



EUROPEAN POLICY BRIEF



FLAGSHIP

Forward Looking Tools and Methods for
Answering Major Societal Challenges

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INTRODUCTION

Europe is facing a number of long-term Grand Societal Challenges (GSC) which require an appropriate policy reaction in many fields (social, energy, environment, etc.). However, policy makers can develop the appropriate strategies only if they have a clear idea of the nature of these challenges and the global trends behind them.

The purpose of the FLAGSHIP project is to provide policy makers with better tools to understand how the global trends might develop. In this Policy Brief we provide some first policy relevant findings from the initial stage of the project.

Our analysis suggests that, while forward looking analysis remains very complex, EU policy makers might do well by relying on a relatively simple two dimensional 'compass' to guide major strategic decisions; and that a limited number of 'totem' indicators should be used to measure progress.

The compass has two dimensions. One is the choice between emphasising material growth, as measured by GDP, or aiming at a sustainable society for which sometimes 'less is more'. The other dimension concerns the appropriate level of governance, which goes from the regional to the national, the EU and the global level.

The choice between sustainability and growth must be made at all levels. But a central issue, which remains open, is whether the GSCs arising from global trends, can be addressed without shifting more responsibility to the European, or even the global level.

The key, or 'totem' indicators which we propose, relate to four areas that sometimes require difficult choices:

- Growth: the state of the global economy is characterised by growth of GDP.
- Emissions: the state of the global environment is characterised by emissions and the resulting concentration of green house gases in the atmosphere.
- Inequality: the concerns of society can be summarised by the Gini coefficient or the degree of income inequality.
- Debt: Europe's financial system can recover only if the existing debt overhand is somehow dealt with.

The key long-term policy challenges arise essentially at the intersection of the economy with the other three areas. The ecological challenge in fact has to weight growth against emissions. The social challenge has to weight growth against income equality. The financial markets challenge has to weight short term growth against the need to lower debt to make the financial system more stable.

Europe will have to face these challenges against the backdrop of the major global trends described in the next section.

EVIDENCE AND ANALYSIS

This section summarised the most important trends observed and the corresponding challenges currently faced by the European Union in the fields of:

- Future Economic, Research;
- Demographic and Social Change;
- Environmental;
- Global Governance; and
- Territorial dimension of grand societal challenges

These trends and challenges are to be considered in the framework in comprehensive set of ambitious targets presented in the table at the end of the section.

Future Economic, Research and Innovation Trends and Challenges

The global financial crisis which started in 2007/8 has led to profound re-appraisal of the long terms prospects for the EU. Before the 2008, the economic development in EU appeared to be sustainable in the long run and at that time the main economic concern appeared to be the ageing population in Europe and the potential shortage of labour supply in the coming decade. However, the financial crisis, which in Europe mutated into the 'euro' crisis has caused such economic dislocation that previous analysis and priorities have to be reassessed. Thus, even if the structural challenges for the European Union will remain the same in the long-term, the 'great recession' since 2008 has brought short-term issues, like the stability of the financial system, to the fore.

This section appraises the state of the art of foresight studies and scenarios concerning the evolution of the global financial crisis and its impact on global economic prospects for Europe and the other regions of the world (US, BRICs, MENA, etc.). Possible outcomes of the current euro crisis are analysed, and their likely impact on the future of the European economy discussed. Another important focus is the evolution of the European economy productivity, innovation and the shift of Europe to a knowledge society, and the related risks of creating societal divides. The initial stage of the project has identified the following key trends and uncertainties from the existing literature in relation to economy, finances and innovation in Europe and the global level.

Growing global economy in the long-term

The world economy seems destined to continue growing, but there is considerable uncertainty as to the pace of growth.

For example, in 2007, the World Bank forecasted a sustained 2.9% yearly average World economic growth between 2008 and 2030 (W. Stevens, 2007). The global financial crisis of 2007/8 (which was in reality mostly a US/EU one) dented of course the optimism. But even after years of slow growth and continuing financial market uncertainties, the IMF is predicting (in 2013) that global GDP growth rates should increase from 3.3% to 4.5% by 2017, while China is expected to keep growing above 8% yearly at least until 2017, and India above 6%. (IMF 2013) However, most forecasts agree on a slowdown of potential GDP growth in emerging countries and especially in China where the labour force should decrease from 2020 on.

Increasing global flows

Since 1990s the World has experienced amazing accelerated changes in terms of demographic slow down, economic growth, information flows, integration of global financial systems, exponential increase of global trade, tourism, emergence of Asian economies, increasing oil prices and growing environmental concerns. In this context, it has been widely argued that the fast development of the “Space of Flows” blurs political borders, diminishes the power of Nation-States, and in many aspects subverts geographic distances (‘the world is flat’, according to some).

- Global trade multiplied by 10 between 1960 and 2005, a much faster rhythm than real GDP (World Bank WDI).
- Maritime container trade expanded at an average 8.2% between 1990 and 2010 (UNCTAD 2011), doubling in less than a decade.
- Air traffic has doubled approximately every 15 years, and is expected to keep growing an average 4.7% yearly up to 2030 (Airbus 2013).
- Tourism went from 700 million tourist arrivals worldwide in 2004 to 1 billion in 2011 and is expected to grow 75% up to 2030 (UNWTO in 2011).

The growth of global flows is a consequence both of a steady reduction in transport costs and a lowering of trade barriers. Both should be positive for the economy, stimulating growth. But the larger volumes transported and traded and the huge increase in tourism, are also seen as increasing negative environmental impacts and the pressure on resource consumption.

However, as the unit cost of transportation has fallen, it is not clear whether the larger flows also mean a much larger economic impact and environmental cost. For example, although trade has expanded much more than GDP if measured in volume, this is much less the case in terms of value.

A more plural World geopolitical framework

The increase in the number of players driven by economic strength of Asian economies and BRICS, implies that the dominant influence of the West will diminish in the future. The European GDP has already dropped from being 37% of global output in 1970 to 28% in 2010, and will still decrease up to 20% in 2030 and 17% in 2050 (UNCTAD). Consequently, the world Gini inequality coefficient dropped from .65 to .61 between 1990 and 2006 (Pinkovskiy, Sala-i-Martin, 2009). Most forecasts that the global Gini coefficient will fall even further as emerging countries grow faster, catching up quickly to OECD levels of income.

However, while inequality across countries diminishes, inequality within countries might increase in many cases. Today the richest 1% in the world controls 39% of World’s wealth and this trend is increasing (Boston Consulting Group's Global Wealth report, 2013).

With 40% of the world’s population and 25% of global GDP in the BRICS, the intensity of trade with one another will be increasing fast and, becoming more independent from today’s developed World (W. Hankel & R. Isaak, 2011).

Financial activity typically increases by more than GDP growth. Poorer countries have a much lower ratio of financial assets to GDP than richer ones. This implies that the participation of emerging economies in global finance will increase even more rapidly than their share in the global economy. By 2020, emerging markets’ share of global financial assets is projected to almost double, assets becoming much more evenly distributed around the world (US National Intelligence Council, DNI, 2012). Countries such as China, despite having strict regulations for the use of international private funds to finance their growth, are in fact transferring large public savings to finance Western public debts (W. Hankel & R. Isaak, 2011).

