Looking towards 2030:
Preparing the Baltic Sea Region for the future
Preface

We can’t predict the future, but we can prepare for it. The report you are about to read is a contribution to preparations for a future where many of the challenges and opportunities the Baltic Sea Region will meet would be better addressed through deepened cooperation. In a region characterized by sparsely populated areas, limited domestic markets, harsh climate and a shared responsibility for the Baltic Sea the benefits of joining forces should be obvious. Even more so, the global development speaks in favour of more cooperation. Therefore, the long tradition of cooperation and established networks in the Baltic Sea Region is a clear advantage. We need to deepen cooperation within areas that benefit from exchange of knowledge, complementarity and critical mass in order to be more visible and successful in a future global context.

The report has been commissioned by the Swedish Agency for Economic and Regional Growth to give an input to the discussions about what the future might bring - and the added value that could be achieved through Baltic Sea Region cooperation. The EU Strategy for the Baltic Sea Region provides us with a framework and important objectives, but we need to constantly develop how to achieve the objectives in a rapidly changing context.

I am convinced that the region has a number of strongholds that could and should be developed in order to achieve our objectives. We are at the forefront of digitalization and have the potential to become a digital showcase for new solutions within private business as well as the public sector. Further, cooperation in the region will contribute to the internationalization of our small and medium sized companies as well as our regions, which will facilitate further steps into a global context. And not least, the joint challenge to save the Baltic Sea paves the way for new green and blue technology for the benefit of the whole region.

I am certain that the report and the discussions that follow will contribute to new ideas on how to develop and deepen the Baltic Sea Region cooperation and I am looking forward to be a part of that process.

Gunilla Nordlöf
Director-General
Swedish Agency for Economic and Regional Growth (Tillväxtverket)
### Table of Content

**Summary** .......................................................... 4  
Changing demographic pressures challenge transport and competitiveness objectives .......... 4  
High potential to renewing industries and innovate if the Baltic Region stays ahead .......... 4  
Deeper conversations about the environment needed ........................................ 4  
Democratic decision making trends change the background for macro-regional cooperation .... 5  
No need for substantial changes to the EUSBSR but increased efforts in some areas ....... 5  
Areas where cooperation MUST be intensified .................................................... 5  
Areas where cooperation SHOULD be intensified ................................................. 5  

1. **Introduction** ..................................................... 6  

2. **Quick overview of key trends** ......................... 8  

3. **How to respond to changing demographic pressures affecting the Baltic Sea Region?** ... 10  
   Global paradigm shifts - 
   Global population growth ................................................. 11  
   Global trends - 
   Increasing demographic challenges ........................................ 11  
   Impact on the Baltic Sea Region and EUSBSR (sub-)objectives ......................... 12  

4. **How to prepare the Baltic Sea Region for renewing industries and innovation?** ...... 16  
   Global paradigm shifts - 
   Changing economic paradigms ............................................. 17  
   Global major trends - New technologies and potentials for sustainability ............ 18  
   Impact on the Baltic Sea Region and EUSBSR (sub-)objectives ......................... 20  

5. **Can conversations about the environment be strengthened in the Baltic Sea Region?** .... 24  
   Global paradigm shifts - Climate change and scarcity of natural resources ........... 25  
   Global major trends - Growing importance of the Arctic and pollution of the seas ..... 25  
   Impact on the Baltic Sea Region and EUSBSR (sub-)objectives .......................... 26  

6. **How will global governance trends affect the cooperation in the Baltic Sea Region?** ..... 27  
   Global paradigm shifts - Increasing global tensions and diverging value systems ....... 28  
   Global major trends - Increasing focus on ‘own interests’ ................................ 29  
   Impact on the Baltic Sea Region and the EUSBSR (sub-)objectives ....................... 29  

7. **Conclusions and recommendations** ................. 32  
   MUST cooperate ......................................................... 33  
   SHOULD cooperate ....................................................... 34  
   CAN cooperate .......................................................... 36  
   Stay alert and increase preparedness ......................................................... 37  

Annex 1 - **EUSBSR sub-objectives and trends affecting them - an overview** ........ 39  
Save the Sea ............................................................... 40  
Connect the Region ....................................................... 43  
Increase Prosperity ....................................................... 46  

Annex 2 - **Wildcards and uncertainties** ................. 49  

Endnotes ................................................................. 55
Summary

Several developments will impact the way we live, interact and work around the Baltic Sea in the decades to come. This paper looks at 14 large societal and value changes that indicate paradigm shifts, 21 specific trends concerning markets, technologies, policies etc. indicating major trends, and 14 wildcards. This paper also discusses implications for the Baltic Sea Region and EU strategy for the area (EUSBSR).

Changing demographic pressures challenge transport and competitiveness objectives

Demographic patterns across the world and Europe will change. Some areas face an ageing society and demographic decline, while others experience demographic growth with increasing numbers of young people striving to find their place in society. Implications for the Baltic Sea Region vary.

New market opportunities: Global demographic growth and an increasing middle class could support EUSBSR sub-objectives for improving global competitiveness and transport conditions, if players in the Baltic Sea Region can tap into growing international markets.

Increased brain drain and competition: The trends generally point to increasing challenges for the Baltic Sea Region. Ageing societies in Europe and young and ambitious societies in other parts of the world, plus increasing social inequalities, challenge the sub-objective of improved competitiveness as they imply declining markets at home paired with growing global competition. Although brain circulation (i.e. international migration of well educated, networked and capable experts) is good for general development in the Baltic Sea Region, some parts of the region will face serious brain drains, leading to new territorial disparities. This development is also connected to the attractiveness and competitiveness of major hubs for international business in the Baltic Sea Region.

Increasing immigration and hindrances of transport flows: Migration pressures will increase. This is a challenge in itself. For the EUSBSR objectives, migration flows risk challenging improved transport conditions as they may lead to increased border controls and disruptions in transport flows.

Widening territorial disparities: Further urbanisation challenges an improvement in transport conditions outside the main hubs as critical mass declines. Gender equality and gender issues should be noted, especially when international migration and different cultural aspects are taken into consideration.

High potential to renewing industries and innovate if the Baltic Region stays ahead

Economic patterns across the world will change, as new technologies lead to what is called the 4th industrial revolution, of production systems. Standard growth paradigms are increasingly challenged as patterns of economic growth and wealth change. Current forecasts range from economic decline and despair to new technological solutions providing plenty of exciting opportunities. The important question with regard to technological trends is what role Europe and the Baltic Sea Region will play in this. Will the Baltic Sea Region be affected by the future, or be shaping it? With a pro-active role, renewing industries and innovation have considerable potential to support EUSBSR objectives. In particular, the sub-objectives ‘deepening the single market’, ‘implementing Europe 2020’, ‘improved global competitiveness’ and ‘connecting people in the region’ can potentially benefit from many of the trends in the region.

