Future Research Agenda for Sustainable Lifestyles

RESEARCH DIRECTIONS:
TRENDS AND SUPPORTING PRINCIPLES
ENABLERS OF SUSTAINABLE LIFESTYLES
RESEARCH APPROACH

D6.1 Sustainable Lifestyles Research Agenda

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SPREAD
Sustainable Lifestyles 2050

FUTURE RESEARCH AGENDA FOR SUSTAINABLE LIFESTYLES

D6.1 Sustainable Lifestyles Research Agenda

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ABOUT SPREAD
Sustainable Lifestyles 2050

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INTRODUCTION

The SPREAD Sustainable Lifestyles 2050, European Social Platform project[1] has been running from January 2011 to December 2012. A diverse group of societal stakeholders from business, research, policy and civil society have been invited to participate in the development of a vision for sustainable lifestyles in Europe by 2050. The Research Agenda is a key deliverable of the SPREAD Sustainable Lifestyles 2050 project, which also resulted in a roadmap towards more sustainable living in Europe, which proposes opportunity areas for policy, research, business and civil society.

The SPREAD Baseline Report "Sustainable Lifestyles: Today's Facts & Tomorrows Trends", concluded that current consumption levels and lifestyle patterns are unsustainable. Prompt and coherent action across stakeholder groups and sectors at the micro to macro scale are needed. The analysis of promising practices that minimise unsustainable lifestyle impacts while improving health and well-being and research findings has revealed useful patterns of innovation at the society and community levels, in the business and policy domain as well as in urban spatial and infrastructure design.

AIM OF THIS REPORT

The research agenda aims to support EU research policy makers in the formulation of future research programmes that address societal challenges to sustainable lifestyles and that support the EU 2020 Strategy. It describes the challenges for social scientific research in order to better understand the complex interactions between the various elements and conditions that shape lifestyles and to better understand the processes of change towards more sustainable lifestyles. In addition, the research agenda provides a clear overview of themes and topics that can be concretely taken up for further research. The agenda primarily draws focus on research challenges from an EU perspective, taking into account the position of Europe in relation to global issues and the consequences for other continents.

The research agenda is relevant for EU policy research, but also indicates research needs for national, regional and in some cases local research programmes and projects on the topic of sustainable lifestyles. For researchers, this agenda seeks to provide an outline of current research gaps, as identified throughout the SPREAD project, as well as future research opportunities based on the SPREAD Sustainable Lifestyles Scenarios 2050 and the EU Sustainable Lifestyles Action Roadmap 2012-2050.

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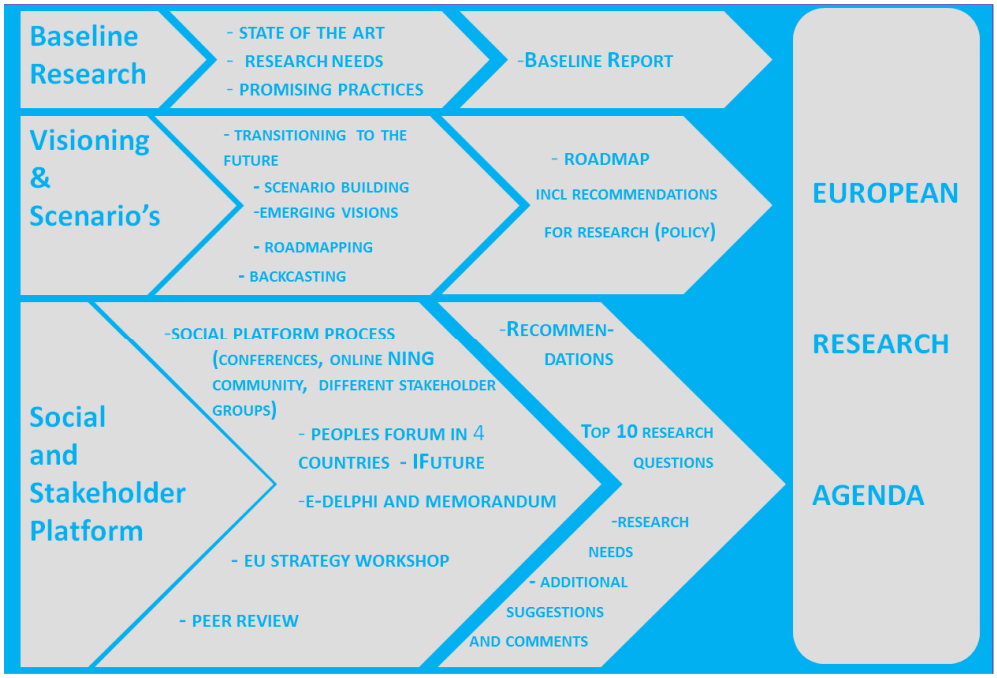
[1] The full project title is *Social Platform Identifying Research and Policy Needs for Sustainable Lifestyles in Europe 2050*. It is funded under the European Commission's FP7 programme, Grant Agreement 263962. The project coordinator is the Collaborating Centre on Sustainable Consumption and Production (CSCP), Germany. Project consortium partners are: the Energy research Centre of the Netherlands (ECN), The Netherlands; Demos Helsinki (Demos), Finland; Politecnico di Milano (Polimi), Italy; EuroHealthNet, Belgium; The International Institute for Industrial Environmental Economics at Lund University (ULUND), Sweden; Regional Environmental Center for CEE countries (REC), Hungary; Ecoinstitut Barcelona (ECOI), Spain; The Northern Alliance for Sustainability (ANPED), Belgium; Ashoka, France.

For background reading and references we recommend the SPREAD Baseline Report "Sustainable Lifestyles: Today's Facts & Tomorrows Trends" and the "Sustainable Lifestyles Scenarios 2050: From Global Champions to Local Loops". More practical ideas regarding future action are addressed in the report "EU Sustainable Lifestyles Action Roadmap 2012-2050".

The process for developing the research agenda

The research agenda is the result of several processes within the SPREAD Sustainable Lifestyles 2050, European Social Platform project, as depicted in Figure 1 below.

Figure 1 SPREAD Sustainable Lifestyles 2050 process and outcomes



The following outcomes of the project were used to set up this Research Agenda. First, the baseline research "Sustainable Lifestyles: Today's Facts & Tomorrows Trends", which contains an inventory of current trends and promising practices concerning sustainable lifestyles. The baseline research was followed by several forward looking activities initiated to make the intended 'end goal' of sustainable lifestyles in 2050 more visible and viable. To focus on possible future sustainable lifestyles, visions and scenarios were created of how this sustainable future might appear, complemented by constructing the roadmap towards 2050, in which barriers and gatekeepers for sustainable lifestyles are identified. By analysing promising practices, we used the process of backcasting to produce four future scenarios which emphasize possible elements of sustainable societies.

Not only did we work with experts on these described outcomes, we also asked different stakeholder groups and social platforms to help us create a society-based vision on sustainable lifestyles and the road to take towards this future. For example, the NING online platform, which was created for this project, enlisted more than 500 members. In this online meeting place in which different stakeholders, e.g. practitioners, policy makers, businesses and entrepreneurs, funding bodies, and end-users or consumers can express their views, visions and concerns associated with sustainable lifestyles and new ways of thinking and working that One Planet Living may imply. Stakeholder groups were for example involved in

the iFuture workshops. This 'peoples forum' has reached out to individuals in four European countries (Finland, Germany, Hungary and Spain) and has aimed to identify the different motives and values behind everyday choices and behaviour in Europe.

Topics and questions raised by members of the NING online platform and iFuture participants have been integrated into the Research Agenda. Combining all these outputs, we are able to identify the elements that research and policy makers have to take into consideration when working on a sustainable future with matching lifestyles.

THE STRUCTURE OF THE RESEARCH AGENDA

The Research Agenda is a future-oriented document. Taking today's societal problems and current state of the art in research as a starting point, it defines the key themes and research issues that need to be addressed in order to overcome these challenges and to establish sustainable societies. The current unsustainable lifestyles and trends must be solved within the limits of our resources, with the principles of sustainable lifestyles, and with the "How" factors (e.g. actors, mechanisms, etc.) to achieve sustainable lifestyles. To foster the shift towards a sustainable future, it is necessary to clarify what this desired future would look like, and how to get there.

In the Baseline Report "Sustainable Lifestyles: Today's Facts & Tomorrows Trends", we introduced four lifestyle domains that require deeper investigation: consuming, living, moving and health & society. Throughout the SPREAD project, these four domains have been utilized as a narrative principle. In this report, the corresponding icons are presented to illustrate how the described research challenges and questions relate to these four lifestyle domains. Table 1 provides an overview of the four lifestyle domains, based on the Baseline report.

Table 1 Four lifestyle domains

Lifestyle domain		Key challenges and impacts
	**Consuming:** food, household and leisure consumer products	• Food and drink consumption, in particular meat and dairy • Increasing long-distance transportation of goods, particularly import of non-seasonal and exotic foods • Increasing use of chemicals in food production and increasing consumption of processed food
	**Living**: the built environment and homes	• Increasing number of households • Increasing individual living spaces • Increasing consumption of energy and water despite recent energy efficiency gains in household appliances • Growing number of electricity consuming appliances and devices in households • Rebound effects
	**Moving:** individual mobility and transport	• Increasing numbers of passenger cars • Oil dependency (a consequence of passenger car use) • Increasing mobility needs related to urban sprawl and urban structures that favour car use • Rising air travel and cheaper air fares

	**Health and society:** individual and society wide-health and equity	• Increasing levels of obesity and heart disease associated with poor diets and inadequate lifestyle choices • Increase of respiratory and heart diseases associated with poor housing conditions • Increased availability and low prices for highly processed, unhealthy food products • Per capita environmental impacts are considerably higher in high income groups than in lower income groups • Low income groups are more deeply affected by adverse sustainability effects (e.g. climate change, local air pollution, rising energy prices) • High income groups are more likely to have healthier diets

As there is need for a clear overview on what current findings behold, and which future needs should be clarified, we developed a structure for the Research Agenda which contains the following elements:

- Trends and supporting principles (section 2)
- Research directions: enablers of sustainable lifestyles (section 3)
- Research approach (section 4).

Section 2 describes the theoretical approach used in devising the research agenda. First, we discuss a definition of sustainable lifestyles, followed by an overview of relevant trends that require a deeper understanding of barriers to be overcome as well as opportunities for scaling up promising and more sustainable lifestyles. This section concludes with an inventory of research needs on the macro-level and the micro-level to improve the knowledge base on consumption.

Section 3 presents future research directions that should be explored in order to support change towards sustainable lifestyles. We distinguish eight different enablers of sustainable lifestyles. We start every theme with an overview of current challenges, research relevance and research gaps, followed by specific research topics and questions, and suggested research methodologies and research designs.

Section 4 comprises research strategies that focus on the "how" of the research and includes principles for research, methodological implications, and strategies for addressing research problems. In this section we highlight changes in research approaches that need to be facilitated when inquiring into the complex and multi-faceted domain of lifestyle change. This section also reflects on the synergies of this Research Agenda with Horizon 2020 – The Framework Programme for Research and Innovation of the European Union that made research and innovation into a cornerstone (European Commission 2011).

FUTURE RESEARCH DIRECTIONS: TRENDS AND SUPPORTING PRINCIPLES

Before focusing on research needed to enable sustainable lifestyles in chapter 3, this chapter describes the theoretical approach used in devising the research agenda. First, we discuss a definition of sustainable lifestyles. Then, section 2.2 presents an overview of relevant trends that require a deeper understanding of barriers to be overcome as well as opportunities for scaling up promising and more sustainable lifestyles.

DEFINITION OF SUSTAINABLE LIFESTYLES

There is no commonly agreed definition for sustainable lifestyles. The most widely cited definition is that of the Westminster Centre for Sustainable Development that defines sustainable lifestyles as: "patterns of action and consumption used by people to affiliate and differentiate themselves from others, which: meet basic needs, provide a better quality of life, minimize the use of natural resources and emissions of waste and pollutants over the lifecycle, and do not jeopardize the needs of future generations" (CfSD, 2004).

This definition acknowledges that lifestyles comprise all actions, preferences and values that allow us to fulfil our needs and aspirations. Lifestyles serve as "social conversations", in which people express their social position and psychological aspirations to others. Lifestyle is how we prefer to live, spend our time, interact with others, who these others are, where we live, where we shop and what we consume. Since many of the signals are mediated by goods, lifestyles are closely linked to material and resource flows in society. Creating sustainable lifestyles means rethinking our ways of living, how we buy and how we organise our everyday life. It is also about altering how we socialise, exchange, share, educate and build identities. It is about transforming our societies and living in balance with our natural environment. In order for current lifestyles to become sustainable, they need to be accommodated within resources and emissions that can be assimilated by our one planet and that should be distributed fairly among people.

To define sustainable lifestyles, the SPREAD project linked sustainable living to planetary resource limits. Specifically, the SPREAD project made use of the Sustainable Lifestyles Material Footprint measure to define material intensity of a sustainable lifestyle that takes place within the planetary boundaries.[2] Our research has demonstrated that although the

[2] Within SPREAD, iFuture workshops have been organized in which the 8 000 Kg Sustainable Lifestyles Material Footprint approach was elaborated.

current Sustainable Lifestyles Material Footprint of an average European lifestyle is around 29 000 Kg per person, a sustainable European lifestyle should rely on 8 000 Kg of materials per capita (Lettenmeier, Hirvilammi et al. 2012). The 8 000 Kg comprise Sustainable Lifestyles Material Footprints from the use of household goods, food and beverages, everyday mobility and tourism, electricity, heating and housing. Other principles of One Planet Living that are often mentioned in discussions about what constitutes a sustainable lifestyle, such as community, culture and health, were incorporated into SPREAD sustainable lifestyles scenarios through story-telling and emerging practices.