Europe muddling through the financial crisis

The short-term outlook for Europe is uncertain. The euro area has survived its biggest crisis intact, but there is wide disagreement among experts whether it can recover fully from the crisis or not. Official projections point to a smooth recovery period. In the long-run projections are relatively contrasted, some expecting a smooth rebound after the recovery period (2018 to 2030) and others only anticipating weak long-run GDP growth with large divergence among Member States. Long-term GDP growth in the EU27 is projected to fall from 2.7% before 2008, to 1.6% for 2015-2030 and to 1.4% for 2030-2050 (EC FIN Ageing Report 2012).

Before the crisis, GDP growth in the EU was driven by the increase of households' and Governments' final consumption, and gross fixed capital formation. Since the crisis, economic reforms aim at a wage moderation that allows the re-balancing of external trade, especially in the Eurozone where changes in exchange rates cannot play this role. Nevertheless, this "unavoidable" external adjustment for imbalanced Eurozone countries, will probably durably penalised households' final consumption. Unemployment is expected high in almost all EU countries up to 2018, even very high in several European countries (22.9% Spain; 16.3% Portugal; 10.4% in France - IMF 2013).

Regional variations in the impact of the financial crisis in Europe

The economic crisis has hit all countries of Europe but in much differentiated ways. Out of 121 regions with GDP per capita below the EU average in 2000, 99 had improved their condition by 2008 (82%). Out of 138 regions with GDP per capita below the EU average in 2010, 84 are expected to experience further regression by 2030 (65%), according to the a recent ESPON project (ESPON ET2050, 2013).

In their way out of the crisis, European economies are moving to increase their trade with world emerging economies. Companies located in different European countries and economic sectors are taking advantage of the growth of emerging markets differently, based on pre-existing social, economic and cultural links.

The European economies may become, after the crisis, more interdependent from the rest of the world economies than on the internal European market. European foreign policy may become even more difficult, since global national interest may easily diverge.

An increased polarisation of the European territories is expected under prevailing globalization, given that accessibility to intercontinental transport hubs will be determinant for the competitiveness of European regional economies. Major gateways for passengers and freight transport will continue to expand their capacity to achieve even higher economies of scale. Today, four European ports alone concentrate 60% of the total container throughput and four airports concentrate 70% of the extra-EU aerial passengers.

Trends in the European Labour market

The total number of hours worked per employee and year (labour input) has had a declining trend since decades ago. In 2010, Europeans worked on average 1,746 hours per year, while in 1980 they worked 2,000 hours. The legal retirement age is currently established at 65 in most European countries, but the average retirement age of European population is 61.2. Retirement age is expected to increase due to policies addressing unbalances in the welfare system financing. Man and woman participation rates converge, but still there is a 6% difference on average, with important geographical differences. An aim of the European policies is to raise the participation rate. In average, between 1998 and 2011, productivity per capita grew 0.5% in the euro zone, against 2.5% in USA and 3.0% in Sweden. The level of investment on research and development, as well as the training and professional qualification of the population, are low. The economic structure of many European countries is dominated by sectors providing low productivity, such as agriculture, construction, distribution or tourism.

Unit Labour Costs (ULC, ratio of compensation per hour to output per hour) in the European peripheries have grown at higher rates since 1995 than in central Europe, in a convergence process experienced since the 1980s (J. Felipe and U. Kumar, 2011). Despite increases in salaries in Europe before the crisis, the rise of the ULC in many European countries did only partially compensate for the steeply rising prices that attended EU convergence between 1980 and 2008 (Waldman 2012, based on Felipe&Kumar 2011). The very large unemployment level in many European regions will keep driving salaries down in real terms for the years to come.

New social behaviours

Economics is becoming less about ownership and more about access, younger generations becoming less interested purchasing and more in renting and sharing (CSIRO 2012). Proximity consumption is on the rise: within the food sector, one important trend is the increase of local markets for agricultural products sensitive to ecological higher quality. Consumption identified with environmentally sensitive goals is also on the rise.

As “Green” becomes a business and a consumption good, corporations, not governments, are driving the push toward sustainability (Bakas 2006). New measures of economic performance, such as the stable Genuine Progress Indicator (GPI), become increasingly relevant, as citizens seem more interested in alternative economic models.

Innovation driving change

While some hold that the increase of technological development is exponential (Kurzweil’s 2030 Singularity and NBIC), others expect the ending of the Moore’s law in the coming decades (Michio Kaku, 2011). Constant progress in ICT (faster and faster Internet, IoT, cloud) creates a wider and wider range of possible applications that has to be carefully taken into consideration. Just as railways and airplanes reduced physical distance in the domain of transport, new ICTs are now reducing the size of the World, with the number of daily contacts and interactions by any human rising exponentially. The rise of the digital world is changing business models, just as Internet and smart phones have already changed lifestyles.

Expenses on R&D are about 1.9% in the euro zone against 2.6% in USA. Despite target set to increase R&D up to 3.0% of GDP, progresses are limited. Competition in innovation will be huge as new emerging powers do also invest in key sectors such as materials (rare materials, superconductors, etc.), energy and nanotechs, and entrepreneurship in Europe remains low. The education system remains to be adapted in many European countries to the requirements of the new/current economic trends.

Demographic and Social Change Trends and Challenges

The section reviews past trends in indicators of demographic and socioeconomic change, in light of population policies. Future challenges are identified. Results of the report are, among others, input to activities in following project tasks, focussing on qualitative and quantitative demographic scenarios and projections

The main demographic trends across Europe are declining population growth, ageing population and labour force, decline working age population, urbanisation, increasing number of international migrants, and migrants integration and social cohesion issues. The underlying causes of these trends are declining fertility and mortality rates. Large-scale immigration of people to EU countries has mitigated population ageing and the decline of population growth. Most of these (labour) immigrants, and their families, tend to concentrate in the main metropolitan areas. In some regions, their integration has posed new challenges to policy makers in terms of properly integrating newcomers in local communities to preserve social cohesion.

Human Capital

In general in Europe, people are not only growing older but are also staying healthy for a longer period of time, contributing to the general well-being of the population.

Levels of educational attainment have increased strongly across most European countries. As a result, younger cohorts are significantly higher educated than preceding ones. Higher levels of education and better-qualified populations have several advantages, both for the individuals as for the societies. Good education is one of the strengths of the European Union, and to further improve its human capital is one of its challenges.

Improving human capital at the global level may have several advantages. It can reduce gender inequalities and narrow the gap between countries, as productivity and economic growth may increase with increasing levels of education in less developed countries. Furthermore, it can contribute to highly skilled migration to countries with labour shortages and to a reduction of unemployment in countries with labour surplus.

Declining fertility levels will result in decreasing pupil and student populations, which may give countries the opportunity to put more effort in raising the quality of education.

Economic dimension of demographic developments

Notwithstanding that life expectancy in Europe is among the highest in the world, in a number of Eastern European countries, low life expectancy and large gender gaps in life expectancy remain a problem.

Ageing populations put pressure on the sustainability of welfare systems, which may result in intergenerational conflicts on taxes and expenditures to take care for the elderly, thus being a threat to social cohesion.

Persistently low birth rates and declines in the size or the share of the working age population may result in declining labour force, which hamper economic growth. If growing numbers of young people entering the working age will not find jobs, this may create a 'lost generation'.

In past decades increasing participation has been an important factor leading to growth of the work force and economic growth, however, there is still room to further raise participation of women, the elderly and migrants.