Deeper conversations about the environment needed

Natural forces are behind some of the environmental trends, but most of them are caused or enhanced by human activities. Some environmental trends reinforce each other; some can be reduced by other trends. For example, climate change is partially caused by human actions, but can also be mitigated by policies. Development patterns and trends in the environmental sector point to the need for corrective policies and emphasise the need for coordinated and even joint international civil protection. Climate change will most probably have severe and large-scale effects on different sectors: environment, policymaking, and the economy, to name a few. There will also
be a significant rise in energy consumption in non-OECD countries, linked mainly to population growth and rising incomes. Despite the slow economic and population growth, global competition for natural resources will continue to intensify. This causes instability in markets and geo-political tension. Without corrective policies in the next 20 years, drastic change will affect the climate, biosphere, continents and oceans.

Democratic decision making trends change the background for macro-regional cooperation

Trends changing democratic decision making and the role of civil society include the role of networks and collaborative governance in decision finding processes. Rising global tensions and the changing roles of supranational players and civil society, also called the 4th sector are also having an effect. Increasing collaborative governance and the diffusion of power to networks and groups can support cooperation initiatives and joint implementation of the EUSBSR and its sub-objectives. Also the delegation of power to supranational players may support EUSBSR sub-objectives, if they seek macro-regional rather than place specific solutions. In addition, increasing global tension, not least tensions between Russia and the EU, but also nationalism are likely to pose growing challenges to most EUSBSR sub-objectives if they make cooperation more difficult.

No need for substantial changes to the EUSBSR but increased efforts in some areas

The objectives of the EUSBSR are still valid and there is no need for new objectives to address trends which require action at macro-regional level. Continuing the efforts and increasing awareness of changing attitudes to cooperation around the Baltic Sea are the main messages. A few aspects need more joint macro-regional action to successfully respond to trends.

Areas where cooperation MUST be intensified:

- Increasing focus on environmental and climate challenges as they can only be mastered jointly. Current efforts are not sufficient to meet the objectives of the EUSBSR.
- Strengthened joint civil protection because effective civil protection systems around the Baltic Sea require multi-sector cooperation across countries as crises and threats do not stop at borders.
- Blue growth concerns common resources of the Baltic Sea with important implications for economic and environmental EUSBSR objectives.
- Increased oversight of shipping transport to ensure that increasing transport volumes do not counteract the objectives on clean and safe shipping and that they contribute to competitiveness.
- Safeguard long-term cooperation cultures, since recent trends may obstruct the operational cooperation that is a key to the success of EUSBSR.

Areas where cooperation SHOULD be intensified:

- Coordinated response to increasing demographic pressures because, although implications range from ageing and brain drain to immigration, developments are interlinked and should benefit from a more coordinated response.
- Approaches to the 4th industrial revolution could benefit from focusing cooperation e.g. on creating critical mass to let players in the Baltic Sea Region lead digitisation.
- Joint strategy for improving connectivity at macro-regional level as well as within the countries to combat increasing regional disparities.
- EUSBSR communication road map could help raise awareness of concrete development challenges and potential and corresponding actions at the level of EUSBSR.

All objectives and policy areas of the EUSBR can be affected by trends and their impacts. This is why there is a need to stay alert and monitor developments.
1. Introduction

Points for EUSBSR
- Substantial changes in the Baltic Sea Region operational environment since launching EUSBSR.
- Intertwined development requires a coordinated phenomenon-based development strategy.
- Strategy does not need to be changed, but an action-oriented reboot of commitment is needed.

The world is changing and several developments will impact the way we live, interact and work in the decades to come. They vary in magnitude and expected impact, and in many cases they give different indications of what the future may look like.

The trends discussed here have no precise timeframe, but they are expected to be important until at least 2030. This period is long enough to envisage changes and at the same time not so far away that such views are pure speculation. This timeframe can also link to major international policy debates. Among others, debates on the future of EU Cohesion Policy and on UN sustainable development goals and Agenda 2030 work with similar timelines.

The trends concern the Baltic Sea Region, although they do not necessarily cover all policy areas of the EUSBSR. Since the elaboration of EUSBSR in 2008, a number of global developments have influenced development potential and challenges in the region. These have increased regional disparities both within and between regions in the BSR. It is now opportune to take a step back and revisit the strategy objectives in the light of trends which have emerged or grown stronger since the strategy was formed.

After this introduction, this paper starts with a general overview of different types of trends, highlighting 14 large social and value changes, and 21 more specific trends concerning among others, markets, technologies and policies (section 2). This is followed by four dedicated sections discussing specific themes or domains within the main trends, their impact on the Baltic Sea Region and implications for EUSBSR (sections 3–6). Section 3 discusses changing demographic pressures and flows of different kinds. Section 4 centres around renewing industries and innovation paying special attention to facets of the so-called 4th industrial revolution. Section 5 addresses the needs for deepening conversations about the environment including climate change as well as pollution of the seas. Section 6 addresses changing democratic decision making and global governance trends and their implications for the Baltic Sea Region and EUSBSR. This section is followed by a more detailed discussion on what the trends imply for the Baltic Sea Region and in particular for the future work of EUSBSR. Section 7 presents conclusions and recommendations on areas where macro-regional cooperation should be strengthened to better respond to recent developments.
Developing a macro-regional strategy for the Baltic Sea Region started in 2007. Two years later, the first Communication of the Strategy accompanied by the first Action Plans, was published and adopted. The EUSBSR has three objectives, each of which has four sub-objectives (see figure). These are dealt with by 13 policy areas and four horizontal action areas (see figure). More information is available at http://www.balticsea-region-strategy.eu

For readers interested in further details, annex 1 gives a schematic overview of EUSBSR sub-objectives and how the trends and increasing challenges affect the sub-objectives. Annex 2 provides summaries of 14 wildcards, underlining the uncertainty of trend discussions.

The purpose of this paper is to stimulate discussion on the future of the Baltic Sea Region and how EUSBSR can contribute to responding to emerging trends. The paper has been commissioned by the Swedish Agency for Economic and Regional Growth and drafted by Spatial Fore-sight in cooperation with MDI.
2. Quick overview of key trends

Reviewing a wide range of documents and holding interviews on trends and future perspectives revealed different types of trends at different levels of detail. Some trends contradict each other; while others are likely to reinforce each other. The trends discussed in this paper are a selection and by no means conclusive. The main focus is on trends which have emerged or grown stronger since adoption of the EUSBSR.

