



# EUROPEAN POLICY BRIEF



## **GILDED - Governance, Infrastructure, Lifestyle Dynamics and Energy Demand: European Post-Carbon Communities**

Ongoing project

June 2011

### SUMMARY

#### **Objectives of the research**

Individuals and households impact on CO<sub>2</sub> emissions directly through product and service demands. This research identifies personal, socio-economic and cultural factors which shape energy demand in various contexts that are facilitating, or obstructing reduction of carbon-intensive energy use.

#### **Scientific approach / methodology**

This policy brief is based on analysis interviews and a questionnaire survey undertaken in urban and rural areas in five countries across Europe (UK, the Netherlands, Germany, Hungary and the Czech Republic).

The nearly 200 interviews explored perceptions of energy and climate change issues; the questionnaire survey focused on values, goals and lifestyles in relation to energy, social representations of climate change, and institutional factors which may influence energy demand.

Respondents also completed a CO<sub>2</sub>-calculator, developed to measure energy consumption of households. Around 2500 questionnaires were administered among representative samples of citizens in the case study areas.

#### **Key messages for policy-makers, businesses, trade unions and civil society actors**

The seriousness of climate change is broadly (but not universally) accepted but there is certain scepticism about individual changes in behaviour to save energy. Regulation, price increases and technical innovation are required to reduce energy demand. Developing more energy-efficient technologies and switching to renewable energy sources are the most favoured approaches, for people with biospheric and altruistic values while cost-saving is the most important for people with hedonic and egoistic values.

Household energy demand is influenced by economic factors, but also by goals and values: altruistic and “biospheric” (“green” or pro-environmental) values do appear to correlate with acceptance that energy use has undesirable environmental consequences, and with lower household energy demand, so policymakers and civil society actors should focus on these environmental consequences as well as cost savings.

Among a range of institutions, environmental NGOs score most highly for effort and effectiveness in energy saving, indicating that policymakers and other civil society actors should try to coordinate with them.

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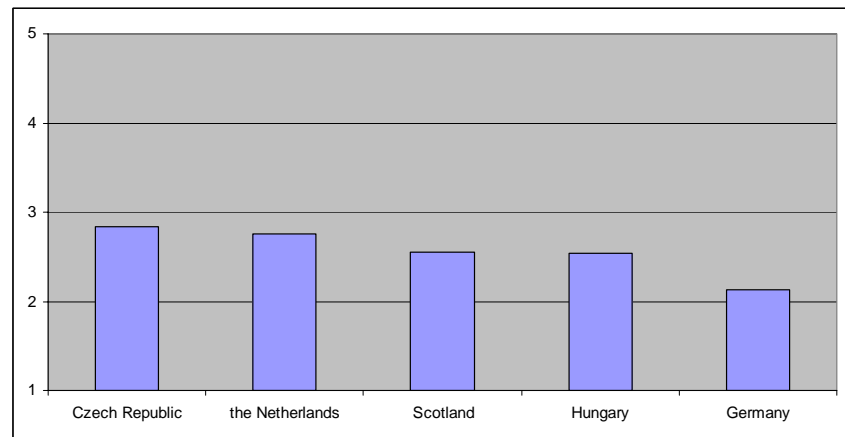
## KEY OBSERVATIONS

### New knowledge and European added value

Our study showed that in all countries people think that climate change is a serious problem. However, in some countries people were more sceptical (thinking that climate change is exaggerated) than in others (see figure 1). The Germany sample showed the least scepticism, the Czech sample the most. (People were asked to give their opinions on a 5-point scale for this and a number of other questions: the graph shows average values.)

### Citizens perception of the climate change

**Figure 1:** Perception of climate change by country; the higher the score, the stronger the tendency to think that climate change is exaggerated



### Underestimation of household energy consumption

Participants tended to underestimate the importance of private households for energy consumption. Moreover, in comparison to other households, many respondents saw their own energy consumption as average (or below) and described their use of energy as comparatively reasonable and rather inevitable.

Other people were sometimes suspected to live in a more hedonistic and less considerate way and – although many presented themselves as not overly environmentally aware – to be (even) less interested in environmental matters than the respondent themselves.