Social dimension of demographic developments

Postponement of partnering and rising age at childbearing may result in fewer children than needed to ensure demographical balance, and increase the age gap between generations. This may impact intergenerational support, as grandparents are older when their children become parents, and children are still active on the labour market and taking care for their own children when their parents reach the age they may need support.

Increase in partnership dissolution and so-called patchwork families (new families made up from members of divorced families) may weaken family ties and may negatively affect the financial situation of households and well-being of children.

Population diversity and growing disparities between majority and minority groups within countries may cause societal turmoil.

On the other hand, as people live longer and healthier, this makes it possible for many people to remain active in society also after they reach retirement age. It is an opportunity for societies to utilize the potential of older people, not only in the labour market, but also in other fields like voluntary work and informal care.

While intergenerational conflicts may be a threat, fostering intergenerational solidarity may be an opportunity. If we can achieve a society where on the one hand people of all ages can benefit from economic and social progress on an equal basis and at the same time can contribute to society and provide mutual support, this will be beneficial for society as a whole, as well as for its inhabitants.

Territorial dimension of demographic developments

Regions experiencing population decline may have problems to maintain an economy strong enough to be able to continue providing good quality services and offering their inhabitants a pleasant living and working environment.

Europe has several strong metropolitan areas that are less vulnerable to the consequences of ageing. It is mainly strong metropolitan areas in fact that profit from migration. In these regions, international migration of relatively young workers could make up for high levels of internal outmigration of people in their forties and fifties, preserving a relatively young age structure. Although migration is not a permanent solution to the challenges of a declining working age population, it does fill specific gaps in the labour market.

To turn their weakness, like population decline, into strengths, rural areas need to maintain and enhance their advantages in terms of attractive living environments and quality of life, compared to other urban or intermediate regions.

Another global opportunity is to fully utilize demographic dividend in those countries where increasing shares of youth or working age persons in the total population lower the dependency ratio. If successfully utilized, this can significantly raise per capita income, as well as living standards.

Environmental trends and challenges

This section identifies and further understands the driving forces and critical uncertainties specific to environmental challenges. The driving forces relate to the unfolding trends and possible trend breaks. They relate to social, science and technological, political, economic, but also environmental forces that might impact the development of environmental grand challenges in the timeframe considered for the scenarios. Drivers and uncertainties specific to the environmental challenges are identified and analysed using various sources, including existing foresight studies, foresight results included in the databases of the European Foresight Platform, iKnow and other FLA studies and platforms. In addition, blogs and discussion platforms in online communities have been used as well.

The environmental megatrends have been grouped into seven different areas:

- Climate change and global warming
- Biodiversity loss
- Air pollution
- Ocean acidification
- Water management
- Land use
- Decreasing the stock of natural resources

Three of these are truly global challenges (climate change, ocean acidification and limited natural resources); but even challenges affecting more specific areas occurs in all regions and have a global impact even the more local challenges are universal.

Climate change and global warming

There is enough evidence that global temperatures are rising. In the last century alone, the global temperature has climbed 0.6°C to 0.9°C, roughly ten times faster than the average rate of ice-age-recovery warming.¹

The fact that human action has produced climate change and global warming is now almost universally accepted. It is also becoming clear that climate change is affecting the functioning of ecosystems and has become a threat to human society (Anil Markandya et al., 2011).

Several studies of different institutions such as the UN International Panel for Climate Change, the US Environmental Protection Agency, and European Environment Agency have already identified excessive quantities of greenhouse gases (GHGs) emitted into near-surface atmosphere as being the sources of climate change and global warming. This increase in the Earth's temperature is triggering changes in climatic patterns.

The increase in the combustion of fossil fuels is historically the main source for the growth in the GHG emissions. Moreover, if present trends continue in the future the global temperature will rise by several degrees. IPCC (2007) report on "Climate Change 2007: Synthesis report" projected that the global mean temperature may rise to 1.8-4.0°C by year 2100. The most recent IPCC report, of which parts have been published, has essentially confirmed this finding.

In recent years, GHG emissions of industrialised countries have flattened or even reduced, as in the case of the EU. Technological improvements, changes in trade patterns, reduction in population growth rates and economic slowdown are among the main drivers of these trends. On the other hand, emerging economies such as China, India, Brazil, Indonesia and other fast growing regions, are trying to catch up with industrial countries, and as a consequence are leading the growth in global GHG emissions. In some cases, they show a gap in terms of environmental performance with respect to developed countries. In this sense, technological transfers from developed nations could play a critical role for GHG emissions reduction in emerging economies.

¹ http://data.giss.nasa.gov/gistemp/graphs_v3/

Loss of biodiversity

According to the Article 2 of Convention on Biological Diversity, “biodiversity” means “the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems”. Biodiversity is crucial to the continuation of the human species, since it is essential for the provision of fundamental ecosystem services such as climate and air quality regulation, water purification or pollination.

Scientists have projected that a large number of species may disappear by the next century if the current extinction rate, which is estimated to be 100 to 1000 times faster than in historical times, continues (Pimm et al. 1995, Barbier and Markandya, 2012). The FAO (2010) reports that during the period 1990-2010, each year more than 13 million hectares of tropical forest have been used for commercial purpose, with the largest net loss of forest occurring in South America and Africa. Forests store 289 giga tonnes of carbon in the form of biomass. Moreover, during this period, 75% of fish stocks and agriculture crops have been lost or depleted and 20% of coral reefs have disappeared worldwide.

Air pollution

Air pollution has become a major current threat both to human health and environment. The combustion of fossil fuels is the major source of air pollutants, together with industrial activities like quarrying, cement and chemicals production, and agriculture.

According to World Health Organization, Particulate Matter (PM) is one of the most relevant air pollutants in terms of health damage. High concentrations of PM can cause respiratory diseases with serious consequences for human health. Health impacts due PM emissions are mainly located in urban areas, where the exposure of people to the emissions (especially from vehicles, households and industries) is high. The challenge here is to enforce more stringent standards and, for developing countries, to reduce PM emissions without hampering economic growth.

Ocean acidification

Ocean acidification is a consequence of higher CO² concentrations in the atmosphere. Several studies (Royal society, 2005; Turley et al., 2006, Solomon et al., 2007; Doney et al., 2009) have reported the impact ocean acidification on different marine ecosystems and on fish stocks. According to these studies, the measure of acidification, i.e. the pH level, has changed by 0.1 units compared to the pH level 200 years ago². In these 200 years, sea water has experienced an increase of 30% in hydrogen concentration. Moreover, these studies argue that a drop of 0.15 pH units would increase hydrogen concentration by 40% and an increase of 0.3 units would double the hydrogen concentration. Drastic changes in the chemical composition of oceans can halt the growth of corals, plankton and marine snails, with further negative impacts on biodiversity. Corals are in fact very important nursery grounds for fishes, while plankton and snails are the main sources of the food for species like salmon, mackerel and baleen whales.

Water management

Water management is an almost universal problem, but can be solved only the regional level. As of 2010, over 780 million people worldwide lacked access to clean drinking water and 2.6 billion to improved sanitation services. Data show a reduction on both indicators and, in the case of drinking water, the Millennium Development Goal was met in 2010 (UNICEF /WHO 2012). However if current trends continue, more than 600 million people will still lack access to safe drinking water in 2015 and 2.4 billion people will lack access to improved sanitation facilities. Sub-Saharan Africa and Oceania are not on track to meet the MDG drinking water target, and globally the MDG target on sanitation is unlikely to be met by 2015 (UNICEF/WHO 2012).