To structure the debate, it is important to consider the trends vary in magnitude.

Recent developments highlight two types of trends (see figure). Some address large social and value changes pointing to paradigm shifts (darker colours in the figure). Others concern more specific markets, technologies, policies, etc. indicating major trends (lighter colours in the figure). There are also trends which concern only specific niches or which are seeds for larger trends that are still emerging. These niche trends are not addressed in this report.

In addition to the magnitude or expected impact, the trends also have different thematic orientations. At present changes are linked to four major themes which will be discussed in further detail in the following sections:

- Changing demographic pressure
- Renewing industries and innovation
- Deepening the environmental conversation
- Changing democratic decision making

These trends all influence Europe and the Baltic Sea Region in one way or another. Some may help reach macro-regional (sub-) objectives faster. Others may make it even more challenging to achieve targets and therefore put more stress on cooperation working along the lines set out in the strategy. Overall, the review shows that the Baltic Sea Region needs to increase its resilience.

Depending on national, regional and local preconditions the trends play out differently in different parts of the Baltic Sea Region. In many cases an increase in territorial disparities can be expected. For a more nuanced picture on the territorial diversity of the Baltic Sea Region, please see the parallel report on an update of the BSR Territorial Monitoring system and Regional Potential Index for the Baltic Sea Region.
FUTURE TRENDS

Collaborative governance approaches

Power diffusion to networks and coalitions

Rising middle class at global level

Increasing social inequalities and gaps

Global demographic growth

Further urbanisation

Increasing middle class at global level

Rising social inequalities and gaps

Climate change

Pollution of the seas

Arctic as resource and passage

Circular & sharing economy

Beyond GDP

Slow growth

Decoupling growth & jobs

4th industrial revolution

Peak of everything

Natural resources important again

Increasing public debts

Ageing society

Young and ambitious

Increasing migratory pressures

Global demographic growth

Further urbanisation

Increasing middle class at global level

Rising social inequalities and gaps

Climate change

Pollution of the seas

Arctic as resource and passage

Circular & sharing economy

Beyond GDP

Slow growth

Decoupling growth & jobs

4th industrial revolution

Peak of everything

Natural resources important again

Increasing public debts

Ageing society

Young and ambitious

Increasing migratory pressures

Global demographic growth

Further urbanisation

Increasing middle class at global level

Rising social inequalities and gaps

Climate change

Pollution of the seas

Arctic as resource and passage
3. How to respond to changing demographic pressures affecting the Baltic Sea Region?

Demographic patterns across the world will change. Demographic trends in Europe and other parts of the world will impact on the Baltic Sea Region. These trends not only change the age structure and the role of women, but also affect the attractiveness of the region and single areas within it. Gender equality is important, giving women a greater opportunity to contribute to Baltic Sea Region development. Migration in, as well as brain drains will reach new levels in much of the region. The graphic highlights the changing dependency ratio. Darker areas have a lower ratio between working age and older people, i.e. they have less working population to support the elderly.

Some areas face an ageing society and demographic decline, others experience demographic growth with more young people striving to find their place in society. These changes go hand in hand with further urbanisation, growing middle classes in large parts of the world and greater economic disparities at all geographical levels. The results will be more migration and challenging adjustments to economic development and social organisation. Global demographic growth and an increasing middle class could on a global level support EUSBSR sub-objectives to improve competitiveness and transport conditions, but only if players in the Baltic Sea Region tap into growing international markets. Instead the trends point to greater challenges for the Baltic Sea Region. Ageing societies in Europe, young and ambitions societies in other parts of the world and increasing social inequalities, may further challenge achievement of the sub-objective on improved global competitiveness. These trends imply declining markets at home paired with growing global competition for young professionals, so a brain drain from large parts of the Baltic Sea Region to vibrant metropolitan areas elsewhere in the world is likely. Increased immigration risks challenging improved
transport conditions if this leads to tighter border controls and disturbances in transport flows. In parallel a continued urbanisation could challenge improvements in transport conditions outside the main hubs as population declines. This poses additional challenges to rural areas of the Baltic Sea Region, widening regional disparities. Improving connectivity might become more important and as well as more challenging.

Individual trends and their implications are further addressed below. Traditionally impacts of demographic change are dealt with nationally. Can EUSBSR be a platform to find coordinated responses to demographic challenges and potential? Is it possible to jointly explore these demographic changes and break the one-sided focus on the expected negative impacts?

Global paradigm shifts -
Global population growth

Demographic developments which could turn into game changers for development are linked to the global growth of population and wealth.

- **Global demographic growth** and greater wealth will increase the demand for resources and challenge finite resources on the planet. According to an UN estimate from 2010, the world’s population will grow from 7 billion to 8.3 billion over the next 20 years. In addition, rising life expectancy will lead to population ageing.

- **Increasing middle class.** By 2030, the global middle class is expected to grow by 66%, meaning about 3 billion more consumers with increased purchasing power and expectations.

Global trends -
Increasing demographic challenges

Considerable territorial variations will increase challenges concerning the ‘distribution of population and wealth’. Already today, there are considerable differences in the age structures of societies around the world and current trends point to two different trends:

- **Ageing.** Today, 760 million people are over 60. By 2030, that number will probably double. Economic growth may decline in ageing societies, while pressure on public pensions, healthcare systems and support for young people increases. An ageing society is pronounced in Europe for which there are three traditional options: work harder, work longer or work smarter. Attracting young people from other parts of the world may reduce some pressures, but will probably not balance ageing in Europe.

- **Young and ambitious** societies with a low median age and very young populations face different challenges. More young people need to find a place in society in competition with those who are settled in positions of power and other young people also striving to advance their careers. Better education and limited resources are additional ingredients in this mix, which could easily lead to multiple conflicts. The
lowest median age is in Africa, but the Middle East also has a young population compared to Europe. The median age in Germany is 46.5 years (the highest in the Baltic Sea Region), it is 25.3 in Egypt, 19.7 in Iraq and 15.2 in Niger.

These very different developments will lead to different demographic pressures and flows, which are most visible in migration at different geographical levels. More locally, a move towards urban areas and increasing urbanisation is expected and globally there is more migration fuelled by demographic and economic imbalances paired with political, religious and social conflicts.

- **Increased migration flow** could mean up to 400 million people being on the move by 2050, including more climate change refugees.\(^{12}\)
- **Urbanisation**, as 60% of the world’s population will live in urbanised areas.\(^{13}\)

Demographic trends have also another larger social implication, namely increasing social inequality, both globally and in Europe.