### Indirect energy consumption is not considered

When questioned about personal energy use, interviewees took mainly their direct energy consumption into account, including uses such as heating and electricity. This was closely followed by transport, including car usage and flights.

However, indirect energy consumption, i.e., the energy contained in products and services used by households, was largely not considered. When talking about the energy used for the production of food and other products, respondents often felt locked in by system-related problems associated with globalised transport, and implied that consumers had little choice to avoid these energy costs.

### Insulation of the dwelling is rarely mentioned

People were much more concrete when talking about their direct household energy. Here, respondents were aware of many energy-saving options which they often already implemented. In most study sites. Measures such as switching off the light, not leaving appliances on standby, turning down the heating and using energy-saving lightbulbs were considered as important measures to effectively reduce energy. In contrast, measures which required an initial investment, such as insulation of the dwelling or buying new energy-efficient appliances were rarely mentioned as an option for energy conservation.

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### Change of technology or lifestyle?

Respondents were also asked to indicate which policy measures they find acceptable to combat climate change. The results show that respondents find it somewhat more acceptable to switch to renewable energy sources and to develop more energy efficient technology in order to reduce CO<sub>2</sub> emissions than to change their lifestyle, e.g. use less energy in their homes. Increasing the use of nuclear energy is found to be the least acceptable policy measure. The results were similar in all five countries.

With regard to the consequences of climate change we found that people think that climate change will have serious negative consequences for future generations and, to a lesser extent, for themselves. Overall, they expect the consequences of climate change to be more negative than positive.

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### Four values

Unsurprisingly, we found that people with more capital used more energy and generated more CO<sub>2</sub> emissions. In addition, four types of values were shown to influence environmental beliefs and behaviour, namely: **egoistic**, **altruistic**, **hedonic** and **biospheric** values.

People with strong biospheric values base their decisions to act on the costs and benefits for the ecosystem. People with strong altruistic values find understanding, appreciation, tolerance, and protection for the welfare of all people important, whereas people with strong hedonic values find pleasure or sensuous gratification for oneself important. Finally, people with strong egoistic values find social status and prestige, control or dominance over people and resources important.

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### Biospheric values

We found that **biospheric values** are strongly and negatively related to energy use and positively to environmental beliefs. People with strong biospheric values more strongly think that climate change is a serious problem, that they can do something to combat climate change and that climate change is caused by humans than people who have weaker biospheric values.

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### Hedonic and egoistic values

We also found a direct relation between people's values and their behaviour. People with strong hedonic and egoistic values eat more meat than people with weak **hedonic** and **egoistic values**, and shower more, while people with strong biospheric and altruistic values shower less. People with strong hedonic values also have a less energy efficient driving style than people with people with weak hedonic values.

Overall, we found that people with strong hedonic and egoistic values use more energy. People with strong biospheric, and to a lesser extent, altruistic values use less energy.

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### Education matters more than income in relation to energy consumption

Both income and educational level are related to energy consumption, but overall, education level is more strongly related to specific behaviours influencing energy consumption than income level. People with a higher level of education eat less meat and have a more fuel efficient driving style than people with a lower level of education. People with a higher level of income report a more fuel efficient driving style. The relationship between income and meat consumption and shower time is weak, but significant: people with a higher income eat more meat and shower longer than with a lower income.

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### The objectification of climate change is useful