Human water demand is increasing. Agricultural, industrial and domestic water withdrawals have steadily increased, to meet the demands of a growing population with growing wealth and consumption levels. Most of the estimates indicate a large global net increase of water withdrawals (UNEP 2012). The Water Resource Group (2009) estimates that in 2030 global water requirements will be 40% higher than current supply and that one-third of the world’s population, mostly in developing countries, will live in basins

² According to Royal Society, 2005, the pH has decreased 8.21 to 8.10, and a further decrease is expected by 2050.

where this deficit is larger than 50%. Increases in water withdrawals lead to an increase in water stress and water conflicts. As water scarcity increases, some regions will be forced to rely more on energy-intensive desalination technologies (UNEP 2012). Similarly, the global water demand under the OECD baseline scenario (OECD 2012) is projected to increase by some 55%, due to growing demand from manufacturing (+400%), thermal electricity generation (+140%) and domestic use (+130%).

Land use

Two key processes drive the changes in land use in opposite directions. Firstly, the urbanisation of the world's population expands the urban areas at the expense of agricultural land but an increasing demand for food promotes the expansion of agricultural area at the expense of forests (and urban areas). And secondly, the climate change, that indirectly affects land use change through different ways such as bioenergy production for emissions reduction or reduction of crop yields.

While the majority of world population still lives in rural settlements, the urbanisation process is a growing phenomenon all over the world. The UN has named the 21st century "a century of cities". It is estimated that the share of urban population in developing countries will exceed the rural population by 2020.

In the future, the combined pressures of a larger population and climate change will generate changes in the land use. In addition, new uses can appear, such as reforestation and nature conservation projects, and energy cropping for bioenergy. The Food and Agriculture Organization (FAO) and the International Energy Agency (2008) have estimated that the global area devoted to bioenergy crops could grow from around 13.8 million hectares in 2004 to between 34.5 and 58.5 million hectares in 2030, depending on scenario assumptions. Meanwhile, den Biggelaar and others (2004 a,b) estimate that around 2 to 5 million hectares of land continue to be lost each year due to land degradation, mostly related to soil erosion.

Decreasing the stock of natural resources

The Global Energy Assessment (GEA) study of the IIASA, argues that energy is central to addressing major challenges of the 21st Century including climate change³, economic and social development, human well-being, sustainable development, and global security. The GEA demonstrates that energy system change is a key element for addressing and resolving these challenges, and claims that energy transformations need to be initiated without delay, gain momentum rapidly, and be sustained for decades. They require the rapid introduction of policies and fundamental governance changes toward integrating global concerns, such as climate change, into local and national policy priorities, with an emphasis on energy options that contribute to addressing all these concerns simultaneously.

The evolution of energy consumption can be assessed as a combination of three factors: population, income per capita, and energy efficiency. On the one hand, for a given technology and income per capita a growth in population generates an increase in the use of energy; similarly, for a given technology and population level, an increase in income per capita boosts consumption and energy use. On the other hand, technological change, *ceteris paribus*, contributes to reduce the use of energy by improving efficiency. Historically, the first two factors have dominated and global energy use has steadily increased for decades. The evolution of these three variables will determine the demand for energy in the future and will affect GHG emissions. Population growth and better living standards (i.e. income per capita) will keep the demand for energy increasing, especially in developing countries. The growth in energy demand is expected to be mostly due to increases in electricity use. A decoupling between electricity use and GDP per capita is not likely, whereas thermal energy in industry, building and transport are expected to follow an inverted U-shape in relation to GDP per capita.

Global Governance Trends and Challenges

This section takes stock of the law scenarios developed by HiiL to appraise the state of the art of legal trends and challenges. On the surface, the legal trends observed seem to be diverse and they sometimes

³ Energy production and consumption contributes over 80% of global GHG emissions. In the next two decades carbon emissions from energy use is expected continue to grow, they may increase by about 25%.

point in different directions. But if we fade out the speculations, then there appears to be two major shifts in the global legal environment. One from a predominantly national to a predominantly international legal environment. The other from a predominantly public legal regime to a mixed public-private or even private regime (Muller, S et al.).

It remains to be explored whether the unfolding trends will continue and how they will evolve during the next few decades, whether internationalisation of rules and institutions will continue or stagnate and even reverse, whether private governance mechanisms and private legal regimes will further expand or if state institutions and legal regimes will retain or regain its position. For example,

- if Global Constitution unfolds, some of the expected transition challenges relate to how the rule of law can be effectively institutionalised in the evolving global constitutional order, and how to the critical issue of enforcement and compliance can be implemented. As for law, it does not have its full effect unless there is enforcement and this has traditionally been done best at the national level.
- if Legal Borders unfolds, major challenges expected relate to how dealing with legal pluralism and to what extent nation states and regional organisations can revert to soft power and international relations to coordinate rule-making and enforcement.
- in the event that Legal Internet unfolds, again how rule of law can be shaped will be a major challenge in an evolving global private regulatory framework, in particular how the principles of legality, universality of norms, democratic accountability and checks and balances can be secured.

The Megatrends mentioned in the scenario reports related to global law and global scenarios can be synthesized in the following:

Global Politics and Law: a balanced global distribution of power and the rise of Asia

Because of the absence of a simple global political system, globalization will probably be the single most influential driver shaping international politics. A more balanced distribution of power is expected in the world. The US will maintain its military power, but its economic power will weaken because of the rapidly growing economies of China, India, Brazil, Russia and South Africa and the economic power of the European Union. Resource scarcity and resource dependency is another major driver of geopolitical change.

Global Security: diffusing risks and threats as well as diffusing power to deal with these risks and threats

The high-impact/high-likelihood risks are water supply crises and chronic fiscal imbalances. Top five risks include also a major systemic financial failure, food storage crisis and diffusion of weapons of mass destruction.

Global economy: new K-wave after crises driven adaptation of the global economy

Technological breakthroughs might radically increase eco-efficiency and possibly provoke a new long-term economic Kondratieff wave (EC 2012), with a strong incidence of resource efficient technologies, bioeconomy, digitalisation and the second economy, and growth of health services.

Global society: smaller families and exploding civil society

Major social developments are expected, e.g. the growth of one-person households, solo-parent households; and couples without children. Longer life expectancy and falling fertility rates will lead to a rise of the elderly. Technology, geopolitics and the markets have created opportunities and pressures, spurring the creation of millions of civil society organizations around the world, but the World Economic Forum observes at the same time increasing restrictions on civil society organizations and activities both online and offline.

Regions and their global connections: Europe and the east-west axis

The Transatlantic Survey aims to map trends across both sides of the Atlantic. A longitudinal analysis reveals a number of stable trends: Americans and EU citizens expect strong leadership in world affairs from each others leaders; a large majority of Europeans has favourable views of the United States; a majority of Americans and Europeans think favourably of the EU; Europeans and Americans consider each other to be 'more important for their countries' national interests than Asia. The views on Russia 'turned from

favorable to unfavorable on both sides of the Atlantic’, contrasting with the fact a majority of Russian respondents has ‘favorable views of the United States and the European Union’.

The critical uncertainties are:

- Will more fragmented or more coordinated legal and governance mechanisms evolve on the global level?
- Will legal and governance mechanisms become predominantly formal and connected with state actors or predominantly informal and connected with private actors?
- Will these legal and governance mechanisms be characterized by a ‘thick’ or broad rule of law approach (legality + human rights) or by a ‘thin’ or small rule of law approach (legality)?