- **Increased social gaps** between ultra-secure permanent and vulnerable temporary workers will increase economic imbalances. Common instruments of social policy, such as unemployment insurance, activation and minimum wages, need to be adapted to new models of employment, both within Member States and at the level of the EU.

### Impact on the Baltic Sea Region and EUSBSR (sub-)objectives

Changing demographic patterns have strong impacts on socio-economic development in the Baltic Sea Region and accelerate regional disparities in the region. However, such trends have only limited effect on EUSBSR sub-objectives.

The paradigm shifts on global and demographic growth and an increasing middle class could support sub-objectives for improving global competitiveness and transport conditions if players in the Baltic Sea Region tap into growing international markets.

However, in most cases these trends point to increasing challenges for EUSBSR sub-objectives. Ageing societies in Europe together with young and ambitions societies in other parts of the world, plus increasing social inequalities, may further challenge the sub-objective for improved global competitiveness as they imply declining markets at home paired with growing global competition. Similarly, increased migration risks challenging further improvement of transport conditions if this results in increased border controls and interruptions in transport flows. In parallel further urbanisation challenges the improvement of transport conditions outside the main hubs as any critical mass is declining.

Dwelling on the impacts, demographic trends can be differentiated by whether they are inside or outside the region and their impacts on it.
Starting with internal developments, a number of challenges will have to be met, from the consequences of an ageing society, further urbanisation (to some centres), as well as increasing social inequality.

- **Challenges of an ageing Baltic Sea Region.** Europe is the most rapidly ageing society in the world and within Europe, some countries in the Baltic Sea Region have a very high median age. This will prompt questions concerning the financing and provision of social welfare and pension systems, but also on recruitment and securing the function and competitiveness of enterprises. Long-term development objectives and values in political debates are likely to change with the ageing electorate. Furthermore, the gender gap in some parts of the Baltic Sea Region may require increased women labour participation and gender equality to respond to ageing.

- **Growing urban-rural disparities in the Baltic Sea Region.** Ageing and demographic decline is not evenly spread across territories but encourages urbanisation and depopulation in rural areas. As urban areas hold more potential for young people and better services for the elderly the attractiveness of some urban areas will increase, while more and more rural areas and the less attractive urban areas will need to prepare for demographic decline.

- **Increasing social inequalities and a declining-middle class in the Baltic Sea Region.** Demographic changes with their consequences on social systems and territorial disparities will lead to increasing social inequalities and disparities in the Baltic Sea Region, not so much between countries but rather between different groups in society. Financing welfare systems in an ageing and declining society will change the perspective for many people from ‘silver agers’ of the 1990s to the ‘old poor’. In many cases this will be accompanied by ‘working poor’ as tighter public budgets imply increasing economic difficulties for people depending on them (for welfare payments or as public officials). At the same time enterprises trying to attract the best global competence may be forced to pay ever higher salaries and generate higher profits. As opposed to the global trend of an increasing middle-class - there may be a declining middle class in the Baltic Sea Region with more people stepping down the social ladder than step up.

**Implications for EUSBSR**
Impacts may affect the objectives ‘connect the region’ and ‘increase prosperity’. The sub-objective ‘improving transport conditions’ may face additional challenges with increased territorial polarisation for transport. As for sub-objectives ‘improving global competitiveness’ and ‘implementation of Europe 2020’, ageing, urbanisation and increasing social inequalities pose particular challenges for service provision and ensuring good conditions for business in all parts of the Baltic Sea Region. More generally, internal cohesion and solidarity in an environment of increasing social disparities may pose new challenges to EUSBSR and deserve more attention.
These regional developments are accompanied by global developments which will probably also impact the Baltic Sea Region. A growing world population will impact global trade and climate change, both certainly affecting the Baltic Sea Region.

- **New markets and competitors.** A growing middle class, e.g. in Asia, implies more customers for goods and services produced in the Baltic Sea Region. To plug into this potential, the challenge is to understand the expectations and preferences of this growing customer group. At the same time, it implies more competitors in the global market for products. In particular, for products available in limited quantities or based on scarce resources, this may lead to higher prices and thus declining affordability for people in the Baltic Sea Region.

- **Environment and climate challenges.** A growing world population and more middle-class consumers will affect the global environment. Although the source of these changes will be mainly outside the Baltic Sea Region, declining environmental conditions and increasing contributions to climate change elsewhere in the world, will also impact the environment and climate in the Baltic Sea Region.

### Implications for EUSBSR

Impacts of these external developments will be on objectives ‘connect the region’ and ‘increase prosperity’. New markets and competitors can both support and challenge sub-objectives ‘improving global competitiveness’ and ‘Implementing Europe 2020’. Increased global competition may involve the energy sector and impacts may extend to the sub-objective ‘reliable energy markets’. Growing markets can be addressed by focusing innovation efforts on needs and preferences of the growing middle class, but also by educating people in the Baltic Sea Region about these markets and by strengthening cultural and tourism efforts addressing the new customer group. Serving these growing markets will probably increase (sea) transport, which poses additional challenges to the sub-objectives on ‘clean and safe shipping’ and ‘ensuring clear water in the sea’.

In addition to these impacts, global demographic change will also impact demographic pressures in the Baltic Sea Region, in the competition for highly skilled experts, and with more refugees.

- **Increasing difficulties to stop a brain drain towards vibrant global centres.** In the coming decades vibrant economic and social centres outside Europe will grow stronger and new centres may emerge given the growing number of highly skilled young people outside Europe. In the global competition for experts these centres will increasingly become competitors to economic hubs in the Baltic Sea Region. Attracting highly skilled people from other parts of the world to fill job openings in the Baltic Sea Region will probably become more difficult. In the long run citizens of the Baltic Sea Region may increasingly consider vibrant urban centres outside Europe as attractive places to work and live, starting a brain drain towards these centres.
• Necessity to absorb and integrate migrants will change societies. While the Baltic Sea Region may face difficulties in maintaining its profile as an international hotspot for highly skilled jobs, it will face an increasing inflow of people who come in despair. More migrants and refugees imply increasing numbers finding their way to Europe. ‘Fortress Europe’ will not be the answer, as this will increase the risk of armed conflicts at the borders of Europe. Drawing on the idea of replacement migration, refugees may help combat demographic decline. However, this comes with considerable challenges. All parts of the Baltic Sea Region will need to be prepared to absorb and integrate increasing numbers of refugees in the coming decades. It goes without saying that this will change societies and is a particular challenge in areas with few immigrants in recent decades.