In addition to the qualitative definition of sustainable lifestyles, which outlines the "what" of sustainable living and its translation into the quantitative definition of sustainable lifestyles (material intensity), which defines how much resources are needed to support sustainable living, processes for reaching a more sustainable society need to be understood - the "how". Research in the SPREAD project confirms that 'one size does not fit all'. Sustainable solutions and their introduction, implementation and scaling up need to be tailored to specific contexts: physical, geographic, social, economic, or cultural. Therefore, SPREAD sustainable lifestyles scenarios and their Sustainable Lifestyles Material Footprint integrate the view that the composition of 8 000 Kg can differ from context to context and among different segments of population.

It is acknowledged that the share of each consumption domain in the average Sustainable Lifestyles Material Footprint of 8 000 Kg per person depends on the values, needs and aspirations of each individual. In addition, processes towards sustainable lifestyles need to address both individual behaviours and choices, while also taking into consideration how individual behaviour is shaped by the wider context of community, stakeholders, institutions, technology, infrastructures and culture.

LIFESTYLE TRENDS AND RESEARCH NEEDS

The SPREAD baseline research analysed current lifestyle trends. This analysis included both an inventory of trends driving unsustainable lifestyle and consumption patterns, as well as the identification of promising social innovation trends and citizen movements towards more sustainable living trends. In the context of further research, this section briefly reviews relevant trends that require a deeper understanding of barriers to be overcome as well as opportunities to scale up promising and more sustainable lifestyle trends.

From unsustainable trends…

Current unsustainable trends have a major impact on initiatives to achieve sustainable lifestyles. However, these trends cannot be stopped or changed overnight by single initiatives. In order to reverse these unsustainable trends to support sustainable lifestyles, we need to understand not only the impact these trends have on sustainable living, but also the drivers of these trends - both on an institutional level and in terms of technology and individual behaviour and consumption. Therefore, we need to look at opportunities and possibilities by exploring new methods, models and ideas on these same negative trends.

The trends in individual and household consumption in the past decades all point towards an increase in terms of energy and material per capita consumption, food and textile, cosmetics and electronics (EEA 2012). Efficiency improvements offered by technological progress have been negated by increased standards of living and consumption of material goods and by growing population.

Table 2: Megatrends and European Lifestyles

Section	Global trends	EU trends	Challenges for more sustainable ways of living	Opportunities for more sustainable ways of living
Population trends and urbanisation	• global population growth • growing middle class • urbanisation	• aging societies • shrinking household size • increasing number of households	• increased demand for health and social services • stress on public finances in Europe	• dense living in cities can support more efficient living (e.g. smaller living spaces, less car use)
Climate change	• extreme weather events • resource shortages • migration and conflict	• rising health risks	• negative impact on mental and physical health • people with low incomes are at higher risk	• sustainable industries emerge and contribute to reduced climate impacts • the need to adapt to temperature increases of 4°C stimulates business innovation • large portion of incomes is spent on sustainable living that also reduces climate change
Economic growth, jobs, time and well-being	• economic growth helps eradicate poverty and disease	• economic growth and subjective well-being have decoupled in many European countries	• higher incomes coupled with less leisure time can drive consumption-intensive lifestyles and higher stress levels	• sustainable economy • "green jobs" • providing alternatives to "consumer culture"
Accumulation of "stuff"	• household consumption is encouraged to drive economic growth	• debt levels are increasing • labour costs are increasing, while product costs are decreasing	• sustainable and durable design, repair and reuse are not economical • advertising instils desires for new products and services • "green-washing" • proliferation of eco-labels is confusing	• need to rethink social costs of using personal credit to stimulate consumption • green and sustainability marketing is a growing field
Technological and social innovation	• technological innovation at an unprecedented speed and level	• technological innovation at a high level and speed, contrasted with a slow speed of social innovation	• technological innovation drives consumer culture	• technological innovation drives energy efficiency and sustainability developments • sustainable business models and social innovation support more sustainable ways of living

At the individual level, people spend money on products that were once regarded as luxuries and are now perceived as necessities, both in developed and developing economies. There is a general trend to accumulate "stuff". It is not uncommon for EU households to own 20 to 30 technological items (IEA 2009). Often, the purchase of one

product requires or leads to the purchase of another set of items. Through the media people are exposed to consumption patterns from the most prestigious groups in society. As a consequence, people from all parts of society are aspiring to own designer goods and to live luxury lifestyles with high environmental impacts (Schor 1999). Ways of spending leisure time and vacations, i.e. large-distance travelling, display patterns of unsustainable behaviour (Schor 2010). The table below, which is based on the SPREAD baseline report, illustrates current trends and associated lifestyle related sustainability opportunities.[3]

… Toward sustainable lifestyles

Positive developments to shape our consumption into a more sustainable direction can also be identified. For example, there is a greater awareness of sustainability issues in general. A 2009 poll showed that a slim majority (55%) of EU citizens buying or using products are, in general, aware of their most significant impacts on the environment that arise from the product (European Commission 2009). Young people aged 18 to 25 believe that their generation is consuming too much and ask for more information on how they can reduce negative impacts of their consumption (OECD 2008). This has been matched by a growing awareness among Europeans about the potential for cost savings and private consumption reduction in the aftermath of the economic crisis of 2008. The emerging trend that reinforces the values of thrift and frugality is collaborative consumption, which includes product sharing, swapping, lending, and online trading. A global survey of young adults on their visions for sustainable lifestyles (UNEP 2011; ongoing) indicates that the majority are seeking financial, social, environmental and personal security rather than pursuing luxury and unlimited material comfort.

There is also an increasing trend to exchange gifts of an experience, rather than objects: this has some potential for sustainable consumption depending on the nature of the experience. For example, a massage, cinema visit or cookery course might have a relatively low environmental impact (compared to jewellery for example). This concept has great potential within a future de-materialised economy. And small but important step towards sustainability can be achieved at the individual and the household level, preferably with the help of many societal actors, e.g. governments, businesses and social institutions.

Meeting our individual needs and desires within the limits of available resources is our collective challenge. The societal challenge of satisfying individual needs within planetary limits poses several research challenges. These range from collecting data and mapping current unsustainable levels of consumption per capita in different countries and regions to estimating the actual consumption levels that can be supported within one planet living, to developing solutions and contexts that enable individuals to lead more sustainable and satisfactory lives and makes them aware of being part of a bigger environmental and social context. Another challenge is to increase the sense of ownership and responsibility for collective and common goods.

Research Needs

On the macro-level of (mega)trends, a number of topics requires further research. First, there is a need to understand uncertainties and conditions that relate to macro-trends such as digitalization, consumerism, behaviour change, urbanization, ageing etc. Increasing consumption still clearly outpaces technological efficiency improvements; how can this be addressed more specifically? What are positive elements of the existing macro-trends: are there any, and if so, how can they be exploited or transferred into sustainable lifestyles?

[3] For more details on trends see also the SPREAD baseline report: "Sustainable Lifestyles: Today's facts & tomorrow's trends"

A research challenge lies in the analysis of unintended social consequences of environmental solutions, e.g. rebound effects. Research is also needed to obtain insight in geographical and cultural differentiation of (un)sustainable lifestyles, values and consumer behaviour patterns. The relationship between demographic change and sustainable lifestyles needs to be addressed. For example, ageing societies and shrinking household sizes pose new challenges for future sustainable lifestyles in the field of health, equity and well-being.

On the micro-level, data is lacking on the dynamic processes of how individual and household consumption patterns appear, how habits form and then disappear and how everyday practices change over time. Sociological research provides a wealth of ethnological studies that provide deep insights into specific practices or examples in particular contexts. However, research that outlines general dynamic patterns and trends on how certain practices emerge, sustain and then dissolve is currently lacking .

Related to this topic is the missing link between existing research on persistence of old practices, institutions, norms, and infrastructures and required mechanisms for initiating and sustaining persistent lifestyle changes. One example is the use of time in everyday life, and specifically how the distribution of paid and unpaid time and the degree of people's control over their time influence the capacity to live and consume more sustainably. Another example is the role of culture and social traditions in influencing consumption patterns and levels, e.g. Christmas consumption.

The research proposed here helps maintain and improve the knowledge base on consumption, but it does not provide direct input on how the shift towards sustainable lifestyles can be initiated. Looking more specifically at social innovation trends that can change the unsustainable patterns within the EU, in the next section we will elaborate on specific research gaps and research questions for eight enablers of sustainable lifestyles.

RESEARCH DIRECTIONS: ENABLERS OF SUSTAINABLE LIFESTYLES

In order to enable the shift toward sustainable lifestyles, SPREAD research has identified eight enablers:

1. **The economic system**
2. **Policy frameworks**
3. **Infrastructure and spatial planning**
4. **Information technology and social media**
5. **Social institutions**
6. **Collective actions**
7. **Individual behaviour**
8. **Governance processes**

In this section we present research directions for each enabler. First we describe the societal challenge, followed by the justification of research relevance and the research challenge. We provide an overview of the state of the art in existing research, identify gaps in research and formulate specific topics and research questions and present suggested methods, research approaches and design.

ENABLERS OF SUSTAINABLE LIFESTYLES: ECONOMIC SYSTEM

Societal challenge

The main societal challenge we face is the outdated nature of our economic system that underpins the entire society, from individual desires and choices to macro-political decisions and market dynamics. The system is based on the idea of perpetual economic growth that implies continuous expansion of the economy based on increasing resource use and reliance on the assimilating capacity of the planet. Relying on old-fashioned economic principles may at best solve economic emergencies in the short run, but it can put long-term prosperity of European societies at risk. As the Stockholm Memorandum (2011), signed by a jury of seventeen Nobel Laureates, states: "We must introduce strict resource efficiency standards to enable a decoupling of economic growth from resource use […] and develop new business models, based on radically improved energy and material efficiency."

Justification of research relevance and research challenge

The current economic system is rooted on economic research that formulated economic principles when environmental, resource and planetary boundaries were not yet known. And even today, most economic research still chooses to ignore ecological boundaries. The principles of the economic growth paradigm and the sovereignty of consumers need to be revised, taking into consideration new knowledge about natural limits, sustainability goals and health and well-being for all. The research challenge lies in the absence of alternative models for the traditional economic model. There is an ongoing debate addressing several topics related to the mainstream economic model and potential alternatives.

Although economic growth in all forms is not necessarily problematic, growth leading to increasing carbon outputs and physical resource depletion is unsustainable. The dominant model of economic growth, and the financial mechanisms developed to spur it, have created significant barriers to the development of an environmentally sustainable economy. The financial crisis of 2008, and consequent European and global recession and debt crisis demonstrated that the model failed not only on economic grounds, but also on sustainability grounds. Research in behavioural economics and sociology of consumption makes clear that neoclassical economics have failed to provide an understanding of people in their role as consumers and citizens that is useful for policy development in the field of sustainability.

State of the art in the research

Activities of both research and governments for finding alternative economic models have intensified in recent years in the light of the mounting evidence that growth as usual is no longer possible (Kallis 2011; ISIS Academy 2012). The spectrum of possible strategies that address criticism on growth ranges from Green Growth to Greening the Economy initiatives to more progressive Sustainable Development, and finally de-growth (Power and Mont 2012). As debate on the compatibility of growth with sustainability continues, calls are made to rather focus on policies that protect the environment and promote well-being regardless of their contribution to the economic growth and on creating alternative visions of society with various economic paradigms (van den Bergh 2011; Cohen 2012; 2012). Recently, the term Green Economy has been gaining popularity but a clear and widespread definition is lacking: for some it refers to cradle-to-cradle economies whilst others use it to describe short circle economies using local products and services.

The paramount for economic instruments to promote a more sustainable society, is to incorporate environmental and social costs and processes into product prices (Gee 1997), to tax financial transactions as a means to slow down unsustainable financial speculation and to tax environmentally damaging products and activities (WorldWatch Institute 2008). This would affect both industries and consumers and would make environmentally and socially responsible choices economically beneficial. Research is available offering specific suggestions on how this can be done and some countries demonstrate certain progress in this area. However, the speed, volume and geographical spread of these reforms are clearly insufficient.

One of the most obvious ways for governments to promote sustainable consumption and lifestyles is to extend the deployment of instruments already in use in a broad range of areas, namely instruments affecting time and income of consumers. Stimulating alternative forms of ownership could be more sustainable (Kelly, 2012). Shifting income to leisure time – working fewer hours for a reduced income and having more leisure time – has been named as one of the potential areas for governments to address unsustainable consumption (Ausubel and Grubler 1995; Sanne 2005). This idea has been introduced in a number of European countries by shortening the work week (Schor 2005); (Christensen, Godskesen et al. 2007). Since studies demonstrate that people with higher income have larger environmental footprints (Bradley 2009), exchanging income for leisure time may help reduce their environmental profiles.