If the legal strategies of the EU are confronted with alternative scenarios (Hiil scenarios) at least two mutually connected key challenges for Europe are revealed. These challenges are derived from both Megatrends and Critical Uncertainties. The two major challenges caused by these trends and critical uncertainties are the global coordination challenge and the global rule of law challenge.

The global coordination challenge

Many Megatrends and critical uncertainties trigger growing interdependencies on a global scale. These interdependencies are connected with increasing scarcity of resources, hyperconnectedness of economies and societies and growing risks and global shocks. The interdependencies should be countered by global governance mechanisms that enable either public or private regulation. Lacking global coordination will result in a governance gap. The first challenge for Europe, as well as for other global powers, therefore is to avoid the global governance gap. Closely connected with this, it is the challenge of aligning the necessary global governance mechanisms with the multi-layeredness of the EU legal order.

The global (‘thick’) rule of Law challenge

The ‘thick’ rule of law approach is a major cornerstone in the EU legal strategy. Both with regard to the internal EU order and the desired global legal order the EU pursues ‘thick’ rule of law strategies. These strategies aim at embedding the principle of lawfulness as well as fundamental rights in global governance mechanisms. Several Megatrends and critical uncertainties affect these strategic goals. For example, the rise of the Asian century and the geopolitical shift of power may hamper the inclusion of fundamental rights in global governance mechanisms. Global risks and global shocks may also trigger policies that are in opposition with the fundamental rights currently embedded in the EU legal order. Third, migration may affect both the legitimacy of fundamental rights within the EU legal order and on a global scale. Europe is thus confronted with a rule of law challenge.

Territorial dimension of grand societal challenges

In this section, trends, seeds and wildcards have been selected on the basis on an extensive literature review, in which particular attention is paid to their relevance for territorial development. The trends screened in this section overlap with trends discussed in other sections of this report. Among others, this section aims at identifying those trends which have the highest relevance for territorial development, or those which have the greatest impacts on the territorial dimension of Europe. The very same trend can play out differently in different types of regions or cities and therefore pose different governance challenges in different locations. In this overlap shows connection points (between different WP) for the further work of FLAGSHIP.

Territorial development covers many areas, which is why the analysis is sub-divided into five sub-themes, approximately corresponding to the themes of previous chapters: i) Resources & Environment; ii) Economy & Growth; iii) Knowledge & Technology; iv) Demography & Society; v) Governance

The findings of this illustrate the importance of place-based approaches for territorial governance, emphasising the needs to better consider local and regional development conditions and the involvement of ‘local elites’ and their tacit knowledge in multi-level governance approaches (see Barca 2009).

The territorial dimension of each of the following thematic areas is the following:

Resources & Environment

An increasing number of possibilities of mobility offer the population the opportunity to develop more contacts and experiences, encouraging further integration among global actors. The growing concerns triggered by the environmental challenges have proven to have beneficial effects e.g. inducing energy efficiency improvements, the introduction of sustainability plans for electricity (e.g. European smart grid). The need of adaptation to climate change is in fact favourable to the development of new technologies. However, a significant part of the European population does not benefit from these advances, highlighting the persistence of territorial and/or social exclusion. The lack of common decisions to bring global solutions to environment and resource availability challenges, raises risks of geopolitical conflicts but also possibilities for increased cross-border cooperation.

Economy & Growth

Despite an increasing convergence of European regions in the 2000s, a structural gap between south and north is persistent. The crisis has increased the focus on the sustainability of the financial policies in the EU, but in different degrees for different Member States (e.g. Italy, Germany or Portugal may have more sustainable financial policies than e.g. Luxembourg, Slovenia and the UK according to Stiftung Marktwirtschaft 2012). In parallel to globalisation, there is an increasing interest on local-based economies, with a growing number of local economy movements focussing on small-scale businesses serving smaller geographic areas. Abandoning one-size-fits-all-strategies for territories along with the increasing emphasis on local economies, leads to new strategies for economic development. The challenges that the economic crisis brings, become a push factor for new creative solutions to societal problems, and increased social innovation.

Knowledge & Technology

The ICT infrastructure in Europe, being well developed in most areas, gives a solid basis for future innovation and materialising benefits derived from it. Despite this, the territorial development is influenced by the uneven distribution across Europe of investment in R&D and of access to a performing IT infrastructure, implying a risk of marginalisation of certain territories, and promoting a technological divide across Europe.

Demography & society

EU facilitating a more smooth movement of labour, has resulted in an increasing border-less labour market, which constitutes an asset for both workers and regions. Migration is an advantage for many regions, if the local labour supply is not sufficient. It can bring more interaction across borders, and act as a facilitator of international network building. However, migration (especially gender specific migration) increases the impact of out-migration from rural and peripheral areas, constituting a fertility-drain impacting on shrinking and dying towns and villages.

Governance

The European integration is largely linked to economic ideas and developments. Market forces increasingly shape processes of European integration, striving towards an increasing harmonisation and integration of the European Single Market, but also the development of a European Research Area. A stronger role of the EU is expected in the mid term, maintaining relevant competencies ultimately at the disposal of the Member States, but with policy formulation and implementation being increasingly Europeanized and Brusselized by functionaries and services housed permanently in Brussels (Barbé, Esther 2004).

In parallel, the role of the civil society is expected to increase, a trend that can already be observed in the fact that there is (a) an increasing readiness of people to express their opinions not only in elections and debating circles, (b) a decreasing consensus in society on how to cope with societal challenges which may point at increasing differences when it comes to values on which a society is based, and (c) an increasing disaffection with established democratic political channels, going hand in hand with a decreasing participation in public elections.

Aiming at enhancing the territorial cohesion of European territories, getting out the most of the territorial potential and minimising unbalances from previously reviewed developments, the following two principles are being integrated in the European policy making:

- *Policy integration / coordination.* Policy-making and governance processes focus progressively more on integrated approaches to be able to respond to complex challenges and trends. This concerns horizontal coordination or integration between different sectors, as well as vertical integration between different policy levels. In the case of territorial or regional policies it covers even approaches towards territorial policy integration or territorial impact assessments (Barca 2009; Böhme et al. 2011; TA 2020 2011). To a certain extent the trend of policy integration, goes together with a shift to more strategic approaches.
- *Place-based policy making.* An increasing trend stressing the role of local elites and the consideration of the territorial context in governance processes. This covers various types of participatory planning, community mobilisation and decision making trends. When it comes to territorial policies it is most pronounced in the 'place-based approach'. The focus is usually on the development of long-term strategies with the aim to reduce the underutilisation of resources, making use of people's tacit knowledge and capacities (Barca 2009; Böhme et al. 2011; TA 2020 2011).

In order to understand how these are used and implemented, three basic types of Territorial Governance (TG), reflecting the status quo, are presented (following trends are based on Bauman 2012; ESPON 2012f; Faludi A 2012; Flockhart T 2010; Huber 2011; Leonardi and Nanetti).

