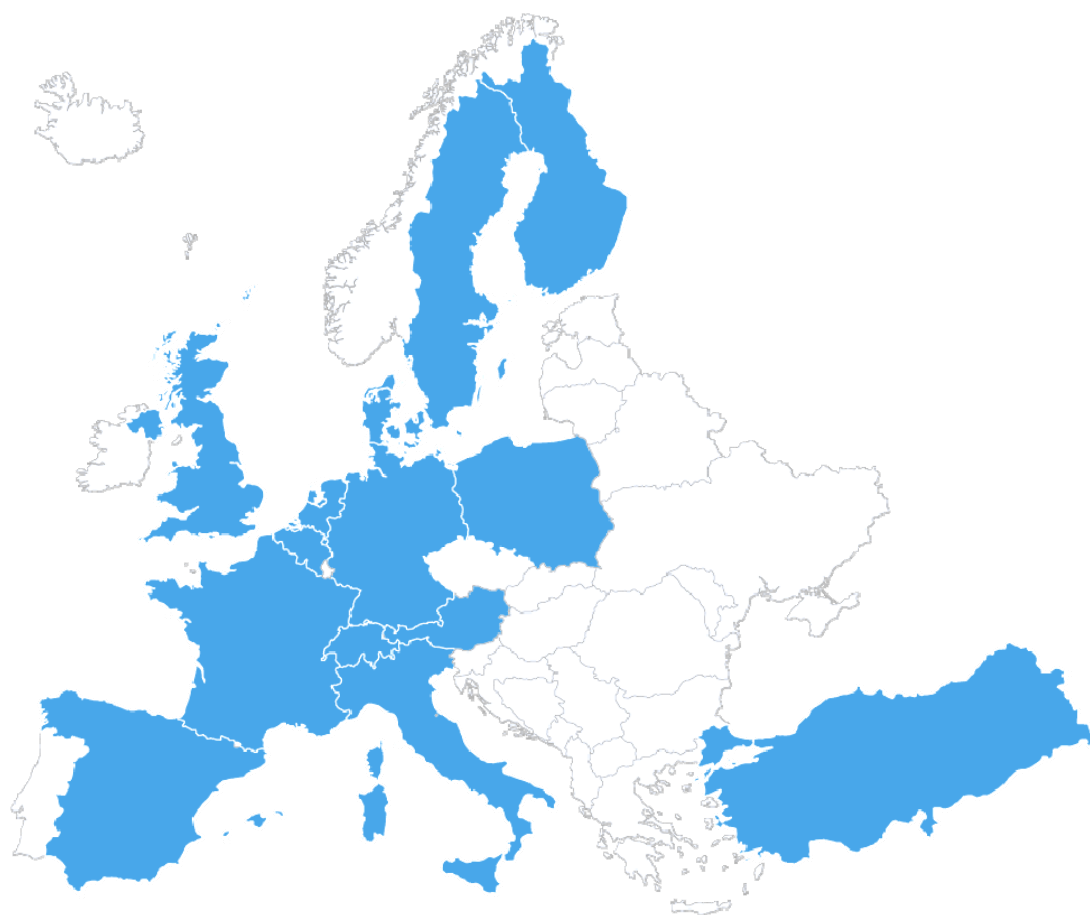
quality of life throughout Europe. The aim of all research approaches on Demographic Change will be to develop strong relations between academia, policy makers and stakeholders, including older people as well. Only this combination will allow a change “from guessing to knowing” in the real world. Providing data for an evidence-based policy is the primary task and objective of this JPI:

- **“What is needed?” Exploring the room for positive change in direct interaction with the population.**
- **“What can be done?” Scientific findings as evidence for policy.**
- **“How to implement?” Policy means that can be used in order to improve the situation.**
- **“How to measure?” Evaluation in order to adapt the policies.**

In addition to the need for further empirical data, there appears to be a huge gap in implementation of well established findings and (policy) recommendations from ageing research. The JPI is thought to bring about knowledge on if-then relations to uncover the potential of ageing and secure the chances for better ageing. The fundamentals of epigenetic influence on molecular, cellular and individual ageing are entailed as well as the incentive structures for learning, working and maintenance of health, for continuous social participation and productivity, the adequate set up of regional infrastructures and the permeation of everyday and economic life by enhancing technologies.

The consequences of Demographic Change play out in numerous settings such as the social, cultural, economic and geographical ones. Such differences mean that researchers, policymakers, business people and the mobile population would have to experience genuine diversity in operation and learning environments. The dimension of local demographics will be challenged as the understanding of a European ageing population and positive expectations associated with it can be expected to grow. JPI aims to take advantage of the national differences in settings, in interests and theoretical paradigms.

Furthermore, Joint Programming and the establishment of a common European knowledge base in demographic and ageing-related research can also foster Europe’s economic competitiveness. By bringing together the best in R&D for addressing Demographic Change, European developments and resulting innovations, products and services for an ageing and inclusive society could be in the forefront in conquering the future and global “silver markets”.



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