Gaps in research on the economic system

- **New macro-economic models** need to be developed that are not based on continuous economic growth. This requires research on alternative economic principles and models for societal development, as well as for new indicators of progress that are not based on GDP. Some indicators have been proposed and used by NGOs and CSOs, e.g. the Happy Planet Index, but they have not been adopted for use by international organisations, the UN, EU and national governments. There are a few exceptions, e.g. Bhutan's Gross National Happiness. Research on alternative economic and business models and indicators – and their possible drawbacks and side-effects – needs to be intensified with contributions from researchers from different disciplines. For example, the effects of new models on global terms, or possible emerging conflicts should be taken into account. Although some countries have successfully applied Green Tax Reform to penalize the production and purchase of unsustainable products, further elaboration is needed, since recent evidence shows that the share of environmental tax revenue in GDP is decreasing in most countries.
- **Income** is one of the most important factors that influence purchasing behaviour, with wealthier households being more likely to purchase sustainable products, whereas lower socio-economic status groups have limited opportunity to buy sustainable products (OECD, 2006). Recent findings reveal that inequity is one of the main causes of discontent, and one of the main drivers of material consumption (Wilkinson et al, 2009). Customised strategies are needed for stimulating a shift in sustainable lifestyles among different income groups. There is lack of studies outlining solutions to the high-income – high environmental impact problem (Bradley 2009). New economic instruments can help reduce environmental impacts of these consumers.
- **Business** is heavily implicated in many of today's environmental concerns, but there are also encouraging examples of how business is genuinely trying to move towards more sustainable modes of business. Additional research can help to garner support for alternative business models that foster sustainable lifestyles. This should include business models not relying on advertisement or models based on service instead of products.
- **Household finances** and the balance between debt, savings and consumption, play an important role in shaping sustainable lifestyles and consumption patterns. Research is needed to develop shared understanding, learning and debate in the society about household finances. There is a need to rethink social costs of using personal credit to stimulate consumption (Michaelis 2000); instead stimuli need to be developed to promote the save and spend cycle. We need to have a better understanding of the impact of consumer credit and saving behaviours on everyday life and how policy can ensure that household economics shape everyday life within ecological limits.
- **A changing work-life balance** opens new opportunities for sustainable behaviour. Further analysis is needed of the effects of the shift from income to leisure time in some countries (e.g. in France, where the working week has been reduced to 35 hours). Effects on the environment, on society and on the life of individuals and household should be taken into account.
- **The shift from ownership to access of goods.** As more and more products are consumed in the form of shared services (e.g. car sharing), the access and hence the infrastructure of several products is shifting. Although the 'consuming shift' from owning products to sharing them is emerging, the (side) effects on our economy and society are not yet clear. In particular, the positive factors of the 'sharing economy' should be made clear by research and policy recommendations should be formulated if the sharing economy proves to be efficient and sustainable.

Specific topics - RQs

- Development of macro-economic models that are not based on continuous economic growth, and what are the quantifications of how far the current solutions are bringing us? What are the mechanisms for creating broad political support and will to implement the green tax reform in broader areas and in all European countries? Which business models are needed for an 8 000 Kg material resource footprint lifestyle? What are the sustainable living sectors that will require investment priorities to drive more sustainable living? This would be an analysis of correlations between sustainable lifestyles and sustainable business models.
- Green growth, de-growth and "beyond GDP" discussions suggest the viability of different models of measuring and creating wealth, well-being and prosperity that rely less on resource and energy intensive consumption. How can the EU and national policy makers meaningfully reflect on these developments?
- What are alternative ways of generating profit than linking it to sales of short-lived products, produced with decreasing periods of planned obsolescence? Open innovation: how to promote co-operation rather than competition among business partners in order to optimise resource efficiency in value chains? How do retailers regard opportunities for finding other ways of making profit (e.g. based on quality rather than volume)?
- How can business become more responsive towards bottom-up initiatives? How can businesses demonstrating leadership in sustainability initiatives assist in changing the discourse about the role of business more generally in striving for more sustainable lifestyles? Examples and opportunities to move towards extended producer responsibility for combating wasteful lifestyles through e.g. selling functions.
- What are skills for future sustainable societies? We need insights in skill development, education and capacity building; skills for sustainable entrepreneurs and corporate entrepreneurs to drive change towards sustainable lifestyles, by developing movements, business models or initiatives towards more sustainable lifestyles.
- An important dimension of future work is to identify opportunities to shape non-material aspirations for people by education, engaging the media, trend-setters, celebrities and businesses that are experienced in steering consumer culture, which have an interest in supporting and shaping a post-modern sustainability culture. What is the economic quantification of voluntary work at community level?

Methods and research approaches and design

- Economic modelling of economic systems based on sustainability principles.
- Envisioning, back casting and roadmaps with economic toolboxes and packages of measures.
- Exploration and testing of promising sustainable economic bottom-up initiatives (including micro finance) and sustainability-driven business models.
- Exploration and evaluation of taxation and other policy regimes worldwide that have stimulated investment in renewable energy resources and sustainable manu-facturing practices.
- Identify ways and means of diffusing sustainable business initiatives from 'lead' businesses into mainstream business thinking and practice.

ENABLERS OF SUSTAINABLE LIFESTYLES: POLICY FRAMEWORKS

Societal challenge

European policy making is at a cross-road. In the last decade, the political trend in many European countries has been neo-liberalism. The financial crisis and the on-going political crisis put economic growth and job creation at the forefront of the political talk, while policy makers and politicians are not taking the lead for sustainable societies. The shift from governmental measures towards governance measures advocates bottom-up engagement of various societal actors in the decision-making process. On the other hand, neo-liberalism is built on the premises of the free market and ruled by goals of profit maximisation at the expense of societal good, health and the environment. The societal challenge concerns the development of robust policy frameworks on the regional, national as well as the (pan-)European level, that support sustainable lifestyles in the long term without putting the current level of prosperity at risk.

Justification of research relevance and research challenge

Providing a consistent policy framework for sustainable lifestyles means bundling of existing policies by covering more than one consumption phase; building policy mixes including mandatory instruments, economic incentives and long-term capacity building measures; improving collaboration among actors and enhancing consistency among policies and measures (EUPOPP 2011).

The current financial crisis takes away the focus from environmental emergencies at macro- and micro-scale. Politicians hardly take part in discussions about environmental goals, leaving it up to business to solve societal and environmental problems. Without pro-sustainability political frameworks, there will not be a sustainable society. And even when research results provide clear guidance on priority of measures, e.g. Green Tax Reform, the actual implementation takes decades. As the Rio+20 United Nations Conference on Sustainable Development showed, the 'implementation gap' from research to practical policies is one of the current challenges of converging to a sustainable society.

Policy attention should focus on using the market to bring about change within redefined policy, regulatory and standards boundaries, for example by making fossil-based fuels and materials increasingly unattractive, and renewable resources increasingly attractive. Sustainable policy strategies should also acknowledge the diverse needs, desires and motivations of individual people. Strategies tend to be "single issue – single solution" approaches and often focus on technological innovation or policy solutions in isolation. Initiatives often target a separate industry, the public sector or households without taking into consideration the trade-offs and compromises that are required for people to pursue sustainable ways of producing, working or living.

In order to harvest the full potential of improvements of technological progress at process and product levels and to counteract rebound effects, a deeper understanding of the multi-faceted consumption behaviour is necessary. As policy-makers are used to addressing a relatively limited number of large actors operating according to profit-making logic, it becomes a challenging task to develop policies that target millions of consumers who have different values and aspirations, who respond differently to policy instruments and to different channels through which policy messages are communicated. Knowledge from sociology and psychology of consumption can contribute to developing successful sustainability policies, as sustainable lifestyles will require changes in both the technological and socio-cultural spheres.

State of the art in the research

Public policy, as one of the important institutions, shapes nearly all consumer decisions through its influence on different aspects of everyday life – from a simple permit to sell a product to failing to regulate for the full environmental costs of natural resources and products. However, there are very few direct policies that promote sustainable lifestyles. The competition policy and trade policies, and even the innovation policy are based on the growth paradigm that links the increase in economic output with increase in human well-being, which has shown to be a false assumption of neo-classical economics. Instead, policy should be guided by alternative societal goals. Some ideas for how the main premises of the economic frameworks and political systems could be changed to promote prosperity without growth have already been suggested (Jackson 2009).

The first decades of environmental policy have largely failed to acknowledge the pivotal role of changing consumers' lifestyles and not only their patterns and levels of purchasing goods and services. Seeing people only as consumers means that consumer decisions to delay or avoid purchase are not taken into consideration (Peattie, 2001). This robs people of another alternative: to satisfy their needs in less materialistic ways and to aspire to personal development rather that to "keeping up with the Joneses'". Current policy instruments for sustainable consumption are limited to taking control of the choices consumers can make in the formal market, i.e. by limiting choice to sustainable options.

The question arises to what extent the democratic system policy cycle is suitable to accommodate long-term solutions for sustainability issues. In decision-making processes policy makers typically rely on assumptions grounded in the traditional neo-classical economic views, which see consumers as utility maximisers with bounded rationality who express their preferences in a formal market. The underlying consumer behaviour model is based on the assumption that inappropriate price signals and lack of trustworthy and authoritative information provision are the main barriers to more sustainable behaviour of consumers, who are otherwise totally committed to the goals of sustainable development. A range of consumption-oriented policies or policy instruments has been developed based on these assumptions. The majority focus on adjusting for market failures by providing more accurate information to consumers, e.g. eco labelling and awareness raising campaigns, and by correcting prices (internalisation of environmental and social costs or Ecological Tax Reform (EEA 2009)).

Gaps in research on policy frameworks

- Challenging consumerist values. Consumption policies mostly focus on promoting sustainable consumption by greening markets and products, such as energy efficient appliances, thereby leaving material and consumerist values unquestioned. However, some policy interventions do have the potential to challenge these values (Christensen, Godskesen et al. 2007). E.g. the 35-hour work week in France has "stimulated self-reflection among consumers and encouraged a reassessment of values related to consumption so that less commoditized activities have been favoured and more time is spent together with friends and family" (Christensen, Godskesen et al. 2007: p. 112). Thus, there is a need for better understanding in what ways existing and new policies affect consumer values, how the framing of policy is changing, what values get normalised and accepted as social norm, and in what direction the advocated or implied values shape consumer choices (towards or away from sustainable consumption and lifestyles).

- Policies that shape consumption in a more sustainable direction. A number of explanations have been identified for the slow overall progress towards effective policy development to shape sustainable lifestyles (Power and Mont 2010). Innovation policy typically focuses on the process of promoting technical innovations at national and regional levels (European Commission 1995). It supports and stimulates emergence of new products without assessing their long-term health and environmental impact, thereby indirectly contributing to increased consumption. Innovation policy supports and protects supply-side driven innovation, but often lacks comprehensive understanding of consumption processes within environmental limits. Therefore, in recent years it has been subject of significant criticism from environmental, sustainability and health scientists. So far, research on effects of innovation policy on sustainable consumption and sustainable lifestyles is lacking. Further research is needed on how innovation policy can be redesigned to foster social innovation and sustainability.
- Transboundary policies that help reduce environmental and social impacts of goods produced outside Europe to reduce the ecological footprint of European countries is urgently needed. There is a growing understanding about the environmental impacts from products for European markets that are produced in developing countries. However, data are lacking with regard to environmental and social impacts associated with different supply chains. There is also a lack of methods for collecting and verifying these data. International policy mechanisms should be developed to reduce environmental and social impacts of European consumption outside Europe.
- There is sufficient knowledge about the environmental impacts and evidence of the social and health impacts of unsustainable consumption to take decisive actions today. However, there is an ongoing need for updated analyses in some critical areas, such as rebound effects of various policy initiatives or accounting for the full environmental and social impacts of European consumption in developing countries. Due to different social and cultural norms, the same policy tool will perhaps not prove efficient in all countries. Research is needed on cultural differences within the EU and the extent to which policy tools can be tailored to fit specific social and cultural norms (European Commission 2012).

Specific topics – RQs

- What are effective policy approaches to target demand? What is the role of Public Procurement in innovation; can we quantify the impacts? How to include the use of natural resources and production of waste (including CO_2) in national and European policy strategies? How can we accomplish that health, equity and well-being are included in policy planning and development, e.g. by addressing the health benefits of ecological measures in policy?
- Interdependencies between several policy instruments and other intervening factors and how this affects evaluation of success and failure of interventions? How do cultural differences affect policy making and implementation? How does the policy cycle in the current democratic system align with long-term sustainability goals?
- Analysis of critical factors in knowledge transfers and policy development in relation to social and cultural norms. To what extent is policy sending 'mixed messages' and what can be done about this?
- How can policy actors become more responsive towards bottom-up initiatives? How can social innovation be supported by policy frameworks? What policy frameworks are needed to support new business models without stifling innovation?

Methods and research approaches and design

- Literature review on effective policy approaches and interdependencies.
- Exploration of policies that tilt the investment balance towards rapid development and uptake of renewable energy sources and more sustainable manufacturing practice.
- Exploration and evaluation of taxation and other policy regimes worldwide that have stimulated investment in renewable energy resources and sustainable manufacturing practices.
- Empirical research: Inventory of best practices and pilot projects on inclusion of health, equity and well-being in policy planning.
- Comparative analysis of cultural differences among EU-countries.

ENABLERS OF SUSTAINABLE LIFESTYLES: INFRASTRUCTURE AND SPATIAL PLANNING

Societal challenge

Wherever people live in large numbers in close proximity to one another, there have almost always been challenges to the quality of life and local environments. Housing competes with green space, the convenience of cars competes with pedestrian safety and air quality, the need for products, materials, energy and waste disposal puts pressure on surrounding rural areas (Economist Intelligence Unit, 2009). The configuration of our cities, infrastructure, supply systems, housing designs and products in many ways limits the scope for individual choice (Wilhite et al. 2000; Shove 2003; Southerton, Chappels et al. 2004). Therefore, even when there is a willingness to change among people, they often fail to succeed in lifestyle changes because they are confronted with factors that "lock-in" their unsustainable behaviour and choices (Mont and Power 2010; Van Vliet et al. 2005). To meet these challenges, research is required that results in spatial planning schemes and models that support and accommodate sustainable lifestyle patterns.