- *Resistance: Territorial Governance practices by conformity.* It implies incremental rise in multi-level government, in cooperation within government, and in the involvement of socio-economic stakeholders in TG. Governmental entities keep their prominence as primary actors in the formulation and evaluation of policies; socioeconomic stakeholders are queried only when policies are being formulated; and citizens are queried basically to fulfil formal or legal requirements. Participation is generally designed to provide answers to regulatory dispositions, either EU or national-related.
- *Adaption: Political-administrative based territorial governance practices.* This basic type reveals a wider openness on the part of governments and administrations towards territorial governance mechanisms; nevertheless, the state, at different administrative levels, does not waive its role as the most important policy agent.
- *Transformation: Functional based territorial governance practices.* It is based upon the establishment of coalitions between governmental and non-governmental entities in which spaces of intervention have a predominantly functional nature and fuzzy boundaries not coinciding with political or administrative limits. Where bottom-up processes are more effective and granted a chiefly role, citizen participation may take a deliberative form.

Furthermore possible future disruptive governance scenarios, have been identified:

- *Marginalisation of the EU-Cohesion Policy:* De-mainstreaming Territorial Governance in a context of "perfect storm".
- *Political federalism:* Territorial Governance in a context of EU-led centralised decentralization.
- *Return of the state:* Territorial Governance in a context of state-led centralised decentralisation.

Synthesis of quantitative targets currently in force in the EU

Sector	Year	Target	Source
Mortality	2015	Reduce by two thirds, between 1990 and 2015, the under-five mortality rate in the World	Millennium Development Goals Target 4A
Mortality	2015	Reduce by three quarters, between 1990 and 2015, the maternal deaths per 100.000 live births in the World	Millennium Development Goals Target 5A
Health	2020	Increase healthy life for everyone in Europe by an average of two years	European Innovation Partnership on Active and Healthy Ageing
Education	2020	Reducing school drop-out rates below 10% by 2020	EU2020
	2020	At least 40% of 30-34 year old completed tertiary education	EU2020
Poverty / Social exclusion	2020	At least 20 million fewer people in or at risk of poverty and social exclusion by 2020	EU2020
Employment	2020	75% of the 20-64 year-olds to be employed	EU2020
R&D / innovation	2020	From 1.8% in 2005 to 3% of the EU's GDP (public and private combined) to be invested in R&D	EU2020
Inflation (Eurozone)	always	Maximum 2%	ECB
Inflation (Member States in the eurozone)	always	Maximum 1.5% above that of, at most, the three best performing MS in terms of price stability	Convergence criteria
Government deficit (Member States in the eurozone)	always	Maximum 3.0% of GDP	Convergence criteria
Government debt (Member States in the eurozone)	always	Maximum 60% of GDP	Convergence criteria
Interest rate (MS in the eurozone)	always	Maximum 2.0% above that of, at most, the three best performing MS in terms of price stability	Convergence criteria
Total GHG emissions	2020	Total greenhouse gas emissions 20% in 2020 (or even 30%, if a satisfactory international agreement can be achieved to follow Kyoto) lower than 1990	EU2020
	2050	Total greenhouse gas emissions 80% - 95% in 2050 lower than 1990	A Roadmap for moving to a competitive low carbon economy in 2050
Energy sources	2020	20% of total energy from renewables in 2020	EUROPE 2020
	2020	10% of transport energy from renewables in 2020	Renewable Energy Roadmap Communication by the EC, 2007
	2020	10% of transport energy from biofuels in 2020	(European Council, 2007)
Energy consumption	2020	20% increase in energy efficiency by 2020	EUROPE 2020
	2030	50% increase in energy efficiency by 2030	EUROPE 2030 report by the Reflection. Group on the Future (F.González)
	2020	20% decrease in primary energy consumption by 2020	20-20-20 targets
	2050	30% decrease in primary energy consumption by 2050 respect to 2005.	Roadmap for moving to a low-carbon economy in 2050
Transport emissions and energy consumption	2020	10% of transport energy from renewables in 2020	Renewable Energy Roadmap Communication by the EC, 2007
	2020	fuel suppliers reduce greenhouse gas emissions from fuel across its life-cycle by 10% by 2020	Energy Policy, 2007
	2020	10% of transport energy from biofuels in 2020	Energy Policy, 2007
	2050	Phasing out fuel powered cars by 2050	Transport White Paper 2011
	2030	Transport emissions (including CO2 aviation, excl. maritime), 20% lower in 2030 in relation 2008	Transport White Paper 2011
	2050	Transport emissions (including CO2 aviation, excl. maritime), 60% lower in 2050 in relation 1990's	Transport White Paper 2011
Trans European Networks TEN-T	2030	Multi-modal TEN-T core network by 2030	Transport White Paper 2011
	2050	All core network airports connected to rail network by 2050, preferably by high-speed rail	Transport White Paper 2011