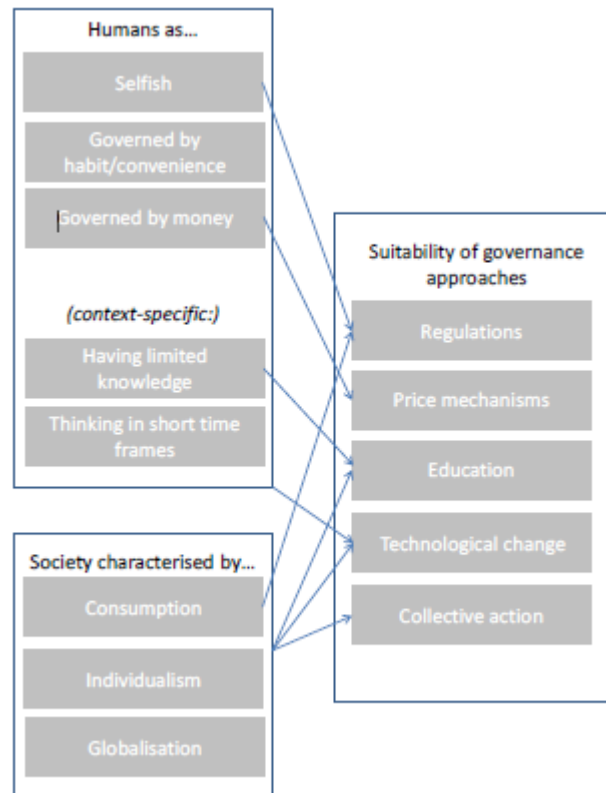
Our interviews indicated that the abstract scientific concept of climate change has to be translated into concepts and images of everyday life to become meaningful. While some of the aspects of interviewees' representations of energy and climate change were characterised by substantial distance from their lives, other aspects were experiential and/or based on very concrete and vivid images.

For example, anchoring the idea of climate change in the concept of air pollution, and the objectification of this idea as "smoking chimney stacks" or soot coming out of car exhausts, converted climate change into a concrete, tangible reality.

Climate change was represented as closely connected to other environmental issues and to the overall question of energy consumption (see above). Especially among Scottish respondents, this representation of unsustainable resource use seemed to be objectified by the image of rubbish and waste produced by modern society, thrown into the countryside, or piling up on landfill sites.

There is, according to the interview data, a high level of cynicism about human beings and modern society: many people think that *other people* will not reducing their energy use unless either regulations or considerably higher prices oblige them to do so.

**Figure 2:** Schematic overview of characteristics of humans and society in general, and connections made by our interviewees to the suitability of governance approaches. Arrows denote associations found in the data.



## RECOMMENDATIONS FOR POLICY-MAKERS

We found that most people in all the countries studied think that climate change is a serious problem, believe that climate change is caused by humans and, that they as individuals, people in general and Europe, can do something about it; hence, convincing people of this should not be the main focus of efforts to reduce demand.

However, there are variations between countries, with people in the **Czech Republic** and **the Netherlands** people most sceptical and those in **Germany** least so.

Many interviewees moved freely through topics and issues that are usually addressed separately in policy and scientific discourses (such as air pollution, waste treatment, energy production and consumption, and climate change).

Overall, two different types of representations emerged from our analysis. In both, rather than separating environmental issues, our participants embedded climate change and energy consumption in a context of unsustainable resource use.

Whereas for some (Fig. 3a) a focus on climate change was in principle possible (although our interviewees seemed to prefer considering climate change in its wider context), others (Fig. 3b) could not or did not want to isolate climate change from general sustainable resource use.

This implies that a separation between these issues in policy terms might appear rather artificial to people, as it does not reflect their ways of thinking about them.

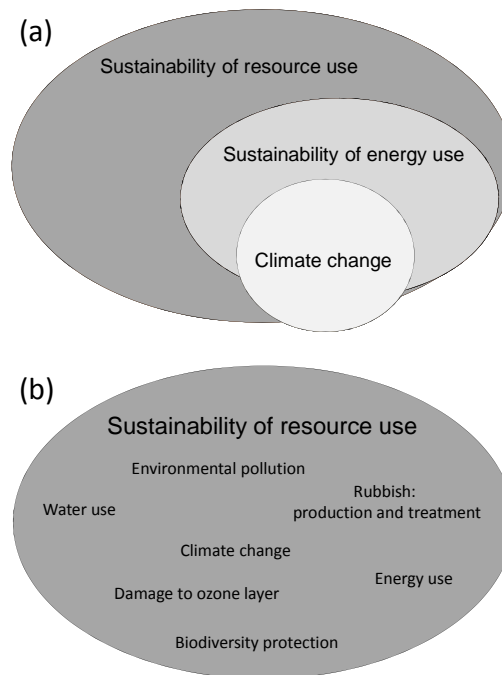
### Unsustainable way of living

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People interviewed often expressed great worry over the generally unsustainable way of living in their countries, including their own lifestyles. Many perceived a strong need for not only technological, but also societal change, as resource use at the current rate was not considered viable in the long run. This was often seen as part of a contemporary lifestyle that emerged over the last decades.