Justification of research relevance and research challenge

Consumer behaviour is strongly determined by the physical environments in which people live, work and spend their free time. Infrastructure and spatial planning largely shape the physical environment of individuals and households. The extent to which the environment is able to facilitate behavioural change is highly dependent on these factors. Modal shift from car to public transport depends on the availability of high-quality public transport networks and the ability to limit transfers and stopovers. Availability of cycling lanes and walking paths can help reduce auto mobility. Opportunities for developing decentralized energy systems depend on distribution networks. And the energy saving potential of households is limited by urban planning factors such as density, spatial configuration, mix of functions, accessibility and architectural factors concerning flexibility and transformation potential of housing designs and building blocks. Physical environments can either promote sustainable lifestyles, or they can lock people into unsustainable lifestyles. Therefore, the research challenge lies in exploration of the interplay between consumer behaviour and the physical environment.

State of the art in the research

So far, stimulating sustainable lifestyles has not played a vital role in spatial planning and infrastructure. Several spatial planning movements were ideologically driven – for example the CIAM-movement that was rooted on the belief that social problems in cities could be resolved by strict functional segregation, and the distribution of the population into tall apartment blocks at widely spaced intervals – but they lack a focus on sustainability. In the

late twentieth century, a few planning initiatives aimed at creating sustainable neighbourhoods and cities, e.g. the New Urbanism movement that arose in the 1990s as a response to ongoing traffic congestion in low-density urban sprawl areas in the United States. Similar to the European Urban Village Movement, New Urbanism draws strongly on Ebenezer Howard's late nineteenth century Garden City, the Radburn-principle of pedestrian-oriented communities and Jane Jacobs' advocacy for mindful development of cities (Jacobs, 1961). However, these planning movements do not refer to environmental goals and both received criticism for being strongly deterministic, asserting universal principles of design instead of attending to local conditions (Grant, 2006) and ignoring social and economic realities by creating self-contained villages (Tait, 2003). Instead of accommodating sustainable living and citizen participation, neighbourhoods and villages developed under these movements seem to reinforce social exclusion and segregation.

In many European countries, the current economic crisis has put the housing market and the construction sector under pressure. Large-scale residential project development has almost come to a standstill due to declining real estate prices and (job) insecurity among consumers and investors. As the economic crisis continues, improving energy efficiency in the existing housing stock becomes increasingly challenging. For example investments in household insulation and heating standards and installation of renewable energy sources (solar) at residential housing require largely unprofitable investments at the micro (household) level.

At the same time, the economic crisis opens opportunities for small-scale user driven housing initiatives (e.g. private commissions, 'build your own house') – custom-made, small batch developments instead of mass production. The question is how this post-Fordism trend can become a contributing factor to achieve sustainable communities. There is a small but growing population within Europe today which is making attempts to live more sustainably, e.g. voluntary simplicity movement, Transition Towns, CRAGS, Give What We Can, the LOHAS movement, Ashton Hayes (the UK's first self-organising zero-carbon village), Samsø (CO2 neutral Danish island), Freiburg Vauban (Germany), Ekostaden Augustenborg in Malmö (Sweden) and Trinitat Nova in Barcelona (Spain). The study of these individuals, households and groups of people is of great relevance for policy makers in understanding the process people go through in moving toward sustainable consumption (McDonald, Oates et al. 2006).

The Smart Cities and Communities Initiative from the European Union investigates spatial and infrastructural issues to make cities more energy efficient, better to live in and growth-friendly. However, this programme mainly draws focus on technology, transport and digital communication to provide a strengthened framework for EU-level action in support for sustainable urban development. Less attention is paid to the question of how to enforce behavioural change among individuals and households to realize more sustainable consumption patterns.

There is a growing understanding that social sustainability is of equal importance if we want to achieve communities that can really accommodate sustainable lifestyles. Social sustainability comprises several aspects, such as the demographic composition (in terms of social class, age groups and households) the availability of meeting points (to foster social cohesion) and everyday amenities (e.g. primary schools, shops, health care) and consensus on social norms and rules. The social configuration of communities is strongly shaped by spatial planning factors, e.g. density, mix of functions and housing types, availability of playgrounds for children and accessibility of public space for elderly and physically disabled people.

Accessibility of neighbourhood amenities such as shops, pubs, schools and libraries can provide opportunities for social interaction, help create a sense of community and provide employment; all are factors that address health inequalities. Evidence shows that people who have easy access to amenities and opportunities for physical activity - e.g. cycle paths, local parks and other green spaces, beaches or recreation centres - are more likely to display a healthy lifestyle (UK Sustainable Development Commission, 2010).

Gaps in research on infrastructure and spatial planning

- A holistic approach to spatial planning needs to be developed, which takes the effect on human behaviour, health impacts and lifestyle segmentations into account. In the field of spatial planning, sustainability is usually defined in terms of energy management, transport and water supply systems, whereas social sustainability seems to be a field yet to be discovered.
- Flexible spatial planning concepts can accommodate social sustainability and provide lock-ins for sustainable behaviour. Research should define conditions and critical success factors for social sustainability. What is needed are infrastructural and spatial planning methods and schemes that enable consumers to adopt sustainable and healthy lifestyles and to embed sustainable behaviour into everyday routines. On the micro level, flexible design concepts should be developed for dwellings and building blocks, which can accommodate innovative energy saving technology.
- Spatial planning, health and well-being. In urban planning, green public space does not generate revenue but development and maintenance costs are high. Especially in urban environments, these public spaces seem to be of great importance for health and well-being of residents. The relationship between buildings, green space and health requires exploration. As a result of budget cuts by local and regional authorities, there is an increasing appeal on citizens to take responsibility for the maintenance and management of urban public space (e.g. semi-private playgrounds and parks), which needs to be investigated. Research should also pay attention to the scalability and transferability of current trends related to sustainable living, e.g. urban farming, guerrilla gardening and slow food.
- Everyday transport patterns of individuals and households, both within (shopping for daily amenities, school, sports, social activities) and outside residential neighbourhoods (mobility, commuter traffic) requires dedicated knowledge. Research should focus specifically on values and motivations with regard to traffic and (public) transport and on identifying critical success factors and incentives for promoting public transport over auto mobility.
- Energy efficiency in the housing stock requires exploration of behaviour and incentives for household-level investments in sustainable technologies such as insulation and locally-generated renewable energy. Research is needed to develop split-incentive models and multiplier effects to stimulate owners to invest in energy efficiency measures even when housing prices are under pressure.

Specific topics – RQs

- Sustainable cities and people-centred community planning e.g. urban planning with focus on compactness, multi-functionality, efficiency, promoting social cohesion; participation by citizens; Local Agenda 21; Transition Towns; 10 principles of sustainable communities. Evaluation of 20 years Local Agenda 21 implementation; what is the impact on spatial planning and civil society participation. What are the dynamics of com-

munity based eco-quarters, practices of micro-urbanism, participation at community levels, and what are the roles of the different actors?
- Conditions and critical success factors for (flexible) spatial planning of social sustainable communities; spatial planning concepts that accommodate social sustainability and provide lock-ins for sustainable behaviour.
- Learning from 150 years of spatial planning and infrastructure: unravelling planning concepts and movements, ideologies and spatial and social effects regarding sustainable lifestyles. Towards a new understanding of local and regional development, the relationship between agricultural and industrial activities and between rural and urban areas.

Methods and research approaches and design
- Case study analysis of small-scale sustainable community initiatives: what works and why? And what about the effects of more civil society participation in policy decisions?
- Development of new business and investment models, tailored to small-scale sustainable housing and real estate planning and development.
- Development of new business and investment models, tailored to small-scale sustainable housing and real estate planning and development and to household-level investment in sustainable technologies.
- Pilots that aim at a translation of theoretical insights in practice.

ENABLERS OF SUSTAINABLE LIFESTYLES: INFORMATION TECHNOLOGY AND SOCIAL MEDIA

Societal challenge

The rapid development of information technology in recent years has decisive consequences for our everyday lives, consumption patterns and social behaviour. The growth of e-business (e.g. online shopping, e-learning, e-medicine) can lead to a reduction of traffic congestion and pollution. Domotics technology can reduce health care dependency for elderly and disabled people. Persuasive technology devices, such as thermostats, supply consumers with real-time information and feedback to reduce energy use. Social media allow people to share information and let them control the way they want to be perceived by others.

Technological developments are moving fast, and they may dramatically change existing conceptual frames that structure our perception of society and the way we shape our relationships. The societal challenge is to identify opportunities and threats that arise from information technology and social media with regard to sustainable lifestyles. And in the light of the rapidly ageing group in European society, opportunities and threats should be analysed for short-term and long-term sustainable incentives for this group of European residents.

Justification of research relevance and research challenge

The rise of consumer-oriented persuasive technology can be considered a promising development for sustainable lifestyles. On the supply side, smart grids and smart consumption schemes are being developed in order to harmonise intermittent power generation and consumption by using information technologies. In many countries eco-labelling has been implemented to promote consumer awareness about efficiency of household appliances, and energy efficient technology (e.g. heat pump dryers) is becoming more affordable.

Smart metering devices are gaining popularity among early adopters and trend watchers expect these devices to become more widespread in the near future. By offering real-time price and consumption information through an appealing interface (e.g. of heating and domestic electrical appliances and fuel consumption while driving a car), smart devices challenge customers to become more aware of their consumption patterns and persuade them to reduce (fossil) energy use. Certain devices are even self-learning and offering feedback on how to reduce consumption; some are remote controllable through smart phone apps. Not much is known about the conditions under which users are susceptible to changing their everyday routines when using smart devices. Moreover, smart metering devices are exposed to criticism in relation to consumer privacy. People fear that detailed data these devices collect about user profiles will be commercially exploited by energy companies and SMEs.

The popularity of social media opens a window of opportunities to promote sustainable and healthy lifestyles. The availability of mobile internet access on personal mobile devices such as smart phones and tablet computers has given a strong boost to the use of social media. A growing number of people carry portable devices offering online access to social networks, which enables them to keep friends, relatives and distant contacts up to date about everyday behaviour and activities, and thus about their consumption routines.

The use of social media may well cause a disruption of traditional interpersonal behaviour and impression management routines. Therefore, it can structurally change the way people shape interpersonal relations. In this respect, social media can be a powerful tool to promote sustainable lifestyles, because it contains the possibility for people to present themselves as being extremely environmentally aware – even when this is not supported by their actual behaviour. The research challenge is to gain insight in the implications and consequences of social media for interpersonal relationships and consumption patterns, the conditions under which consumers consider engagement with sustainability issues as socially desirable in a social setting, and the extent to which social media can be utilized to promote sustainable lifestyles.

State of the art in the research

The use of social media has vital impact on the way people construct and present their identity. All-day access to social media allows them to take precise control over their impression management: by sharing articulate opinions or highlighting specific (socially desirable) activities, they can present themselves the way they want to be portrayed by others. However, by sharing everyday behaviour, opinions and activities, people may also lose control of the way they are perceived by others, since they share the same information with a very diverse group of people. Close friends, relatives (including parents and/or children), colleagues and business relations all receive the same unfiltered information through social media, whereas in real life people switch between social roles in various social settings (Goffman, 1959).

Social media are also changing the way people build and manage social relationships. For example, the rise of social media has led to a decrease in phone calls and the question is to what extent social media can replace face-to-face contacts (Turkle, 2011). Sharing geographical information, for example by checking-in at places when travelling, going out or going to work, enables users to track friends, which may result in unplanned human encounters, thus adding a new, less controllable dynamic to personal relationships. Moreover, the large availability of open datasets is a stimulus to develop applications that reuse them to provide end-user services. For example, with regard to the geo-spatial field,

users tend to share information about urban environments, which is being reused in social and location-based applications.

As social media communications and marketing have pervaded ever more deeply into our lives, many people attain a sense of community through virtual, online groups and contacts rather than through family and neighbourhood networks. Social media allows people to connect with fellow thinkers on the other side of the globe and to obtain information about sustainable (or unsustainable) lifestyle behaviour. As a consequence, the dependency of peers and the local communities drops and people may become less susceptible to peer pressure, which may encourage them to adapt lower-impact lifestyles – regardless of how neighbours judge their behaviour. As a result, proximity becomes a less important factor in the construction of identities. However, the question arises whether these footloose networks substitute or enrich peer and community bonds.

Gaps in research on information technology and social media

- Bridging the gap between technology-driven innovation in consumer products and human behaviour requires dedicated research that takes into account the rational or irrational motives and considerations that underlie consumption behaviour. The development of persuasive technology that aims to stimulate energy efficiency is relatively new and knowledge is limited about how and to what extent these devices influence consumer behaviour and decision-making processes. Special attention should be paid to privacy concerns related to smart devices, since feelings of discomfort and distrust might undermine large-scale deployment of persuasive technology.
- The influence of social media on lifestyles and consumer choices and preferences. Social media provide potentially promising opportunities to spread knowledge and information about who you are and what you do, and thus to inspire others to adopt sustainable behaviour. An increasing number of smart phone applications offer integrated access to social media, enabling users to exchange information. Existing research on the informational supply potential of social media mainly focuses on marketing and advertisement potential. Research is needed to understand the mechanisms that underlie (online) identity construction and the ways in which social media influence the dynamics of lifestyles and consumer behaviour. A body of knowledge should be developed about how we can take advantage of social media to promote sustainable and healthy lifestyles and to reinforce consumer awareness about the environmental impact of human behaviour.
- The potential of gamification in order to encourage people to adopt sustainable lifestyles in a playful and pleasant way needs to be explored. Investigating the motivations and reward systems behind (intelligent) games that appeal to what McGonigal (2011) describes as our emotional and social capabilities: “Besides the growing number of Human Intelligent Tasks (HITs), there’s a challenge to design Social Participation Tasks (SPTs), capable of reaching out to others, feeling empathy, recognizing need, showing up, and making a difference in everyday life of people and citizens. As humans we do not have just intelligence powers but social powers, and we can mobilize them in real-world spaces, not just online spaces.”
- The relationship between social media ICT and the way people shape and manage relationships and their behavioural routines requires further research. Little research is available on the impacts of social media on mental health and well-being, a special concern being linked with the impact it has on community cohesion, social capital and social inequalities.