Implications for EUSBSR
Impacts of these external developments concern all parts of EUSBSR. For ‘connect the region’, there are new challenges for transport links to emerging vibrant centres outside Europe, and for dealing with more immigrants along the main transport routes. This may pose additional challenges to the sub-objectives ‘improving transport conditions’ and ‘fighting cross-border crime’.

For ‘increase prosperity’, the emerging challenges of integration and dealing with a brain drain are more crosscutting. A stress on social innovations and on how to deal with these challenges should reduce the risks of brain drains and integration hindering sub-objectives ‘improving global competitiveness’, ‘implementing Europe 2020’ and ‘deepening the single market’.

Possible wildcards which may completely change the above perspectives are; the emergence of grey slums (elderly, expelled as surplus population), Europeans emigrating en masse to boom economies in Asia and Africa, a severe pandemic or a breakdown of globalisation.
Economic patterns across the world will change. New technologies are leading to the so-called 4th industrial revolution of production systems in many economic fields. Revolutionary technological changes will lead to fusions of technologies and blur the lines between physical, digital and biological systems. Furthermore, standard growth paradigms are increasingly challenged as patterns of economic growth and wealth change. Current forecasts range from economic decline and despair to technological solutions providing plenty of exciting opportunities. Be that as it may, our society and economy will change in the coming decades. The graphic illustrates that regardless what the industrial future will look like, everything will be much more integrated than today. This integration will go beyond administrative and national borders and may even make them irrelevant in many regards.

The important question with regard to technological trends is what role Europe and the Baltic Sea Region will play in this. Will the Baltic Sea Region be among the regions affected by the trends or among the ones shaping the future? Assuming a pro-active role, renewing industries and innovation have considerable potential to support EUSBSR objectives. In particular, the sub-objectives ‘deepening the single market’, ‘implementing Europe 2020’, ‘improved global competitiveness’ and ‘connecting people in the region’ could benefit from many trends in this area.
Who are the key players driving digitisation, robotics and other emerging technologies in the Baltic Sea Region? For which public services could new digital solutions be better provided across the Baltic Sea Region, instead of finding national solutions? Could this help to create critical mass and more resources to develop solutions that put the Baltic Sea Region on the global map? Could that make life for citizens and businesses in the region easier? And the region more attractive internationally?

Global paradigm shifts -
Changing economic paradigms

Economic developments have been challenging during the past decade and in many areas paradigm shifts could change perspectives on economic growth and wealth. The limits of growth have been discussed since at least the 1972 Club of Rome report.\(^{15}\) In recent years, changed understandings of economic growth have also been discussed in several prime ministerial offices in the western world (key word ‘beyond GDP’). This is linked to shortages of natural resources as growing economic wealth is paired with increased material consumption. It is also linked to increasing awareness that economic growth does not necessarily deliver employment, and to the prospect of long-term slow economic growth. In extreme cases there is even talk about the end of capitalism.\(^{16}\) At the same time, there are paradigm shifts pointing at technological solutions, not at least in terms of a 4th industrial revolution.

- **Beyond GDP**, limits to growth and capitalist systems are topics that hint at a transition in our economic system. This discussion is mainly about the inability to account for the environment, climate change, social imbalances and well-being in the mainstream understanding of growth.\(^{17}\)

- **Peak of everything** implies a shortage of resources. Several resources are clearly facing depletion, due to population growth, environmental stress, etc.\(^{18}\) This is also linked to expected increases in global energy demand of 40% by 2030, raising issues of energy security and resources.\(^{19}\) Renewable energy will not be enough to keep up with increased energy needs, meaning that traditional energy sources will remain important for the global economy.\(^{20}\)

- **Decoupling growth & jobs** focuses on the phenomenon of jobless economic growth, which may mean high unemployment even with economic growth and/or that labour shortages due to ageing do not threaten economic growth. However, this will raise issues of economic distribution. The decoupling of economic growth and employment is partly linked to the role of the financial industry in generating of economic growth, and partly to technological progress changing labour market needs.

- **Slow growth** shows that global growth continues, but at a sluggish pace as capital markets do not match markets for goods and services. While the IMF warns that slow growth leaves the world economy more exposed to risks, others point to resources and climate conditions, which imply that economies can no longer grow at the same speed they did in recent decades. So, slow growth is here to stay for the foreseeable future.
• **4th industrial revolution** concerns technological advances, which will fundamentally alter the way societies and economies function. Forthcoming technological changes, which are linked to digitisation and the service economy are expected to be unlike anything humankind has experienced before in terms of scale, scope, and complexity.

**Global major trends - New technologies and potentials for sustainability**

Many specific trends point to ways of handling the above changes pro-actively. Major trends concern (a) changing economic systems, (b) future fields of economic growth, (c) natural resources, (d) technological changes, (e) governance.

Bringing together changing lifestyle patterns as well as the need to make better use of material resources and handle growing amounts of waste, developments in the circular economy and in particular the sharing economy point to possible major trends – at least in the western world.

• **Circular economy** highlights the valuable materials leaking from economies. In a more circular economy, the value of products, materials and resources is maintained for as long as possible and waste is eliminated. The society moves towards more sustainable development, as well as a low carbon and more resource efficient economy. Transition to a more circular economy requires changes throughout value chains, from (a) product design, (b) production or remanufacturing, (c) distribution and (d) consumption to (e) collection and (f) recycling. In other words, such a transition requires new business and market models, new ways of turning waste into a resource and new consumer behaviour.21

• **Sharing economy** and collaborative communities refer to a hybrid market model focusing on access rather than ownership and referring to peer-to-peer sharing of goods and services. In many regards the sharing economy is considered as one pillar of a circular economy. Prominent examples are car-sharing and Airbnb. The current system of goods and services may shift from being mainly business-to-consumer to being consumer-to-consumer with consumer empowerment and a switch from ownership to leasing or sharing.22

Areas of economic growth which can be linked to a more sustainable use of resources include green growth, clean tech and blue growth.

• **Blue growth** including sought after material from ocean floors23 and maritime activities (in the Baltic Sea) are likely to expand substantially over the next 20 years. This will further increase conflicts between human uses and nature. Shipping is expected to double in the next 20 years, and oil transport will also increase substantially, increasing the risk of accidents.24

• **Green growth & clean tech** suggest a shift towards the use of natural resources in a more sustainable manner and a focus on renewable energy.25 Green growth is closely linked to the ‘green economy’.26 Furthermore a particular focus is put on technological solutions, so-called clean tech. These include recycling, renewable energy, information
technology, green transport, electric motors, green chemistry, and more energy efficient technologies.