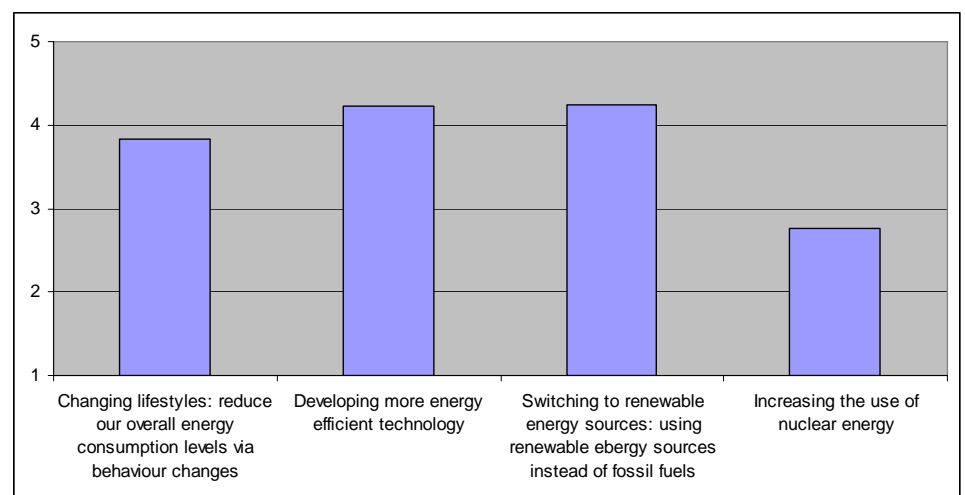
Many of our interview subjects thus called for strong and immediate governmental action, as behavioural change driven solely by individuals was considered ineffective

**Figure 3:** Two alternative conceptualisations of climate change, energy use and other environmental issues found in our data: (a) climate change and energy as distinct subtopics of general resource use, (b) climate change and energy as part of a holistic understanding of resource use. Conceptualisations of links between issues and perceived causes are not shown.



People find policy measures that focus on switching to renewable energy sources and developing more energy efficient technologies more acceptable than policies that focus on changing lifestyles. Increasing the use of nuclear energy is found to be the least acceptable policy measure to reduce CO<sub>2</sub> emissions (see figure 4).

**Figure 4:** Acceptability of policy measures



**For altruistic and biospheric, focus on "personal responsibility"**

As reported above, we found that the values professed by individuals who completed the questionnaire were related both to their beliefs about climate change, and to their behaviour: those with more **altruistic** and **biospheric values**, and less egoistic and hedonic values, being more likely to regard climate change as a serious problem, and also likely to use less energy.

This is unsurprising, but less obvious than might be supposed: the earlier interview data suggested a significant gap between environmental concerns and a general desire for a shift towards sustainability on the one hand, and the conclusions drawn about how they themselves should behave on the other.

For policymakers and civil society actors aiming to reduce energy demand, the message is that they must take account of the *range* of attitudes, beliefs and values among the public, targeting different messages to different segments of the population.

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**For egoistic and hedonistic, focus on "cost-saving"**

For the **most egoistic** or **hedonistic**, messages stressing cost-saving may have most effect; for those already having strong altruistic and biospheric (or "green") values, information about the most effective ways to save energy and messages stressing personal responsibility are more likely to work; for those in between, messages stressing the need for sustainable resource use and the government's own commitment and initiatives may strengthen their orientation toward altruistic and biospheric values.

We also suggest that communication strategies that aim to stimulate behavioural changes could actively work with the kinds of concrete images of climate change and climate-friendly behavior some of our interview participants produced, to connect their messages to the audience's ideas and experiences. Icons and symbols could also be actively created, to tighten links between public representations and everyday lives.

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**Feasibility of investment options**

Given our finding that people are much more likely to take energy-saving measures that require little or no investment, information campaigns on energy consumption need to include a focus on the high effectiveness and feasibility of investment options, for example, the insulation of houses or installation of double glazing. Respondents were comparably well informed about curtailment and routine behaviours to curb electricity and heating energy. Here, providing more detailed information on the saving potential of measures could further help to stimulate action.