Crucial aspects in this research should deal with the question how users perceive and construct their online identities, how they balance privacy and online impression management, how they deal with discrepancies between their online personality and actual behaviour and to what extent they are eager to share certain consumer information to shape their identity in terms of sustainable lifestyles.

Specific topics – RQs

- User effects and susceptibility of technologies that support the change towards more sustainable lifestyles e.g. online networks; ICT; appliances to save energy. How does the permanent availability of ICT and social media influence people's health (e.g. stress levels)? And what are the effects of resource use on the environment?
- What technological innovations on communication channels can or need to be improved to shift face-to-face meetings towards digital meetings. Flying/travelling would decline, which has many advantages. Calculate advantages to give policy makers incentive to stimulate companies?
- Investigation of societal acceptance (in relation to privacy issues) of both incremental and radical innovations in persuasive technology.
- Investigation of health effects and unintended side-effects of ICT, gamification and social media.
- ICT, social media and social exclusion: does ICT increase access or exclude certain social groups?

Methods and research approaches and design

- Literature review and empirical research on how social media affects the way people shape interpersonal relationships and its impact on mental health, well-being and social cohesion.
- Inventory of best practices of marketing campaigns to raise public awareness about environmental goals and sustainability initiatives.
- Empirical research on the perception and actual use of persuasive technology by end-users.
- Development and testing of new social media concepts to raise awareness and public commitment for sustainable lifestyles.

ENABLERS OF SUSTAINABLE LIFESTYLES: SOCIAL INSTITUTIONS

Societal challenge

Western European societies are currently in a process of modernisation of the welfare state, while many Eastern European countries still deal with the aftermath of the transition to a post-communist society. In many countries neo-liberal politics have emerged that focus on reduced government provision, stimulating market-based strategies in public services and emphasising the self-responsibility of citizens (Fletcher-Morgan and Leyland, 2010). Cutbacks in government finances due to the economic and monetary crisis contribute to the shift from government measures to governance measures.

This shift requires a revitalisation of the civil society and it leads to a more instrumental (or functional) approach to citizenship (Lub and Uyterlinde, 2012). For social institutions, new

horizons emerge to stimulate active citizenship among citizens and to get involved in policy making. On the local level, social institutions (e.g. schools, care and welfare institutions, street corner work, primary care, sports and leisure organisations) are becoming increasingly important in stimulating citizens to take responsibility for a sustainable society. Grass-roots initiatives – non-professional organisations which can be considered 'informal' social institutions – are also challenged to contribute to fostering social solidarity and sustainable lifestyles on the level of neighbourhoods and communities (more on this in 3.6).

Justification of research relevance and research challenge

Social institutions, especially those operating in close proximity of the home situation and the private lives of citizens, can play a crucial role in bridging the gap between the public and the private sphere. Primary schools can influence the nurturing of children through their educational programme and this can be utilized to strengthen awareness about health and sustainability and to influence household consumption patterns. The same goes for other institutions, such as neighbourhood community centres, churches and sports associations. For example, social workers, health professionals or church representatives maintaining frequent face-to-face contact with residents may well be able to play a role in supporting environmental and sustainability goals on the local level.

However, transferring knowledge about sustainability, establishing sustainable lifestyles and stimulating behavioural change does not belong to the core business of social institutions. Taking up this new role requires a new body of knowledge and new skills for professionals institutions, in addition to e.g. teaching skills, medical skills or social development skills. Therefore, knowledge and experience about the way social institutions can support and facilitate citizens to adopt sustainable lifestyles is still in its infancy.

State of the art in the research

Organisations that operate in citizens' immediate living environment – such as associations, companies and voluntary organisations – have ample opportunities to foster sustainable lifestyles and to empower citizens to change consumer behaviour. These social institutions can be the linking pin between policy makers and citizens. On the one hand they can help transform policy measures and ideological ideas into concrete actions by residents; on the other hand they can deliver streetwise contributions to policy making in order to tailor policy measures to specific target groups or objectives. In practice, research demonstrates that social institutions and civil society organisations are not always able to live up to governance expectations (Lub and Uyterlinde, 2012).

Several projects funded in the recent past by the Education and Culture DG (i.e. "Human Cities" 2009 and 2011, Experiment City / Experiment Days 2010) explored how active citizenship can be stimulated to have a better capacity of social innovating and contributing to shape policies. These initiatives, regardless of their specific success or failure, show the importance of systematically creating situations of interaction between the social actors, to make accessible the knowledge about policies and specific initiatives, and to develop toolkits and methods for engaging people.

On the local level, there are numerous pilot projects organized by social institutions to inspire and empower citizens to broaden their horizon. For example, the Finnish pop-up day project in which people get the opportunity to test a different profession, or the Dutch Weekend School that offers children in disadvantaged neighbourhoods weekly lectures by people from high status professions such as lawyers, aldermen, surgeons, artists and professional athletes. There is also experience in health promotion programmes in schools,

i.e. the School Fruit Scheme (funded by EC). However, little is known about their effectiveness and efficacy in actually changing behaviour and strengthening awareness of environmental issues.

Social professionals, in particular health and welfare workers, are mainly deployed in disadvantaged neighbourhoods. Due to their poor financial situation and lack of upward social mobility, lower class residents are likely to be locked-in to their living situation – they are surviving from day to day and are living in the present rather than thinking about their future. Therefore, they may be less capable of developing sustainable behaviour than middle class and higher income households. On the other hand, by influencing everyday consumption of energy and water and by adjusting food and diet habits of lower-class residents, serious progress can be made to proceed to sustainable lifestyles and to reduce pollution and energy waste. The ways in which social professionals can support and influence everyday behaviour of lower class citizens require further exploration.

Gaps in research on social institutions

- Investigation of the possible contribution to sustainable lifestyles by local social institutions such as sports associations, community centres, churches and religious organisations.
- Packages of interventions for professionals in social institutions. Considering the relatively new role of social institutions on the local level in fostering sustainable lifestyles among residents, research is needed on the development of tools, e.g. methods and training programmes for empowerment of professionals and the validation of these tools as effective means to foster sustainable lifestyles among citizens and to raise awareness among children, students and participants.
- Effective incentives for grassroots civil society initiatives. Insight is needed in the question which policy measures are effective to stimulate informal social institutions in relation to sustainable lifestyles. Research should focus on identifying incentives for grassroots civil society initiatives contributing to sustainable lifestyles (e.g. start-up budgets, educational courses, mentoring, supervision, legal advice and so forth).
- Critical success factors of empowerment initiatives on the local level. Research should provide insight in the effects of local empowerment initiatives in the long run or about the critical success factors, both on the supply and the demand side.
- Research is needed to identify opportunities, mechanisms, instruments and the role of professionals in social institutions to support lower income groups to change their everyday consumption routines. This research should also provide insight in cost-effectiveness of interventions in order to support policy makers in decision-making.

Specific topics – RQs

- Civil society innovation forces: develop packages of interventions to empower social professionals in the field of sustainable lifestyles.
- Social institutions as intermediaries between lifestyle segments and resident groups: what is needed from social professionals to foster sustainable lifestyles within communities?
- Identification of opportunities, mechanisms, instruments for professionals in social institutions to support lower income groups to change their everyday consumption routines.
- Inventory of best practices in which sustainable and healthy lifestyles are an integral part of the curriculum or work description of social institutions. How to enable educational in-

stitutions to include healthy and sustainable lifestyles as a cross-cutting topic into educational curriculum?
- Develop participatory design packages and toolkits to engage people and communities in policy making.
- Develop tools and identify mechanisms to be used in cross-sectoral work of public health, health promotion, energy, transport, agriculture and construction areas and ensure that health, equity and well-being are considered in policy planning and development, and bottom-up actions.

Methods and research approaches and design
- Literature review and empirical studies on packages interventions for professionals in social institutions.
- Case studies on knowledge transfer by social professionals.
- Pilots that aim at translation of theoretical insights in practice.
- Field experiments and fast prototyping.

ENABLERS OF SUSTAINABLE LIFESTYLES: COLLECTIVE ACTIONS

Societal challenge

Behavioural change towards sustainable consumption must occur at the collective level – individual behavioural changes are clearly insufficient (Jackson 2005). To address the sustainability challenge, collective actions of people of different age and socio-economic groups and from different population segments with varying levels of knowledge, awareness, and interests need to become engaged. However, the few available strategies for promoting sustainable consumption are based on a "one size fits all" approach and mostly focus on actions of individuals rather than groups. Successful sustainability initiatives are those that go beyond the "one size fits all" approach and try to understand how to motivate and enable change among different groups. This requires solutions and combinations of solutions to fit specific contexts and target groups that are not necessarily easily transferred from one situation, setting or domain to another one. This is particularly the case with initiatives of social innovation based on collective and collaborative actions, whose success of failure factor is hard to generalise (Jégou and Manzini, 2008; Leadbeater, 2008).

Justification of research relevance and research challenge

Existing knowledge on collective processes that take place in social groups and contexts and that have been studied by sociological studies of consumption needs to be transferred into the policy making field. Together with targeting individuals, governmental policies should also consider the group dynamics and contextual factors that influence individuals in a social setting.

State of the art in the research

Bottom-up, grassroots initiatives in neighbourhood communities usually derive from a local inducement that may or may not have something to do with sustainable living. There is a need to gain insight into how these civic initiatives and active citizenship can be fostered, how these grassroots initiatives can be capitalized on and what forms of policy support are needed to contribute to the implementation of sustainable lifestyles. In addition, research is needed on social movements regarding sustainable behaviour. Although much research has been conducted on social movements, there has been only very little coherent focus on sustainable lifestyles.

There is a growing body of knowledge on collective dynamics of consumption demonstrating the influence of age, gender, socio-economic segments and even lifestyles on consumption patterns and levels. For example, gender differences have a very large influence on consumption patterns. Studies demonstrate that women globally live in a more sustainable way than men, leave a smaller ecological footprint and cause less climate change (Johnsson-Latham 2007; Bradley 2009). Women are more likely to be sustainable consumers, as they tend to buy ecological or organic food, have a higher tendency to recycle and place more value on efficient energy use, waste separation and recycling than men (OECD, 2008).

Research on lifestyle segmentations in relation to values is also growing. For example, some people have strong values and behaviours with regard to avoiding waste or being thrifty with resources; others may consume atypically due to environmental or social values or a desire to live more healthily, or due to spiritual beliefs and practices. Other people (including 'voluntary downshifters') may prefer to work less and have more free time to pursue their own interests, and therefore consume less as a result of their lowered income. Movement for this promising practices research is growing in the field of modelling this behaviours to make them replicable and scale them up in different contexts and circumstances (Jégou and Manzini, 2008). Open questions still remain about how to motivate new communities of people to undertake likely initiatives and bring them forward, and how to enable and train them to do it. This goes into the definition of 'community centred design' and needs further developments in terms of design method and tools (Meroni and Sangiorgi, 2011)

Studies demonstrate that the largest barrier to sustainable lifestyles is the social function that consumption fulfils in social groups; i.e. consumption helps us "to signal belonging, mutual understanding, and adherence to shared societal norms and cultural logic" (Isenhour 2010: 463). Since dominant lifestyles in current societies are unsustainable, it can be stressful for people to adopt a lifestyle that is significantly different from their peers (Isenhour 2010). Material consumption associated with everyday practices could be successfully renegotiated at the collective level, for example, groups of parents setting a price limit on children's birthday parties, or schools ruling that trainers above a certain price cannot be worn in school (Schor, 1999). Such limits could help remove the social pressure on children and parents, whereas it would be extremely difficult for individuals to adopt.

In the past decades, numerous studies addressed neighbourhood effects, comprising the influence of the neighbourhood on social inclusion and exclusion processes and the ways in which residents influence and learn from each other by exchanging social capital (Granovetter, 1973; Putnam, 2000). Research demonstrates that bridging social capital and social cohesion is positively related to health and well-being: higher levels of community social capital lead to better health for the individuals living in these communities (Stegeman and Costongs, 2012).

Gaps in research on collective actions

- Segmentation research on groups representing different lifestyles can be useful when the shift towards pro-environmental or sustainable lifestyles is discussed (Empacher and Götz, 2004). So far, lifestyle segmentation tools are rather underdeveloped (Barr and Gilg 2006). Sociology of consumption has studied differences between different age or gender groups or socio-economic classes.

Lifestyles are ways to display who we are in social context, and the main way to communicate our identities is through material conversations – our possessions. There is a gap in understanding alternative ways of social construction of our identities and communication with others in less material ways.