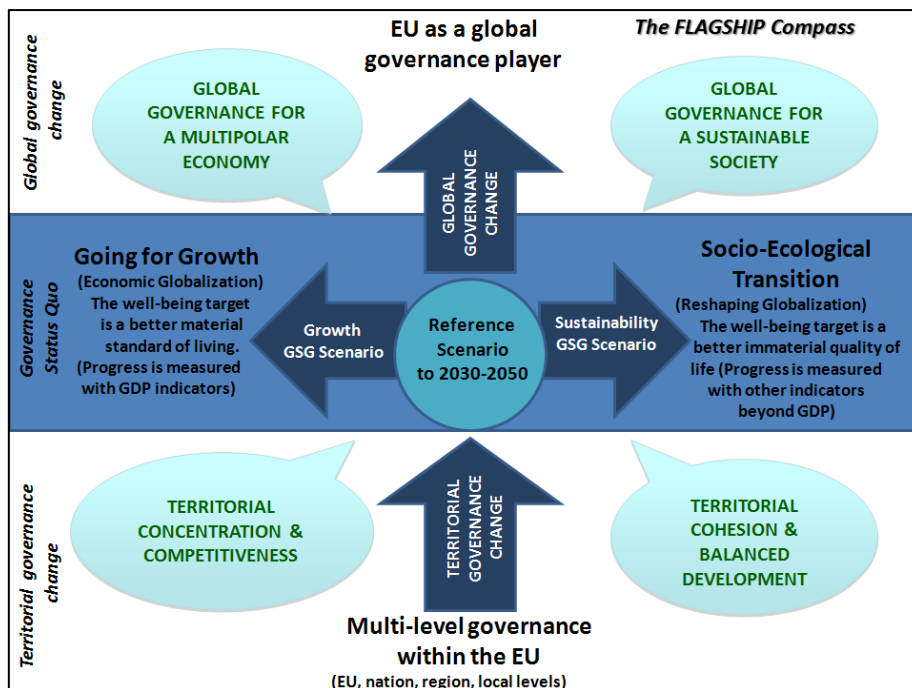
Sector	Year	Target	Source
	2050	All core seaports sufficiently connected to the rail freight and, where possible, inland waterway system.	Transport White Paper 2011
Urban transport	2030	Lower 50% the use of “conventionally-fueled” cars in urban transport	Transport White Paper 2011
	2050	0% use of “conventionally-fueled” cars in urban transport	Transport White Paper 2011
	2030	CO2 free logistics in cities by 2030	Transport White Paper 2011
Road transport	2010	Reduction 50% the number of road fatalities by 2010 compared with 2001 levels	
	2030// 2050	By 2020, 50% fatalities in road transport. Close to zero fatalities in road transport by 2050.	Transport White Paper 2011
	2020	Car emissions: 95 g CO2/km target for 2020	Regulation 443/2009 h
	2030 // 2050	30% of road freight over 300km should shift to other modes such as rail or waterborne transport by 2030, and more than 50% by 2050 (facilitated by efficient and green freight corridors)..	Transport White Paper 2011
Rail transport	2030	To triple the length of high-speed rail network by 2030.	Transport White Paper 2011
	2050	To complete a European high-speed rail network by 2050.	Transport White Paper 2011
	2050	By 2050, the majority of medium-distance passenger transport should go by rail.	Transport White Paper 2011
Aviation	2050	Low-carbon sustainable fuels in aviation to reach 40% by 2050	Transport White Paper 2011
	2020 // 2050	Stabilisation of air emissions by 2020 (carbon neutral growth) and 50% reduction in 2050 compared to 2005	IATA
Maritime	2050	CO2 emissions from maritime transport should be cut by 40% (if feasible 50%) by 2050, compared to 2005 levels	Transport White Paper 2011
Freight Transport	2030	In freight transport, (rail + IWW) modal share of 30%	Transport White Paper 2011
	2050	In freight transport, (rail + IWW) modal share of 50%	Transport White Paper 2011
Transport management	2020	SESAR, Modernised air traffic management infrastructure.	Transport White Paper 2011
	2020	To establish the framework for a European multi-modal transport information, management and payment system	Transport White Paper 2011
	2050	Move towards full application of “user pays” and “polluter pays” principles	Transport White Paper 2011
Air pollution	2020	47% reduction in loss of life expectancy as a result of exposure to particulate matter	Thematic Strategy on Air Pollution
	2020	10 % reduction in acute mortalities from exposure to ozone	Thematic Strategy on Air Pollution
	2020	reduction in excess acid deposition of 74% and 39% in forest areas and surface freshwater areas respectively	Thematic Strategy on Air Pollution
	2020	43% reduction in areas or ecosystems exposed to eutrophication	Thematic Strategy on Air Pollution
	2020	Reduction of air emissions: SO2 by 82%, NOx by 60%, volatile organic compounds by 51%, ammonia by 27%, and primary PM2.5 (particles emitted directly into the air) by 59%	Thematic Strategy on Air Pollution
Water	2015	Restore degraded surface and ground waters to “good status”	Water Framework Directive
	2020	By 2020, good environmental status of all EU marine waters is achieved	Roadmap to a Resource Efficient Europe (EC, 2011)
Biodiversity	2020	100% more habitat assessments and 50% more species assessments under the Habitats Directive show an improved conservation status; and 50% more species assessments under the Birds Directive show a secure or improved status.	EU Biodiversity to 2020
	2020	ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15 % of degraded ecosystems	EU Biodiversity to 2020
	2020	maximise areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity-related measures under the CAP	EU Biodiversity to 2020
	2020	Forest Management Plans are in place for all forests that are publicly owned and for forest above a certain size	EU Biodiversity to 2020
	2015	Achieve Maximum Sustainable Yield	EU Biodiversity to 2020
	2020	Invasive Alien Species and their pathways are identified and prioritised, priority species are controlled or eradicated, and pathways are managed to prevent the introduction of new ones.	EU Biodiversity to 2020
	2020	the EU has stepped up its contribution to averting global biodiversity loss	EU Biodiversity to 2020

At this initial stage of the project there are no policy recommendations yet, but even our initial results already provide indications for policy makers on how to navigate the uncharted waters that these global trends open for them. We propose to use a simple two dimensional compass to guide policy choices. The chart with the FLAGSHIP Compass below shows that there are two key dimensions. One, the horizontal one, describes the choice between ‘Going for growth’ and the Socio Ecological Transition (SET) Under ‘Going for growth’ well-being is a function of better material living standards (‘more is better’) and progress is measured by GDP. Under ‘SET’ well-being is a function of a better quality of life, which is an ‘immaterial’ concept (‘less is better’) and progress is measured by alternative measures, such as ‘beyond GDP’. The international dimension of ‘Going for Growth’ would be to foster globalisation, whereas the international dimension of the SET would be to re-shape globalisation.

The vertical axis describes the choices for governance, where one end sees the EU as a global governance player, and the other end concerns territorial governance within the EU.

The EU as a global actor might accordingly need to choose in which direction to push and for what to settle: to be a participant in the governance of a multipolar economy or to try to establish a global governance for a sustainable society.

At the level of the intra-Union governance important policy choices will have to be made between competitiveness, which might require territorial concentration, and territorial cohesion, which aims for a balanced development. A concrete policy issue might be, for example, the distribution of support for research. If funding are distributed exclusively on merit, the strongest regions would attract most of the funding, thus fostering concentration of research activities in few core regions. Adding a cohesion objective to research funding, would obviously limit its effectiveness in strengthening the relative position of European research in global rankings and its attractiveness for world class talent, whether of European or foreign origin.



The three major challenges facing policy makers arise at the intersection of four different areas: the global environment, the global economy (including global finance), the global society and global environment. Our analysis of global trends suggests that each of these areas has one key or ‘totem’ indicator (of progress or as a policy goal):

- For the global economy it is growth (of income or GDP).

- For the global finance it is debt, or leverage, as the economists call the ratio of debt to the capacity the debtors to service.
- For the global society it is the inequality, or the distribution of income and jobs, captured by the Gini coefficient.
- For the global environment it is emissions and the resulting concentration of Greenhouse Gases, in reality mainly CO², in the atmosphere.

The **Global Societal Challenges (GSC)** arise essentially at the intersection between the economy and the three other areas.

The **ecological transition challenge** arises at the intersection of the economy and the environment. The broad parameters of this challenge are well known: how to reduce global emissions at an acceptable cost in terms of growth. For those emerging markets which are gradually switching to a more mature model of growth, this challenge might soon appear easier to handle since the services sector, which characterized mature economies tends to be less intensive in material use in general and emissions in particular. This might in particular apply to China, whose growth pattern might soon change and which is also able to generate from domestic savings the huge capital investments to switch to renewable energy sources. By contrast, this challenge will become more difficult for Europe, in particular if seen in relationship to the US. The 'shale gas revolution' has already led to an important fall in energy prices in the US and the continued improvements in 'fracking' is also opening up important sources of unconventional oil promises to make the US self sufficient in oil and gas by about 2013. By contrast, in the EU the self-imposed targets in terms of renewable energy seem more and more costly to reach. Their economic cost, which essentially arises from the difficulties of smoothing the unpredictable supply coming from wind mills and photovoltaic installations, has already risen to a point where the policy is being re-examined in Germany; a country widely regarded as the front-runner in this area. By 2030 fracking might appear much more attractive even in Europe, unless the cost of storing electrical energy has been radically reduced. Radical technological innovation could thus provide potentially a way out of this dilemma, but the key open issue is whether state intervention will be able to generate the technological progress needed to make the cost of basing an entire energy system on renewable energy sources acceptable.

Limiting emissions in order to prevent a dangerous increase in global temperatures and the associated disruption is of course a global challenge. The direct contribution of the EU to emissions is inevitably declining to a level where the direct impact on global emission rates from reducing European emissions even further will become insignificant. This implies that this challenge must be addressed through political leadership at the global level.