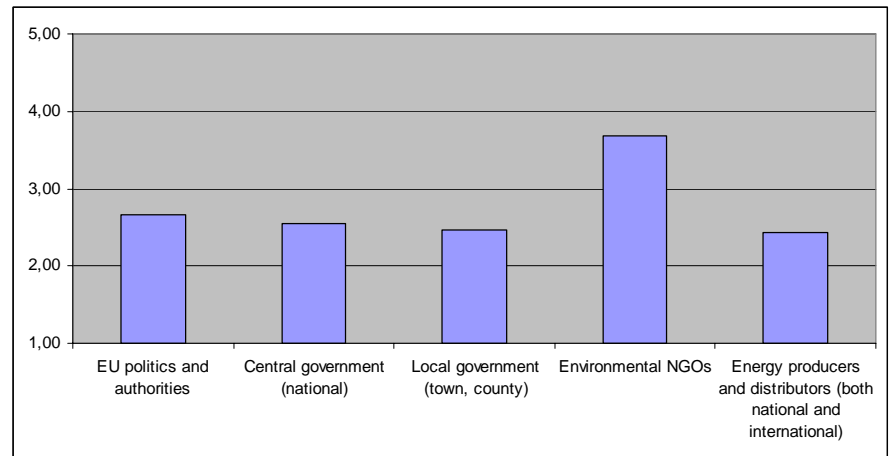
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**Incentive schemes**

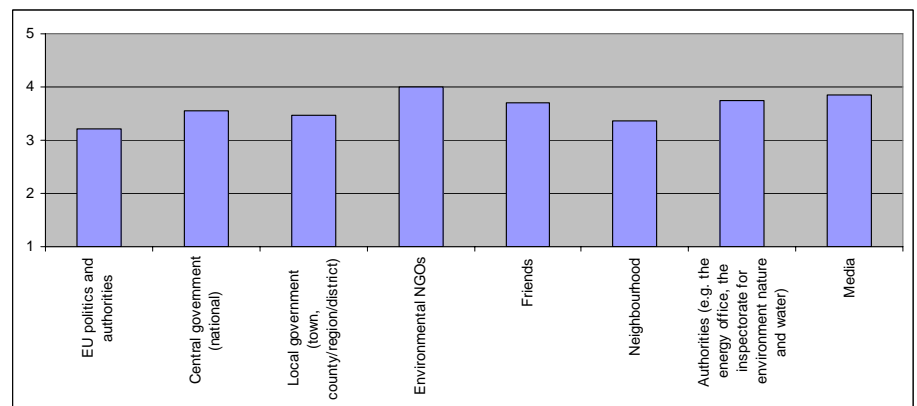
In addition, barriers for investment behaviours are usually higher than those for curtailment behaviours. Information campaigns thus need to be complemented by incentive schemes. Important life events such as constructing a house, enlarging the family or moving into a new city, need to be utilized in such a way that households can adopt sustainable consumption patterns. This calls for coordinated action from a range of actors, including the city administration, consumer advice centres, local transport utilities but also local craftsmen and constructors.

Finally, among a range of institutions and influences we asked about, environmental NGOs score most highly for effort toward energy saving (see figure 5), and effect on their own energy-saving efforts (figure 6) indicating that policymakers and other civil society actors should try to coordinate with them as closely as possible.

**Figure 5:** Perceived effort of different institutions in reducing energy use



**Figure 6:** Importance of different institutions and other sources of influence with regard to energy saving



Overall, our findings suggest that the public and policy debate might be more powerful in influencing people's behaviour if it built on the existing consensus – that current resource use is unsustainable – rather than attempting to convince the public of the scientific view on climate change – after all, this might not be necessary to achieve behavioural change or the acceptance of policy measures. However, while perceptions of morality were strong and feelings of worry ubiquitous (at least rhetorically), strong governmental action might be required to provide momentum to this change.

## RESEARCH PARAMETERS

### Methodology

GILDED takes a mixed methods approach, combining qualitative and quantitative techniques, focusing on field research but also including literature reviews, agent-based modelling and theoretical work. Findings presented in this policy brief are based primarily on a large scale quantitative study consisting of 500 questionnaires per case study area, and secondarily on approximately 40 earlier interviews per study area.