- The idea of customising policy tools and packages for different segments is gaining momentum in environmental and sustainability policy. Sociology of consumption addresses the importance of developing specific strategies and policy tools that do not necessarily target individuals or the entire population, but rather specific segments of it. For example, it has been demonstrated that segments of food are very different from segments in housing and people that would respond to certain measures to change their diets (food domain) would require a totally different policy mix to change their mobility patterns (Schubert 2004; Schultz and Stieß 2007). Several proposals of action toolkits and strategies supporting social innovation initiatives are also coming from the design research community: research still needs to be developed on how design-thinking approaches and methods can integrate the knowledge of other disciplines and becoming available for a broad range of social actors.
- Tools and interventions to stimulate change in the collective mind-set require specific research. People's behaviour follows the behaviour of others, thus social norms are important and mechanisms for their shaping need to be better understood, especially the role of the market in creating what is perceived as normal, the role of examples from both businesses and governments and the role of community and local networks for taking charge of the change. Research should focus on how these tools can be developed to be most effective.
- The potential of bridging social capital within communities seems worthwhile exploring to enforce behavioural change patterns towards sustainable lifestyles. Dedicated research on fostering sustainable lifestyles and informal learning within neighbourhood communities is a knowledge gap.

Specific topics - RQs

- Empirical research into the role and potential of social and open innovation as main driver of sustainable changes in everyday life, e.g. the potential of collaborative consumption, collaborative housing, new food networks, active welfare.
- How can open (social) innovation processes contribute to the spreading of sustainable lifestyles? What conditions are conducive to open (social) innovation processes? How can segmentation research be improved to capture individual needs, motivators, and triggers across European demographic categories?
- How to create transdisciplinary approaches to collective based social innovation? How to develop supporting toolkits for potential innovators?

Methods and research approaches and design

- Empirical work addressing how local context (e.g. networks, movements, business and social entrepreneurs) can facilitate more sustainable lifestyles.
- Empirical research on the influence of peer pressure and group preferences in promoting more sustainable and healthier lifestyles.
- Empirical research and theory on the role of social movements and grassroots initiatives in promoting sustainable behaviour.

ENABLERS OF SUSTAINABLE LIFESTYLES: INDIVIDUAL BEHAVIOUR

Societal challenge

One of the main challenges in fostering sustainable lifestyles involves the question how to engage individuals in translating current ways of living into more sustainable routines.

Justification of research relevance and research challenge

In order to establish sustainable lifestyles on the individual level, the research challenge lies in understanding the complex interplay between needs, available resources and technology, economic systems and infrastructure and its influence on behaviour of people in everyday life. Sustainability needs to be translated into our daily lives as easy and desirable lifestyle options. Therefore, it is not sufficient to understand what influences and motivates our choices and lifestyles, the challenge is also to develop different options for making change happen and to provide mechanisms to stimulate, motivate and support resilient lifestyle change.

State of the art in the research

Existing research on sustainable consumption can be conceptualised in terms of identifying determinants of consumer behaviour, understanding consumer attitudes and choices and exploring the potential to steer consumer behaviour in a more sustainable direction.

When it comes to determinants of consumer behaviour the key question in the academic debate is whether context (availability and attractiveness of consumption possibilities) or values and attitudes are dominant in shifting behaviour towards sustainability (Schrader and Thøgersen 2011). Research on shaping pro-sustainable values is emerging. Some results indicate that undertaking sustainable actions influences the way people perceive themselves, which may eventually lead to changes in their values. However, the spill-over effect from actions to values has been criticised with counter-evidence demonstrating that these effects are exaggerated (Crompton and Thøgersen 2009). Undertaking small symbolic actions, such as separating waste are unlikely to lead to value changes that could support for example the switch from driving a private car to using public transport. On the contrary, such actions may be used to justify further unsustainable consumption (Barr, Shaw et al. 2010). Thus, the role of values in motivating sustainable consumption requires further research.

In consumer attitudes and choices, two types of consumption are distinguished: conspicuous and inconspicuous. When consuming conspicuously, people attach specific meanings to products, services and consumption practices, and these meanings are influenced by different levels of the sociological context (personal, family and society). Inconspicuous consumption is habitual with people using mental shortcuts to make purchasing decisions and other everyday choices. Inconspicuous consumption is of great importance for sustainability, since the domains with the highest environmental impact such as heating and energy consumption at home, mobility and food belong to this type. Research demonstrates that consumption in these domains might be difficult for consumers to change, either due to its routed nature or due to the collective provision of products and services (e.g. heating or waste management systems). Nonetheless, there are opportunities for more sustainable consumption in these areas, e.g. choosing renewable energy suppliers for home and work, switching to ethical banking and ethical pensions and investments. A better understanding is required of strategies that need to be developed in order to make inconspicuous consumption more sustainable.

Research shows that individual consumption patterns tend to be irrational and inconsistent, as some people are deep green in some domains and unsustainable in others. There is a group of consumers that are unaware of environmental impacts; some consumers simply do not care about the environmental impact of the products they purchase. Another group of consumers is more environmentally-conscious, but they may lack a clear understanding about what makes a product sustainable. Since environmental performance is not necessarily connected to the functional performance of a product, it is may be difficult to determine whether a product is sustainable. When information about the environmental impact of products is provided by producers or retailers, consumers may not find it trustworthy.

Sociological studies demonstrate, and environmental studies confirm that provision of information does not necessarily lead to changes in attitudes and even when it does, the change in attitudes does not always translate into behaviour change (Kollmuss and Agyeman, 2002). Eco labels and information tools can easily cause confusion among consumers due to the amount and the diversity of provided information. Campaigns, such as the "simple and painless" campaigns, can give the false impression that by taking small steps big changes can be realised. Unfortunately, scientific evidence shows that if "everyone does a little, we'll achieve only a little" (Crompton and Thøgersen 2009). Finally, a major weakness of educational campaigns that address public knowledge problems stems from the complexity of human interaction with other members of society and with institutions that are deeply rooted in contexts and infrastructures that are largely not conductive of living sustainable lifestyles (Holdsworth 2003).

Critical life changes, such as moving into an own house, starting a new job or giving birth, create a momentum to steer consumer behaviour in a more sustainable direction. Research demonstrates that these events present a window of opportunity for further lifestyle changes. Studies indicate, however, that the window of opportunity is a very short time, as several weeks after the change people are even less likely than usual to accept lifestyle changes (Schäfer et al 2012). Moreover, age needs to be taken in consideration, since research shows that people are more susceptible to learning and changing behavioural routines at certain stages in life. Research should focus on how to influence habits and forms of behaviour at different stages in life.

Gaps in research on individual behaviour

- Deeper understanding of people's motives and of the diversity of lifestyles and access to sustainable lifestyle options is required to successfully change behaviour. There is a growing body of knowledge on processes for behaviour change and the factors that influence the success of these processes, however more contextualised and nuanced knowledge is needed on mechanisms for changing behaviour of different societal groups and individuals in different roles: at work, as family members or as individuals in their roles as consumers and/or citizens. Happiness research and research into intrinsic wellbeing should also be explored, for it may well be utilized to address unsustainable lifestyles.
- Consideration of values is important in framing sustainable actions in terms of lifestyles. We are often encouraged to behave sustainably in order to save money, for example by saving electricity. With no appeal to values other than self-interest, it is likely that the money saved will be redirected to other activities that the person values, such as flying on holiday: this rebound effect means that environmental improvements in one area of lifestyle do not contribute to overall environmental

improvement, unless the underlying values of society are to act sustainably. More research is needed on when and to what extent the framing of policy in terms of extrinsic values undermines the opportunity to promote sustainability-oriented behavioural changes based on intrinsic values.

- Knowledge about the framing of sustainable actions (Hounsham 2006) is necessary since many consumers view sustainable lifestyles as difficult, boring and unattractive – a view mirrored in societal discourse and mass media. There is little media or official governmental portrayal of sustainable lifestyles that are fun, easy and desirable. Experiences of movements such as voluntary simplicity (Magsamen 2008) could provide hints on how to market these alternative lifestyles. Marketing experts can advise on how to target this information to susceptible segments of society. Research is needed on strengthening the brand of sustainable lifestyles and analysing examples of sustainable lifestyles that are fun, that reinforce social status and at the same improve health and well-being of people.
- Rebound effects and unintended consequences of behaviour change. There is a need for further elaboration of information and knowledge transfers about the environmental impact of consumer products. Research is necessary to develop tools and interventions that can make consumers more aware of the environmental impact of consumer goods. Solutions can lie in making green products easily distinguishable, for example by means of simple eco-graphics. Greenwashing – a form of spin in which green marketing is deceptively used to promote the perception that products or organisations are environmentally friendly – should be actively prevented and punished. Furthermore, awareness can be increased through education, communication and social marketing. Environmentally-damaging products should be taxed, or green products should be subsidised in order to apply price incentives to support sustainable consumption (European Commission 2012).

Specific topics - RQs

- Partial revival of 'old practices' that need to be unlearned, which, in combination with new elements, can bring about more sustainable lifestyles. E.g. going to work by bike; drying laundry outside; collective initiatives; growing your own vegetables (urban farming), bartering, lending et cetera.
- Exploration of values underlying consumer behaviour. Developing tools for knowledge transfers in order to inspire and enforce behaviour change of consumers.
- Understanding how far different behaviour changes will get us in terms of overcoming harmful impacts. Understanding rebound effects and unintended consequences.
- Translating consumer insight knowledge to understand household segmentation and targeting messaging strategies for specific behaviour change needs.
- Developing tools for knowledge transfers in order to inspire and enforce behaviour change of consumers, and strengthen insights in communities as a mechanism for seeding and spreading sustainable lifestyle practices.

Methods and research approaches and design

- Empirical research on the potential of embedding 'old practices' in the shift to more sustainable lifestyles.
- Ethnographic research on how critical life changes can be used to redefine behavioural consumption routines into a more sustainable direction.

- Collation of sustainability consumer research insights from large companies with a strong strategic commitment to sustainability practices.
- Envisioning, road mapping, concept development.

GOVERNANCE PROCESSES TOWARDS SUSTAINABLE LIFESTYLES

Societal challenge

There is a need to better understand what hampers collaborative governance towards more sustainability. The societal challenge is to identify which actors should be mobilised to encourage and mainstream sustainable lifestyles and to improve collaboration and network formations to underpin the social innovations needed for mainstreaming sustainable lifestyles.

Justification of research relevance and research challenge

While theoretical work on governance appears to be quite elaborative, practical examples remain scarce. The research challenge is to better understand how governance towards more sustainable lifestyles can be shaped, and what roles different stakeholders can play. The challenge is also to better understand how we can build and institutionalise capacities for such collaboration and governance at different levels of society (multi-level and multi-actor governance towards more sustainable lifestyles). In addition, there is the question of how to effectively deal with institutions and capacities that facilitate unsustainable lifestyles.

State of the art in the research

The SPREAD project has pointed out the importance of a collaborative approach in which various actors engage and learn from each other. The governance issue addresses how to design, prepare, realise and monitor change and how to build trust among actors to achieve common goals. The roles that different stakeholders fulfil in the governance towards more sustainable lifestyles can vary and different perspectives exist on these roles:

- CSOs (very diverse): from initiators of sustainable initiatives, project developers, network builders and advocacy;
- Business & entrepreneurs: changes in business models and a rise in social entrepreneurship;
- Policy: supporting existing promising practices, facilitating bottom-up social innovation; leading by example; provision of practical advice and support.

Past decades have seen support for the idea of a withdrawing government – based on the view that markets are more efficient in allocating resources. In line with this way of thinking is the idea that consumers can actually change the market (to become more sustainable and promote healthier products). However, consumers cannot do this on their own; government intervention is needed to enable (changes in) infrastructure, facilities and incentives to make sustainable living possible, attractive and 'normal' for most people. It is also the role of the government to monitor and evaluate progress and effectiveness, and to ensure that protective measures and targeted interventions are in place to ensure access and availability for all groups across the society (i.e. elderly, low socio-economic groups)

At the level of promising practices (often local niches) we can find examples of successful collaborative governance and institutionalising capacities for this – e.g. through the formation of strong local social networks. However, these appear to be marginal. Thus, while there is theoretical knowledge on governance for sustainability and institutional capacity building, practice remains ponderous.

Gaps in research on governance processes towards sustainable lifestyles

- Learning from successful and unsuccessful initiatives that aim at bringing together stakeholders from very different walks of life, encouraging the exchange of ideas, knowledge and experience. This may include stakeholders from business, industry, policy, academia and NGOs/CSOs. Learning more about stakeholders' perspectives of their own and other roles – with particular attention for the roles of policy. Insight in each other's perspectives facilitates interaction, helps to identify conflicting values and interests and enables collaboration.
- Another theme that requires further exploration is how to tap the potential of open (social) innovation processes. We lack a good understanding of conditions affecting governance processes that are based on empirical best practice examples (e.g. in some cases open social innovation processes). In addition, a better understanding of the impacts of power differences and day-to-day politics on efforts at open and innovative governance practices is needed. This should also shed light on what impedes sustainable governance from being more widely practiced.
- Research is necessary to uncover why policies on sustainable lifestyles have been lacking across the board, and why policies aimed at technological innovation are so dominant as compared to policies on social innovation.

Specific topics – RQs

- Closing the gap between governance theory and practical collaborative governance initiatives that aim at more sustainable lifestyles.
- Institutionalising collaborative governance: how to build and improve collaboration and partnerships between government, business and civil society in aiming for healthy and sustainable lifestyles? How to improve collaboration and partnerships between sectors (e.g. transport, urban planning, business, public health) in aiming for sustainable lifestyles? How to develop strategies that create and strengthen trust between actors in order to achieve common goals?
- How to foster networks that support change, exchange knowledge and experience, set new norms, provide resources and skills? E.g., how can more effective relationships be fostered between NGOs and CSOs and the scientific knowledge domain (examples of successful collaboration) and what could be the role of intermediaries?
- To what extent is there a change in discourse about the role of government and governance in striving for more sustainable lifestyles (e.g. related to (un)willingness to implement stronger regulation; related to mixed messages to consumers)?
- How do different actors view opportunities to achieve more sustainable lifestyles and how do they see their own role in advancing these? Changes in discourse over time? To what extent are existing promising practices being supported by different stakeholders (e.g. policy makers, business, entrepreneurs, CSOs, researchers).