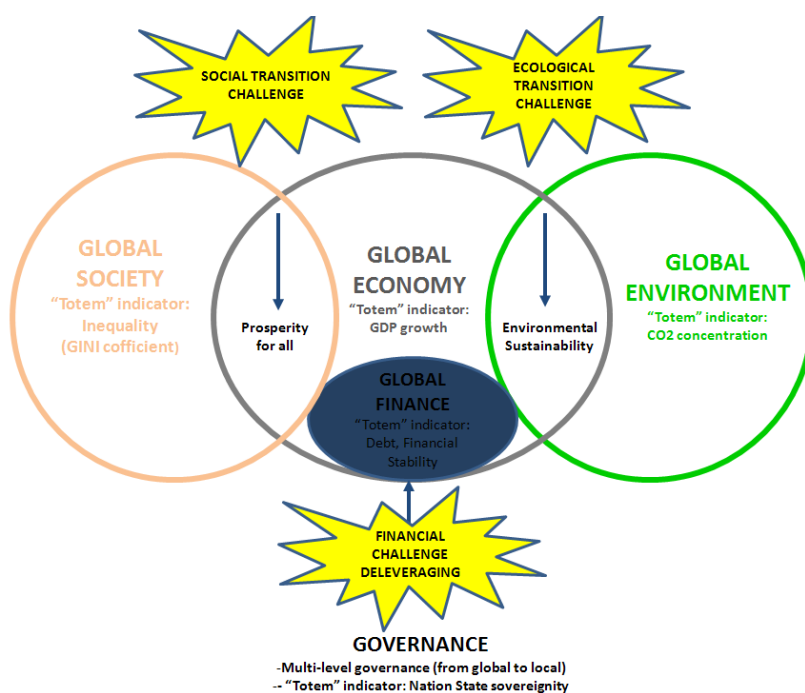
The **sociological transition challenge** arises at the intersection of the economy and society. Here again the basic parameters are not new: how to make sure that everybody benefits from growth. For Europe this challenge is complicated by a rapid ageing of the population combined with low productivity growth, which reduces the growth that can be distributed to close to zero. By contrast, in rapidly growing emerging economies this challenge seems easier to master given that the growth available for distribution is so much larger. This view has one simple implication: in Europe the political system will be under much more distributional stress than in emerging economies. This difference in the budget constraint facing policy makers is likely to lead to the impression that the political systems of developed countries, and especially that of the EU, are paralysed by special interest groups which defend their 'acquired rights' impeding decisive decisions even when it is urgently needed. The difficulties many member countries had in adopting pension reform constitute the most obvious example of this problem. China might face a similar demographic problem as many European countries, but its pension problem will be much easier to solve given continued growth of anywhere between 5 and 8 %.

Technology could potentially again provide an escape valve if it can provide efficiency gains in two key areas: education and health care. Both sectors are likely to become relatively more important as Europe is ageing and tries to improve the skills of its (dwindling) younger generation. In education a key development might be the massive use of open courses, whereas in health care fundamental advances in robotics are needed to substitute humans in personal care for the elderly. The direct role of the EU institutions is likely to remain limited in these areas. The main challenge at the EU level will be how to encourage learning from best practice and how to organise peer pressure to encourage reforms where they are needed.

The **financial challenge** arises at the intersection of the economy and finance. It is more time bound and relatively new. The challenge is twofold. First of all the question is how deal with the fallout from the

present crisis and the excessive levels of debt and leverage it left. The next issue is how to build a new, more stable financial system. Dealing with the existing debt overhang requires a difficult choice between the long term goal of a financial system with much lower levels of debt, and the short term goal of re-igniting growth, which is difficult to achieve when banks are at the same time forced to delever, i.e. to reduce their debt levels. Here again the challenge appears to be easier to manage in emerging economies which start with a much lower level of debt and whose growth rates are anyway so much larger that any excess debt relative to GDP can be easily cured by growth without any need to cut debt.

Within the euro area a particularly difficult challenge arises for those countries which have a high level of debt, especially if much of it is external, but relatively subdued growth rates of nominal GDP, given their need to become more price competitive. The EU level can provide important contributions to make this challenge more manageable through the development of a safety net, both for banks (via Banking Union) and for governments (via the European Stability Mechanism - ESM and the Outright Monetary Transactions - OMT programme of the European Central Bank - ECB). The shape of the final institutional framework for the euro area remains under intense discussion. The content of the Banking Union has not yet been agreed and the call of a 'genuine economic and monetary union', which would encompass also a fiscal and a political union has not been answered yet.



In the current economic situation, it is unavoidable for Forward Looking Analysis (FLA) to look at the short- as well as at the long-term perspective. The current economic crisis in the developed countries, and more particularly in the European Union, has totally modified the previous analysis. Five years ago, before the 2008 financial crisis, the economic development in EU appeared to be sustainable in the long run and even more economic development in some EU countries (e.g. Ireland or Spain) had been elevated as reference for others countries. At that time, the unemployment rate in EU was at a low (7.2%) and the main economic concern for the European economy appeared to be its ageing population and the potential shortage of labour supply in the coming decade. Even if structural challenges for European Union will remain in the long-term, the stagnation of the economic growth in the EU since 2008 has brought the concerns to short-term. Therefore, when looking at economic futures, it seems also important to look at the pathway from short- to medium-long term.

The inception tasks of FLAGSHIP have adopted this orientation, analysing literature on both long-term mega-trends and short-term developments, and identifying most significant uncertainties towards the future. The aim of these tasks is to setting up a solid base for the remainder of the project.

The objectives of the FLAGSHIP Project are:

- i) Understanding and assessing the state of the art of forward looking methodologies in relation to Grand Societal Challenges (GSC) and developing tools and modelling frameworks beyond state of the art;
- ii) Applying an enhanced set of forward looking methods and tools to support EU policies, by analysing reference and alternative scenarios of long-term demographic, legal, economic, social and political evolutions of Europe, in a world context, and assessing potential progress in technological and social innovation;
- iii) Driving change, producing a set of EU-relevant policy recommendations on the potential of the EU for transition and change.

In relation to these objectives the project will:

- i) Take stock of the existing forward-looking studies: a review will be done of the central questions, key trends, critical uncertainties and scenario frameworks;
- ii) Proceed to apply and combine enhanced qualitative and quantitative methods mastered by the project partners in a coherent framework, producing a combination of GSC-driven qualitative and quantitative scenarios - coping with a range of possible global paradigm shifts and geo-political changes - and engaging a community of experts and stakeholders in a scenario thinking and assessment exercise;
- iii) Focus further on EU policy responses to emerging transition challenges, and the potential role of EU in shaping global governance as well as new territorial dynamics within the continent, aiming to deliver policy recommendations to support the formulation of strategic EU policy agendas.

The project will be articulated in 10 Work Packages (WPs), providing a consistent sequence of research activities with a good balance between methodological developments and policy applications addressing long term GSC scenarios. FLAGSHIP consortium includes 16 partners, representing 11 European Member States, including 3 New Member States (NMS). The FLAGSHIP project will organize 4 stakeholders workshops and 1 final conference, and it plans to implement a wide and diversified range of participation, communication and dissemination actions.

PROJECT IDENTITY

PROJECT NAME	Forward Looking Analysis of Grand Societal cHallenges and Innovative Policies (FLAGSHIP)
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BUDGET	EU contribution: 2,469,656 €
WEBSITE	http://flagship-project.eu
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FURTHER READING	The full report on "Report trends, policies and future challenges in economic, demographic, legal, social and environmental field and their territorial dimensions" is available on the project web site: http://flagship-project.eu The report contains the list of bibliographic references cited in the Policy brief.