The interviews explored attitudes to energy and climate change in a more flexible way, and the subjects were chosen to ensure a broad range of viewpoints, rather than as a random sample of the population. The questionnaire aimed to examine relationships between lifestyles, individual motivations and social representations of climate change; and household energy use. For this purpose we developed a CO<sub>2</sub>-calculator to assess household energy use and CO<sub>2</sub> emissions, and asked multiple questions about specific energy-related behaviours: meat consumption, showering, and driving style.

The quantitative questionnaire study was distributed among representative samples of the populations in the relevant urban and rural case-study areas in the different EU countries. The CO<sub>2</sub>-calculator was constructed to measure energy use and CO<sub>2</sub> emissions of households.

The CO<sub>2</sub>-calculator assessed energy use in three domains: energy use in the house, for mobility and food. Indirect, as well as direct energy use was assessed. The questions in the CO<sub>2</sub>-calculator were based on existing CO<sub>2</sub>-calculators, but it was specifically designed for use across the range of EU states concerned (**the UK, Germany, the Netherlands, the Czech Republic and Hungary**).

The questionnaires were distributed and collected mostly via a door-to-door approach to enhance response rates (most of those in Scotland were delivered by post). The data were collected between February and May 2010. Participants were selected using stratified random sampling which ensures that men and women and people from all ages were represented. See table 1 for response rates. Analysis of the questionnaire responses is continuing.

Table 1: Response rate per country

|                                    | Hungary | Czech Republic | Germany | The Netherlands | Scotland                         |
|------------------------------------|---------|----------------|---------|-----------------|----------------------------------|
| Percentage                         | 58      | 10             | +/-29*  | 55              | 7                                |
| Number of questionnaires completed | 500     | 500            | 543     | 476             | Door to door: 184<br>Postal: 305 |

\* In the German case this number is only an approximation. The share of households who were not willing to take part were not counted during distribution, but estimated afterwards.

**Parameters**

GILDED addresses socio-economic, cultural and political influences on individual and household energy consumption, in order to develop policy recommendations for moving towards a post-carbon society. Findings presented here examine the following questions:

- how do people understand climate change, energy use and energy policies?
- how do values and goals relate to households' decisions regarding energy demand and use?
- How do individual, social and contextual factors influence household energy demand, and how do these factors interact?

We then consider the implications of these findings for policymakers and civil society actors.

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**PROJECT IDENTITY**

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|-----------------------------|---|
| <b>Coordinator</b>          | Nick Gotts, Macaulay Land Use Research Institute<br>e-mail: <a href="mailto:n.gotts@macaulay.ac.uk">n.gotts@macaulay.ac.uk</a>  |
| <b>Consortium</b>           | <ul style="list-style-type: none"><li>• Macaulay Land Use Research Institute</li><li>• Potsdam Institute for Climate Impact Research</li><li>• Magyar Tudományok Akadémia Politikai Tudományok Intézete</li><li>• University of Groningen</li><li>• University of South Bohemia in Ceske Budejovice</li></ul> |
| <b>EC contact</b>           | Domenico Rossetti-Di-Valdalbero, DG Research and Innovation<br>e-mail: <a href="mailto:domenico.rossetti-di-valdalbero@ec.europa.eu">domenico.rossetti-di-valdalbero@ec.europa.eu</a>   |
| <b>Duration</b>             | December 2008 – November 2011 (36 months)   |
| <b>Funding scheme</b>       | 7 <sup>th</sup> Framework Programme – Socio-economic Sciences and Humanities; Theme 8 Socio-economic sciences and Humanities Collaborative Project, Small or medium scale focused research project  |
| <b>Budget</b>               | EC contribution: €1.426.647   |
| <b>Website</b>              | <a href="http://www.gildedeu.org">www.gildedeu.org</a>  |
| <b>For more information</b> | <a href="mailto:n.gotts@macaulay.ac.uk">n.gotts@macaulay.ac.uk</a><br><a href="mailto:l.sutherland@macaulay.ac.uk">l.sutherland@macaulay.ac.uk</a>  |