Methods and research approaches and design

- Theoretical review: policy theory (e.g. deliberative/reflexive governance literature) coupled to extensive empirical work, which can include comparative case studies, pilots, interactive assessment and dialogue.
- Pilots that aim at a translation of theoretical insights in practice.
- Empirical inquiries into the relations between policy and promising bottom-up initiatives.
- Discourse analysis of policy perspectives; mapping stakeholder perspectives (e.g. using Q-methodology); stakeholder dialogue about the role that policy should have; stakeholder dialogues around existing initiatives.

RESEARCH APPROACH

Advancing sustainable lifestyles is a complex process embracing all facets of society, starting with behavioural changes, social and cultural norms and values and involving changes in infrastructure, technology, economic system and institutional settings. Interdisciplinary, transdisciplinary and practice-oriented research are crucial for attaining a better understanding of the challenges associated with enabling, shaping and scaling up sustainable lifestyles. In this section we highlight changes in research approaches that need to be facilitated when inquiring into the complex and multi-faceted domain of lifestyle change and we reflect on the synergies of this Research Agenda with Horizon 2020 – The Framework Programme for Research and Innovation of the European Union that made research and innovation into a cornerstone (European Commission 2011).

Bridging the gaps between disciplines

Lifestyles define, connect and differentiate us. They are embedded in, they influence and are influenced by institutions, infrastructures and the environmental conditions. Therefore, promoting sustainable lifestyles requires research and innovation leading to in-depth knowledge about solutions that bridge knowledge on individual and collective behavioural change with understanding about how such change can be facilitated by innovative technologies, existing and emerging infrastructures, institutional settings, policies and education. This has implications for the organization of EU research programmes, which currently support separate technical and social platforms. For instance, a future European Socio-Technical platform may need to replace the current platforms and thereby bridge the gap between techno-economic research and social science research. Since lifestyles stem from and rely on social and technological issues, there is a need to advance the socio-technical approach, rather than continuing with separate technological and social science tracks. These needs are reflected in the Horizon 2020, which takes a broad approach to innovation: not limiting it to the advancement of green products to the market, but recognising the European strength in process, systems and social innovation (European Commission 2011).

An integrated and interdisciplinary approach would mean that technology and society are addressed in their interconnectedness – in *one* forward-looking process, rather than being split up into disciplinary silos. Lifestyle change is about people – social innovation – as well as about technology and infrastructure innovation. Energy change is about technologies and infrastructures and about behaviour and lifestyle change. Therefore, integrated future scenario processes may help overcome the current divide between techno-economic and social scientific research pathways. Horizon 2020 supports this perspective by advocating the so-called challenge-based approach that will bring together resources and knowledge across different fields, disciplines and technologies, including humanities and social science. It also encourages researchers to propose innovative solutions that extend frontiers of existing knowledge to address the societal challenges (European Commission 2011).

Social science has much to offer to the advancement of sustainable development and sustainable lifestyles research. So far, much research has focused on understanding complex natural processes and ecosystem services, but failed to provide similarly deep understanding of social processes that need to be engaged in devising effective and efficient mitigation and adaptation policies and strategies. Understanding these processes

requires both research that focuses on applied problems and issues of immediate relevance and research that aims to generate breakthrough ideas or advanced theoretical paradigms. However, short-term instrumental perception of the relevance of research goals and results might limit the legitimacy of social science. For example, research questions framed and formulated by natural or technical science may limit the opportunity for social science to contribute with cutting edge paradigm changing research. Moreover, methods of interpreting quality and relevance of social science research should be adequate for both the type of knowledge that is being produced and for the particular purpose of the research. In addition, funding for social science needs to be accompanied by changes in the type of research and new kinds of methods. The funding community needs to create new spaces for inter-disciplinary research on sustainable lifestyles and to challenge the social and technical science research community to come together in an unprecedented manner in search of solutions for sustainable lifestyles.

Bridging the gaps between theory, practice and policy

The current research infrastructure is often criticized for being exclusive and lacking direct relevance for practice and societal stakeholders. The SPREAD Sustainable Lifestyles 2050 European Social Platform has explored the strengths and benefits associated with this novel way of knowledge creation and highlighted several lessons that are outlined in the Horizon 2020 goal to combine excellent research, education and innovation thereby integrating the knowledge triangle. These lessons are addressed below.

The gap between science and academia on the one hand and policy and decision makers on the other might be bridged by closer engagement of policy makers in research undertakings. However, several challenges have been identified. For example, the policy cycle is sometimes not well-aligned to the research cycle, i.e. policy making often demands solutions at short notice, while the design, execution and analysis of high-quality social research takes time. Furthermore, what constitutes valid scientific evidence is not always fully appreciated in policy circles. Focus groups and surveys tend to produce weaker policy-related evidence than field experiments. Equally, laboratory experiments are less generalizable than field experiments (European Commission 2012).

The gap might be bridged by engaging practitioners, businesses, consumers, citizens, and end-users in research on sustainable lifestyles that need different types of robust and evidence-based knowledge – e.g. scientific, experiential, tacit, practical – to learn collaboratively about solutions that work.[4] A transdisciplinary approach that brings together both theoretical and more practically oriented knowledge is likely to help arrive at solutions that are both grounded in a robust conceptual understanding and useable in practice. Horizon 2020 supports the bridge between theory and practice by planning to provide funding "from idea to market", thereby supporting research and innovation that is of relevance for society and by placing a strong focus on creating business opportunities in response to the societal challenges (European Commission 2011). This has direct relevance for enabling, shaping and framing sustainable lifestyles of European citizens in 2020, and include: 1) health, demographic change and wellbeing; 2) food security and sustainable agriculture; 3) secure, clean and efficient energy; 4) smart, green and integrated transport; 5) climate action, resource efficiency and raw materials; and 6) inclusive, innovative and secure societies. Addressing individual challenges will be combined with a

[4] The FP7-project CHANGING BEHAVIOUR is an example of successful transdisciplinary collaboration between researchers and practitioners, working towards practicable solutions to improve the outcome of energy demand-side management programmes that were still based on sound theoretical work as well (http://www.energychange.info/).

strategic approach of implementing Horizon 2020 that will employ "joint actions and modes of governance aligning closely with policy development yet cutting across the boundaries of traditional sectoral policies".

Applied research, pilot projects and socio-technical demonstrations can be a very useful way of trying out, testing, validating and evaluating new, sustainable concepts and translating research outcomes into policy guidelines. Existing research on socio-technical transitions and systemic changes may offer important observations about the dynamics of systemic change, the role of experimentation and learning in technical niches and the role of higher order learning among stakeholders. These areas have a potentially important role for sustainable lifestyles, but have yet to be applied to sustainable lifestyles research and application. Further research is needed to advance our understanding of niche management and transition mechanisms for social innovation. Inclusive research and decision-making can be introduced in order to integrate different skills and perspectives in the research design. This is in line with the ambition of the Horizon 2020, which advocates "An inclusive approach open to new participants, including those with ideas outside of the mainstream, ensuring that excellent researchers and innovators from across Europe and beyond can and do participate" (European Commission 2011).

An additional reflection to help research make an impact on practice, is to introduce more 'empathic approaches' to investigation and applied activities. Empathy means to have a deeper understanding of someone else's position and role in the various contexts of action, and implies that researchers should immerse in the contexts to be explored. Specific examples of immersive and empathic approaches come from the field of design, where these initiatives often blur into design activism, aiming to mobilise communities to take actions. Examples of empathic approaches also include the need for policy-making at the international and national level to become more tuned in and more responsive to local initiatives, be it from local authorities or from civil society, as well as the need for businesses to become more proactive and innovative in the pursuit of solutions for sustainable living and perceptive to "*the major concerns common to people in Europe and beyond*" (European Commission 2011).

Furthering knowledge brokerage

There is sufficient knowledge available from the long history of consumption studies and sustainability studies, but the knowledge is compartmentalised in scientific silos and framed in discourses, which are not accessible either for policy makers or for the general public. A new approach to knowledge creation is needed to exploit results of existing research by providing a forum for stakeholders and by working through new integrative modalities that link research results to policy-making. Knowledge brokerage is a novel way of creating knowledge by linking scientists, policy makers, civil society organisations and other stakeholders in dialogues that help explore their positions, identify potential conflicting areas and together develop recommendations or even solutions for consensus-building. Knowledge brokerage could be a helpful approach to learn more about and better acknowledge policy makers' daily political-institutional environments that hamper the adoption of an integrated and systems-perspective as policy and decision makers are charged with tasks specific for certain policy areas, be it energy policy or spatial planning, et cetera.

Having cross-domain initiatives and networks where policy makers from different policy domains collaborate may help overcome silos thinking, but to ensure positive outcomes these initiatives must have a long-term character and earmarked budgets. As a short-term goal, cross-domain policy initiatives that have been set up to address sustainability and

transition policy issues could be evaluated to analyse what impact they had on the policy makers' perspectives and the policy effectiveness. In addition, the goal of the knowledge brokerage projects[5] is not only to bridge the gap between science and policy, but also to improve the mutual understanding among divergent views on various sustainability-related issues, e.g. the pro-growth community and the beyond-growth community. Some knowledge brokerage projects use participatory system mapping as a core methodology, which helps to systematise empirical findings, question different model assumptions, analyse the effects of different policy options and identify new research questions.

An additional and critical dimension of knowledge brokerage involves science and the general public. Sustainable lifestyles changes cannot occur without making the general public aware of the challenges and solutions to unsustainable ways of living. Therefore, research and innovation activities should include steps to translate complex and advanced evidence-based scientific knowledge into easy to understand and easy to use messages, highlighting the practical relevance of scientific findings and the added value to the European Union in general and to the everyday lives of Europeans. This will help generate better public understanding, engagement and debate" and may ultimately lead to increased public participation in the lifestyle transformations.

Envisioning and re-imagining

Scenario and envisioning methodology help explore the diverse ways in which new economic systems, business models and emergent practices and future lifestyles evolve. Whereas existing visionary work usually focuses on what we would like our future to look like, visionary exercises and scenario building should take available resources as a starting point. Visions need to be created by different actors and for different time spans. These visions can provide insights into how the evolution towards sustainable society can overcome current environmental and social lifestyle impacts. Visions and scenarios are thus not just ungrounded predictions or forecasts, but instead seek to explore the most extreme possibilities to help decision-makers plan for the currently "unthinkable".

Visions and scenarios can to be supported by backcasting approaches that start from a desired future vision, e.g. by defining what is meant by sustainable lifestyles in 2050. The next step is to identify events that need to take place at different points in time, starting from 2050 and going back to the present day (e.g. 2040, 2025, 2015) in order to ensure that the defined vision will materialise (Robinson 1990). This way the backcasting exercise helps avoid the risk of getting locked-in by challenges of the present day instead of concentrating on the future vision. The backcasting method highlights discrepancies between the present day and desirable futures and identifies where the most drastic and even disruptive changes are most needed and how to prepare for them in the most efficient and effective way. Backcasting also opens up alternative pathways to successfully reaching the desired future.

Advancing experimentation

Sustainable lifestyles can be created neither in a lab nor in a research office. The traditional model for changing behaviour is rooted in the idea that the attitudes needs to change first, after which values change and only then will behaviour follow. However, due to the attitude-behaviour gap, changing attitudes may not directly translate into changed behaviours; on the contrary, changing behaviour may be followed by change in attitudes and perhaps even values. Research has shown that individuals often adapt their attitudes to actual behaviour, not the other way around.

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[5] Responder http://www.scp-responder.eu/knowledge_base and FOODLINKS www.foodlinkscommunity.net and http://purefoodlinks.eu/

Therefore, experimentation with different economic tools, business models and community initiatives is needed more than ever before. This requires policies and economic instruments that enable experimentation on a much larger scale. Innovation policy has a role to play in encouraging and advancing society-wide experimentation targeting sustainable lifestyles. Horizon 2020 intends to "cover activities from research to market with a with a new focus on innovation-related activities, such as piloting, demonstration, test-beds, and support for public procurement and market uptake" (European Commission 2011). This research agenda goes one step further and envisions large-scale experimentation, evaluation, and testing of policies, business and social innovation models and products or services in real-life situations. The premise is that behaviours sometimes precede attitude and value change, so by engaging people in experimentation, testing and evaluations, behavioural and value changes that are of high importance for sustainable lifestyles might be enabled and facilitated.

The key to developing innovative economic instruments and policy frameworks lies in a 'test, learn and adapt' approach that utilises and draws on knowledge of sociology and psychology of consumption. Testing and fine-tuning policies through various kinds of behavioural experiments (i.e. consumer surveys or behaviour studies) in the real world will contribute to the acceptability of the policy, the response rate and the effectiveness.

Creating the culture of long-term thinking

Envisioning exercises are also critical in a sense that they highlight the need to develop mechanisms for long-term evaluation of policies and strategies, particularly since the major challenge is to prepare society and its institutions, actors and infrastructure for lasting change. Envisioning brings the long-term perspective into policy- making, research and business dialogues and highlights the need to evaluate long-term effects of interventions on the environment, society and economy. The long-term perspective provides opportunity to learn about how new pathways unfold, affected by a variety of interdependent conditions. Monitoring and evaluation tools that are able to measure behavioural and lifestyle changes over longer periods of time are necessary. These tools should accommodate and incorporate possible contextual changes in policy frameworks, economic circumstances and cultural norms.