This is closely linked to natural resources. On the one hand, as pointed out earlier, there is a risk of natural resource shortages, which means access to natural resources (at least specific ones) may again be a more important economic factor. However, such shortages would encourage economic players to investigate new resources. This includes an increasing shift to alternative energy.

- **Natural resources becoming important again**, also in the Baltic Sea Region, the export of primary resources is regaining economic importance even in developed service economies.\(^\text{27}\)
- **New resources** will be discovered and become available, such as coal bed methane. In addition, the exploitation of non-terrestrial resources has been predicted for some time.\(^\text{28}\)
- **Alternative energy becomes increasingly important**, as mobility will rely more and more on alternative energy sources, meaning gaseous fuels, electricity and hydrogen.\(^\text{29}\)

The most prominent economic change may come from the technology sector. In many regards people consider current technological change to develop into a 4\(^{\text{th}}\) industrial revolution\(^\text{30}\) linked to automation and data exchange in production processes and service deliveries. This is expected to alter ways of living, working and interacting in our society. Such major trends are highlighted by trends in robotics, big data and the internet of things.

- **Robotics & digitisation increase productivity** and growth as new possibilities emerge for interaction with humans.\(^\text{31}\) Nowadays, the ICT sector is directly responsible for 5\(^{\%}\) of European GDP and contributes far more to productivity growth with 20\(^{\%}\) directly from ICT and 30\(^{\%}\) from ICT investments. Future-proofing services and production processes will be important for the competitiveness of enterprises.\(^\text{32}\)
- **Robotics & digitisation replace humans** even in highly skilled and service sector jobs, where artificial intelligence may displace many layers of workers. In other words, job replacement will not only affect standard manufacturing jobs but will reach far into the service sector. Already today there are tests with robots replacing hotel concierges and advanced financial advisers. However, there are limits as machines will not have enough empathy, imagination, creativity or ideas. At the same time this creates opportunities as new types of jobs emerge.\(^\text{33}\)
- **Big data** is key for a digital future fuelled by the convergence of social, mobile and cloud capability as well as growing demand for any-time, anywhere access to information. This will change how technology is used for private and business purposes. Related technological trends include quantum and cloud computing.\(^\text{34}\)
- **Internet of things** (IoT) will make the world much smarter than today. IoT is expected to connect 75-80 billion items to the internet by 2020.\(^\text{35}\) In Europe this will be an increase from approximately 1.8 million in 2013 to almost 6 billion in 2020, generating revenues of more than €1,180 billion in 2020.\(^\text{36}\)
While the public sector and governance play an important role in facilitating changes in almost all of the above trends, there are increasingly also limits to what the public sector can achieve. These limits are framed by the financial capability of the public sector with increasing public debts as well as the changing role of the public sector in a (digital) society largely driven by corporations.

- **Increasing public debts** are a constraint on fiscal and policy options up to 2030. Authorities may not be able to react to trends due to scarce resources. As part of this, Europe will face challenges with integrating social objectives.

- **Changing roles of corporate and public players** address issues on who owns information, who provides standards, and even on the management of public goods in the long run. This concerns the internet as well as other public domains.

### Impact on the Baltic Sea Region and EUSBSR (sub-)objectives

Trends in the field of renewing industries and innovation have considerable potential to support EUSBSR objectives and sub-objectives, in particular, the sub-objectives ‘*deepening the single market*’, ‘*implementing Europe 2020*’, ‘*improved global competitiveness*’ and ‘*connecting people in the region*’.

Although these trends are general, they affect the Baltic Sea Region and consequently EUSBSR objectives. Impacts on the Baltic Sea Region can be categorised under areas where they lead to social change, areas where they imply economic change, and areas where the public sector may need to take a leading role.

There will be major impacts on economic development in the Baltic Sea Region, and a clear challenge will be to stay ahead of developments and to provide frameworks where corporate and social players are among the first to shape the 4th industrial revolution.

- **Earlier adopters leading the way.** In many cases Baltic Sea Region members are early adopters, paving the way for technological innovation in Europe and the western world. Examples are paying transport bills via mobile phones in the 1990s in Finland, online tax declarations in Sweden and online elections in Estonia. In these cases, public service and policies, private companies and consumer acceptance have gone hand in hand, leading to many innovative ICT services. Some services used worldwide today, such as Skype, were developed in the Baltic Sea Region. Maintaining this attitude, spirit and collaboration between key players may provide the Baltic Sea Region with a head start to the 4th industrial revolution. This will imply being among those leading the way in terms of technology and economic developments. The challenge is to keep that position and even encourage more players in more places to test the field and dare to develop new solutions. However, it also means being first to deal with any social impact, especially the need to find good solutions to any social setbacks.
• **Changing nature of jobs is a challenge for future labour markets.** While experts are uncertain about whether further automation and technological changes will lead to more or less jobs, they will certainly lead to different types of jobs – jobs currently not imaginable. For the Baltic Sea Region to stay ahead, citizens and the education system must be ready to embrace new types of jobs. Highly adaptive education systems with a strong focus on life-long-learning will be important.

• **Technology to soften ageing impacts.** As outlined earlier, ageing is an important challenge to many parts of the Baltic Sea Region. Technological changes may help to cushion some impacts, both for the labour force needed to produce goods and services (economic growth) and also the labour force needed to cover increasing demands in the care sector (sustaining welfare services).

• **Natural resources becoming important again.** Increasing competition over natural resources may pose a challenge to the Baltic Sea Region, especially for access to rare earth elements, but at the same time this may lead to higher valuations of natural resources in the region. This concerns both natural resources such as oil, iron ore, coal, wood and fresh water, as well as new natural resources such as renewable energy or resources for the blue economy.

---

**Implications for EUSBSR**

Impacts of economic changes primarily concern the objective ‘increase prosperity’, especially the sub-objectives ‘deepening the single market’, ‘implementing Europe 2020’, ‘improved global competitiveness’. If players in the Baltic Sea Region are among those leading the way in new economic and industrial trends, this will support these sub-objectives. One question is how macro-regional strategy can support Baltic Sea Region players to be worldwide leaders. Trends improving digitisation and transport could significantly contribute to the sub-objectives ‘connecting people’ and ‘improving transport conditions’. In particular transport developments linked to a circular economy and blue growth could also support the sub-objective ‘clean and safe shipping’. As a side effect changing industries may contribute to the sub-objectives ‘ensure clear water’ and ‘having a healthier wildlife’ as they may be able to push for more sustainable production and consumption patterns. At the same time trends pointing to a larger economic role for natural resources, may imply that using such natural resources in the Baltic Sea Region poses challenges to the sub-objectives ‘ensure clear water’ and ‘having a healthier wildlife’.