In line with this, there is a need to devise evaluation methods that go beyond quantitative efficiency and effectiveness indicators. Questions worth exploring are: How do we want to define success? When is a project successful? Efficiency and effectiveness indicators may be of use, but they imply that goals of a project, policy or initiative must be set in advance and that the project success will be measured against these goals. However, in the long-term perspective, when the environment is changing, goals set in advance might prevent projects and policies from displaying flexibility and adaption to the changing circumstances. On the other hand, flexible and adaptive projects or policies might be regarded as a success factor as they show the ability to learn and adapt, even though it might be difficult to use traditional efficiency and effectiveness measurements to evaluate such adaptations. In addition, such flexible projects or policies may also stimulate social learning, which could also be considered a success factor that is of special relevance to "spreading" sustainable lifestyles.

Horizon 2020 acknowledges the importance to adjust priorities and resources of the 7-year long programme to ensure its continuous relevance. Already at this stage, "flexibility clauses have been included in the proposal in this respect" (European Commission 2011). The implementation of Horizon 2020 will be based on sound scientific evidence, analysis and foresight, with progress measured against a robust set of indicators.

Research methods, approaches and design

Research strategies should always be tailored to the particular research questions or societal challenges. Depending on the specific topics, research questions and the actors and subjects involved, a combination of various research methods – qualitative as well as quantitative – is usually preferred. A multitude of research methods is available, ranging from more traditional approaches, such as surveys, in-depth open-ended and structured interviews, observations, focus groups and Delphi method, to more participative and innovative approaches, e.g. citizen fora, stakeholder dialogues, backcasting, participative assessments, end-user involvement, co-design, open innovation and so forth.

Since research aimed at sustainable lifestyles refers to desired future developments, both on the individual and the societal level, the challenge lies in developing experimental and innovative research methods. For example, envisioning methods, forecasting and backcasting looking for different ways of experiencing comfort, health, well-being, status, mobility etc. in the future (envisioning new practices) can be very useful. Design and visualisation tools that envisage what daily life could look like in the future can also fulfil an important role in demonstrating, communicating and connecting sustainable lifestyle solutions to everyday choices of people. Envisioning may also be used to improve our understanding of the role of macro-trends in affecting future opportunities for sustainable lifestyles.

Another emerging area that is yet to be tapped into by the research and the policy making community is crowdsourcing. It can be seen as a large-number Delphi study where people act as experts and can provide feedback to policy action or research. One example of crowdsourcing used in research is the collective data culture where people enter their data, which are analysed by scientists. Potential problems with quality are usually compensated by quantity.

References

Ausubel, J. H. and A. Grubler (1995). "Working Less and Living Longer: Long-Term Trends in Working Time and Time Budgets." Technological Forecasting and Social Change **50**(3): 113-131.

Barr, S. and A. Gilg (2006). "Sustainable lifestyles: Framing environmental action in and around the home." Geoforum **37**(6): 906-920.

Barr, S., G. Shaw, et al. (2010). "'A holiday is a holiday': practicing sustainability, home and away." Journal of Transport Geography **18**(3): 474-481.

Bradley, K. (2009). Just Environments - Politicising Sustainable Urban Development. Institutionen för Samhällsplanering och miljö. Stockholm, Kungliga Tekniska Högskolan.

Brown H.S., Vergragt P.J. (2008) 'Bounded Socio-Technical Experiments as Agents of Systemic Change: The Case of Zero-Energy Residential Building'. Technological Forecasting and Social Change 75: 107-130

Center for Sustainable Development (2004). "Every little bit helps…". Overcoming the challenges to researching, promoting and implementing sustainable lifestyles. Westminster, University of Westminster.

Christensen, T. H., M. Godskesen, et al. (2007). "Greening the Danes? Experience with consumption and environment policies." Journal of Consumer Policy **30**(2): 91-116.

Cohen, M. J. (2012). Austerity, Sustainable Consumption and Post-Consumerism. First Trans-Atlantic SCORAI Workshop "Sustainable Consumption During Times of Crisis". Bregenz, Austria.

Cohen, M. J. (2012). Overcoming Cultural Dissonance in the Transition to a Postconsumerist Future. First Trans-Atlantic SCORAI Workshop "Sustainable Consumption During Times of Crisis". Bregenz, Austria.

Crompton, T. and J. Thøgersen (2009). Simple and Painless? The limitations of spillover in environmental campaigning, World Wildlife Foundation**:** 33.

EEA (2009). The benefits of and barriers to Ecological Tax Reform. Copenhagen, European Environmental Agency**:** 6.

Empacher, C. and K. Götz (2004). Lifestyle approaches as a sustainable consumption policy - a German example. The Ecological Economics of Consumption. L. A. Reisch and I. Røpke. Cheltenham, UK, Edward Elgar**:** 190-206.

European Commission (1995). Green Paper on Innovation. Brussels, European Commission**:** 52.

European Commission (2009). Europeans' attitudes towards the issue of sustainable consumption and production. Brussels, The Gallup organisation and European Commission**:** 86.

European Commission (2012). Report from workshop "From Behaviour to Environmental Policy, and Vice Versa". Brussels, European Commission**:** 18.

Fletcher-Morgan, P. C. and Leyland, K. (2010). "Making people more responsible: the Blair governments programme for changing citizens' behaviour." Political Studies **58**: 427–49.

Gee, D. (1997). Economic Tax Reform in Europe: Opportunities and Obstacles. Ecotaxation. T. O'Riordan. London, Earthscan.

Geels, F. W. and J. Schot (2007). "Typology of sociotechnical transition pathways." Research Policy **36**(3): 399-417.

Grant, J. (2006). Planning the Good Community: New Urbanism in Theory and Practice. London: Routledge.

Granovetter, M.S. (1973). "The Strength of Weak Ties ". American Journal of Sociology **78** (6): 1360–1380.

Goffman, E. (1959).The Presentation of Self in Everyday Life. Edinburgh: University of Edinburgh Social Sciences Research Centre.
Holdsworth, M. (2003). Green Choice: What Choice? London, National Consumer Council.
Hounsham, S. (2006). Painting the Town Green: how to persuade people to be environmentally friendly. London, Green-Engage Communications.
IEA (2009). Gadgets and Gigawatts - Policies for Energy Efficient Electronics. Paris, International Energy Agency**:** 426.
Isenhour, C. (2010). "On conflicted Swedish consumers, the effort to stop shopping and neoliberal environmental governance." Journal of Consumer Behaviour **9**: 454-469.
ISIS Academy (2012). Life Beyond Growth. Alternatives and Complements to GDP-Measured Growth as a Framing Concept for Social Progress. Tokyo, Japan, ISIS Academy**:** 73.
Jacobs, J. (1961). The Death and Life of Great American Cities. New York, Random House.
Jackson, T. (2005). Motivating sustainable consumption. Surrey, Centre for Environmental Strategy, University of Surrey**:** 170.
Jackson, T. (2009). Prosperity without Growth? The Transition to a Sustainable Economy. London, Sustainable Development Commission**:** 136.
Jégou, F. and Manzini, E. (2008). Collaborative services Social innovation and design for sustainability. Milan Polidesign Edizioni.
Johnsson-Latham, G. (2007). Gender Equality as a Prerequisite for Sustainable Development. Stockholm, Swedish Environment Advisory Council, Ministry of the Environment**:** 90.
Kallis, G. (2011). "In defence of degrowth." Ecological Economics: the journal of the International Society for Ecological Economics **70**(5): 873-880.
Kelly, M. (2012). Owning Our Future. The Emerging Ownership Revolution. Berrett-Koehler Publishers, San Francisco.Lettenmeier, M., T. Hirvilammi, et al. (2012). "Sustainable Lifestyles Material Footprint of Low-Income Households in Finland—Consequences for the Sustainability Debate." Sustainability **4**: 1426-1447.
Kollmuss, A. and J. Agyeman (2002). "Mind the Gap: why do people act environmentally and what are the barriers to pro-environmental behavior?" Environmental Education Research **8**(3): 239-260.
Leadbeater, C. (2008). We Think: Mass Innovation Not Mass Production. London, Profile Books.
Lub, V. and M. Uyterlinde (2012). "Evaluating State-promoted Civic Engagement and Participation of Vulnerable Groups: The Paradoxical Policies of the Social Support Act in the Netherlands." Journal of Social Policy **41** (2): 373-390.
Magsamen, S. (2008). Living Artfully: A Heart-full Guide of Ideas and Inspirations That Celebrate Life, Love, and Moments That Matter, Free Press.
McDonald, S., C. J. Oates, et al. (2006). "Toward Sustainable Consumption: Researching Voluntary Simplifiers." Psychology & Marketing **23**(6): 515-534.
McGonigal (2011). Reality is Broken, Why Games Make Us Better and How They Can Change the World, New York, The Penguin Press.
Meroni, A. and Sangiorngi D. (2011). Design for Services. Farnham, Gower.
Michaelis, L. (2000). Drivers of consumption patterns. Towards sustainable consumption: A European perspective**:** 12.
OECD (2008). Promoting sustainable consumption. Good practices in OECD countries. Paris, OECD**:** 62.
Öko-Institut and partners (2011). Policies to promote sustainable consumption patterns in Europe. Policy Brief. Darmstadt, EUPOPP partners.
Peattie, K. (2001). "Golden goose or wild goose? The hunt for the green consumer." Business Strategy and the Environment **10**(4): 187-199.

Power, K. and O. Mont (2010). Dispelling the myths about consumption behaviour. ERSCP-EMSU 2010 Conference. Delft.
Power, K. and O. Mont (2012). Analysis of latest outcomes of academic work on sustainable consumption 2010-2012. Copenhagen, European Topic Centre on Sustainable Consumption and Production**:** 15.
Putnam, R.D. (2000). Bowling Alone: The Collapse and Revival of American Community. New York: Simon & Schuster.
Raven, R., P. J. M., E. Heiskanen, et al. (2008). "The Contribution of Local Experiments and Negotiation Processes to Field-Level Learning in Emerging (Niche) Technologies: Meta-Analysis of 27 New Energy Projects in Europe." Bulletin of Science, Technology & Society **28**(6): 464-477.
Robinson, J. (1990). "Futures under glass: a recipe for people who hate to predict." Futures **22**: 820–843.
Sanne, C. (2005). "The consumption of our discontent." Business Strategy and the Environment **14**(5): 315-323.
Schäfer, M., Jaeger-Erben, M. and S. Bamberg (2012). Life Events as Windows of Opportunity for Changing Towards Sustainable Consumption Patterns? Results from an Intervention Study. Journal of Consumer Policy **35**: 65–84.
Schor, J. B. (2005). "Sustainable Consumption and Worktime Reduction." Journal of Industrial Ecology **9**(1-2): 37-51.
Schor, J. (1999). The overspent American: why we want what we don't need. New York, Harper Perennial.
Schor, J. (2010). Plenitude: The New Economics of True Wealth. New York, The Penguin Press.
Schrader, U. and J. Thøgersen (2011). "Putting Sustainable Consumption into Practice." Journal of Consumer Policy **34**(1): 3-8.
Schubert, S. (2004). Mobility-Styles in Leisure-Time - a lifestyle-approach for a better understanding and shaping of leisure-mobility. OECD Workshop on "Leisure Travel, Tourism Travel, and the Environment", Berlin.
Schultz, I. and I. Stieß (2007). Linking Sustainable Consumption to Everyday Life. A social-ecological approach to consumption research. System Innovation for Sustainability 1: Perspectives on Radical Changes to Sustainable Consumption and Production. A. Tukker, M. Charter, C. Vezzoli, E. Stø and M.M. Andersen. Sheffield, UK, Greenleaf Publishing**:** 450.
Stegeman, I. and C. Costongs (2012). The Right Start to a Healthy Life: Levelling-up the Health Gradient Among Children, Young People and Families in the European Union – What Works? Brussels: EuroHealthNet.
Stockholm Memorandum, The (2011). Tipping the Scales towards Sustainability. 3rd Nobel Laureate Symposium on Global Sustainability, Stockholm, Sweden, 16-19 May 2011.
Tait, M. (2003). Urban Villages as self-sufficient, integrated communities: a case study in London's Docklands. Urban Design International **8**.
Turkle, S. (2011). Alone Together: Why We Expect More from Technology and Less from Each Other. New York, Basic Books.
UK Sustainable Development Commission (2010). Sustainable development: the key to tackling health inequalities. London, SDC.
UNEP (2011). Visions for Change - Recommendations for Effective Policies on Sustainable Lifestyles: Country Papers. Paris, UNEP**:** 118.
van den Bergh, J. C. J. M. (2011). "Environment versus growth — A criticism of “degrowth” and a plea for “a-growth”." Ecological economics : the journal of the International Society for Ecological Economics **70**(5): 881-890
Van Vliet, B., Chappells, H. et al. (2005). Infrastructures of Consumption. Environmental Innovation in the Utility Industries. London, Earthscan.

Wilhite, H., Shove, E., Lutzenhiser L., and Kempton W. (2000). The Legacy of Twenty Years of Energy Demand Management: we know more about Individual Behaviour but next to Nothing about Demand. pp. 109-126 in E. Jochem et al. (Eds.) Society, Behaviour, and Climate Change Mitigation. Dordrecht: Kluwer Academic Publishers.
WorldWatch Institute (2008). State of the World 2008: Innovations for a Sustainable Economy, Earthscan.

APPENDIX A

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