In all these developments, the public sector plays an important role in ensuring a leading role for the Baltic Sea Region and bringing together different players in collaborative development processes.

• **Stimulating economic players.** Although private R&D funding is larger than public R&D funding and in many cases multinational corporations lead the way, there is a role for the public sector to stimulate technological change, especially for more sustainable development. The challenge is to find the right format and keep it manageable within the competence and resources of the public sector. However, through
regulatory frameworks (access to technology, sustainability standards) the public sector can influence developments, as well as pave the way in terms of services (e-government) and support for entrepreneurship and innovation as general social values.

- **Providing platforms for collaborative developments.** In many cases change of the magnitude expected for the 4th industrial revolution is not only technical and economic but also has a strong social dimension. General acceptance of changes that create uncertainty about the future is a critical issue. Providing platforms for collaborative development, shaping future changes as well as for co-design are approaches already used across the Baltic Sea Region.

- **Mitigating social impacts.** Given the high level of uncertainty about the social impacts larger technological changes may bring, an important role for the public sector will be to mitigate these impacts. This requires a high level of readiness to see, understand and react.

### Implications for EUSBSR

Impacts are horizontal and concern all sub-objectives of EUSBSR. This is an appeal for strengthening the coordination function of the macro-regional strategy.

These trends and developments will most likely also lead to social changes in the Baltic Sea Region.

- **New territorial disparities.** Access to infrastructure for the new technologies is crucial. People with the right skills and mind-sets as well as the environment and context in which these people can progress, will not be evenly spread around the Baltic Sea Region. Depending on the type of technological innovation and the preconditions, some places will become leading hubs, others may be early adopters and a large number of areas will fall behind. Thus, the changes are most likely to generate greater territorial disparities. However, different changes may lead to different territorial patterns, so not everything will be concentrated in a few cities.

- **Sustainable lifestyles, a challenge beyond trendy urban centres.** For the technological side of the green economy, large parts of the Baltic Sea Region are well situated. Lifestyle issues, in particular for recycling and the sharing economy, the picture around the Baltic Sea is patchy. In many cases, emerging lifestyle trends build on urban lifestyles requiring close proximity and a critical mass for ‘post material lifestyle trends’ e.g. in the sharing economy to function. While these trends easily apply to urban areas, they may bring about challenges or the need for major adaption in rural areas, risking an increase in urban-rural disparities.
• Adjust to lower growth. Being traditionally trade-oriented, the Baltic Sea Region is expected to grow modestly because of weak growth in emerging economies, declining commodity prices and reciprocal sanctions from the EU and Russia. In the medium term, the region has to adjust to a ‘new normal’ of lower growth. A simple focus on more innovation seems unlikely to change this trajectory, and may easily widen the gap in the labour market and in society between those in highly productive, high wage sectors and those in low wage, often domestic service-oriented activities.39

Implications for EUSBSR
Impacts of social changes concern the objective ‘increase prosperity’. Achieving the aims of sub-objectives may come at the price of increasing disparities, especially between major hubs or clusters and the rest of the Baltic Sea Region, as well as increased rural-urban disparities. Furthermore, the prospect of lower economic growth may pose additional challenges. While increasing disparities do not directly challenge EUSBSR objectives, they may challenge social inclusion within sub-objective ‘Implementing Europe 2020’ or be unintended side-effects.

Possible wildcards which may completely change the above perspectives are; a collapse in the use of ICT, large scale use of nuclear fusion technology, solar geomagnetic storms, or nuclear or cyber war.
5. Can conversations about the environment be strengthened in the Baltic Sea Region?

DEEPENING CONVERSATIONS ABOUT THE ENVIRONMENT

PARADIGM SHIFTS
- Climate change
- Scarcity of water and food

MAJOR TRENDS
- Arctic as a resource and passage
- Pollution of the seas

Natural forces are behind some of the environmental trends, but most of them are caused or enhanced by human activities. Some environmental trends enhance each other; some are reduced by other trends. For example, climate change is partially caused by human actions, but can also be mitigated by policies. Various environmental development patterns and trends point to the need for corrective policies.

For the Baltic Sea Region, the maritime environment quality has been a concern for many decades. Although the situation is improving it is far from a level where water quality, fauna and flora can be considered sustainable. The image shows the HELCOM holistic assessment 2010.

What can be done to further strengthen efforts to make the Baltic Sea clean, reduce impacts on climate change and adjust to its consequences?

Climate change will most probably have severe and large-scale effects on the environment, policymaking and the economy. There will also be a significant rise in energy consumption in non-OECD countries, linked mainly to population growth and rising incomes.

Effective civil protection around the Baltic Sea Region requires multi-sector cooperation starting with spatial and physical planning, preventive solutions, coordination mechanisms, international bodies and mutual assistance systems, ministries and agencies.

Despite slow economic growth and a slowdown in population growth, global competition for natural resources will continue to intensify. This causes market instability and geo-political tensions. Without corrective policies in the next 20 years, drastic change will affect the climate, biosphere, continents and oceans.
Global paradigm shifts - Climate change and scarcity of natural resources

The Framework Convention on Climate Change (UNFCCC) defines climate change as: “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.” A distinction between human activities and natural causes attributing climate changes can thus be made.

• **Several and severe impacts.** The IPCC (Intergovernmental Panel on Climate Change) identifies five key risks with climate change: unique and threatened systems, extreme weather events, uneven distribution of impacts, global aggregate impacts and large-scale singular events (e.g. in coral reefs and the Arctic).

Global competition for access to natural resources will continue to intensify as will volatility, geo-political tensions and instability.

• **Scarcity of water and food.** In 2030 managing scarcity of food and water will be a major challenge. According to an estimate of the World Bank, by 2025 climate change will affect 1.4 billion people through shortfalls in food or water.40

Global major trends - Growing importance of the Arctic and pollution of the seas

Climate change and a scarcity of food and water are important globally. There are also regional environmental trends that have strong connections to other areas of society, such as politics or business. Examples of these are the Arctic and polar region and microplastic pollution in the sea.

• **Arctic as a resource and a passage.** Natural resources, the opening-up of shipping routes, and increased tourism and scientific research will make the Arctic a highly coveted space and a valuable transit route. This will provide opportunities but will also pose economic, geopolitical, environmental and human challenges. The frontiers between Russia, North America and Europe become closer, but at the same time, governance is not yet settled. Questions related to exploitation of the polar region and ownership of resources may cause tensions.

• **Pollution of the seas** will increase with climate change but also with industrial and human activities. Marine litter means any persistent, manufactured of processed solid material disposed of, or abandoned in the marine environment. It also includes items brought into the sea through natural forces and drainage and sewage systems. As plastic production grows, the amount of plastic litter in the environment grows. Over recent years, public and scientific interest in microplastic has grown, but still relatively little is known about its sources.41
Impact on the Baltic Sea Region and EUSBSR (sub-)objectives

Climate change can affect Europe and the Baltic Sea Region through migration and conflicts due to environment trends that could support or challenge EUSBSR objectives and sub-objectives. These trends will mostly affect the objective ‘Save the sea’, but also have secondary effects on society and the economy in general.

Environmental trends mostly affect the maritime environment of the Baltic Sea Region, but there will also be effects on social and economic development in the region.

- **Global warming affecting the maritime, social and economic environment of the Baltic Sea Region.** Climate change and scarcity of natural resources are likely to pose a challenge in the Baltic Sea Region. Climate change will most probably have severe effects on vulnerable flora and fauna. However, these paradigm shifts and their effects are largely dependent on policymaking at higher levels than EUSBSR. On the other hand, EUSBSR can act as a framework for deepening cooperation to adapt and mitigate climate change.

- **Scarcity of natural resources.** Climate change can also affect Europe and the Baltic Sea Region through increased migration and conflicts due to flood, droughts and food shortages. Natural resources will probably become important again and the export of primary resources is regaining economic importance, even in developed service economies.

**Implications for EUSBSR**

Increasing pressure on climate issues may require more attention and concrete actions in the Baltic Sea States. Taking a stand during international climate change discussions may help implementation of the strategy. The trend concerns the sub-objectives under the objective ‘Save the sea’, especially ‘Ensuring clear water in the sea’, ‘Having a rich and healthy wildlife’ and ‘Clean and safe shipping’.

Possible wildcards which may completely change these perspectives are the end of global climate agreements, or much more rapid climate change than anticipated.
6. How will global governance trends affect the cooperation in the Baltic Sea Region?

CHANGING DEMOCRATIC DECISION MAKING

PARADIGM Shifts
- Increasing global tensions
- Delegation of power from national to supra-national players
- Diffusion of power to networks and coalitions
- Thrive towards more democracy
- Increasing role of perceptions and believes

MAJOR TRENDS
- Collaborative governance approaches
- Nationalism in Europe
- Diverging understandings of democracies in Europe
- Rising tensions between Russia and Europe

Governance, democratic decision making processes and the role of civil society are changing. Trends in these areas point to different futures. These in turn create different potential and challenges for the Baltic Sea Region. Will the region become an example of increased co-decision making by a wide range of different bodies, or will increasing national interests let the countries of the Baltic Sea Region drift apart?

On the one hand, collaborative governance approaches grow stronger. This includes a diffusion of power to networks and groups, as well as the stronger involvement of civil society - often labelled the 4th sector. This development could support cooperation initiatives and joint implementation of EUSBSR and its sub-objectives. The delegation of power to global or supranational players may support EUSBSR sub-objectives, if they seek macro-regional rather than place specific solutions. However, this depends largely on the type of supranational powers.

On the other hand, there are increasing global tensions and not at least tensions between Russia and the EU. This goes together with renationalisation trends. Both developments are likely to pose growing challenges to most EUSBSR sub-objectives as they could make cooperation more difficult. The graphic illustrates the risk of the Baltic Sea Region drifting apart as a result of these trends growing stronger.

The single trends are spelled out in further detail below. How will these trends change the longstanding cooperation culture in the Baltic Sea Region? Can the development of a joint and commonly shared vision for the region encourage the supportive trends and limit the effects of trends that challenge cooperation? Should cooperation be refocused and concentrate solely on issues which - in the interest of all - must be solved jointly?
Global paradigm shifts - Increasing global tensions and diverging value systems

At the level of larger paradigm shifts, three main types of trends can be identified. Firstly, there are changes at the level of global or supranational governance. Geopolitical tensions are increasing, which goes hand in hand with shifts away from hegemonic global powers towards multipolar networks and groups. At the same time, in economic and policy fields power is being delegated from national to supranational governance bodies, or shifted from national governments to international enterprises.

- **Increasing global tensions** will rise as multilateral institutions struggle to adjust to shifts in economic power. In a more insecure world, the geopolitical role of the EU and its outermost territories abroad will be challenged.¹

- **Diffusion of power** implies a shift away from hegemonic powers to networks and coalitions operating in a multipolar world.²

- **Delegation of power from national to supranational players** underlines a development away from national politics and towards consolidation and delegation of regulatory competences to supranational international institutions.³

In parallel, the trend of diffusing power to networks and collations can also be observed at lower geographical levels. In some parts of the world, there are also increasing trends to empower civil society, and strengthen democracy. In parallel to these - partly supplementing and partly opposing them - are developments pointing at an increasing importance of convictions, which can be linked to political as well as religious beliefs.

- **Thrive towards more democracy** as illustrated by the origins of the Arab spring. In Europe there is an increasing recognition of participatory approaches to decision making, direct democracy and referenda underlining moves towards more democracy.

- **Increasing role of perceptions and beliefs** both for setting value systems and motivating political actions, also linked to the ‘war of ideas’. This can be linked to religious beliefs (Islam and Christianity) as well as to other convictions, where evidence and facts are disregarded. An example was Michael Gove in the Brexit campaign, when he announced that “the people of this country have had enough of experts” (Financial Times 03 June 2016). This trend indicates a shift towards a declining focus on evidence-based decision making.
Global major trends -
Increasing focus on ‘own interests’

In addition to the above large paradigm shifts, there are also a number of rather concrete major trends indicating changes in democratic decision making and global governance. Linked to increasing global tensions, there are the trends towards a stronger national orientation as well as the rising tensions between Russia and the EU.

- **Nationalism** of politics and policy areas in large parts of Europe, putting national interests before joint solutions to development challenges. In many countries the rising popularity of ‘nationalist’ parties underlines this trend. Discussions about national interests versus international compromises also show how the mood is shifting from solidarity to recrimination - not only in the case of the British EU membership. Twisting it somewhat differently The Economist talks about ‘drawbridge uppers’ and ‘drawbridge downers’.

- **Rising tensions between Russia and the EU**. Relations between Russia and the EU are in focus, particularly linked to security, trade and environmental issues in the Baltic Sea Region and the role Russia plays in finding solutions.

Linked to the paradigm shifts concerning democratic decision making, major trends can be identified indicating diverging understandings of democratic decision making processes. On the one hand there is a move - also in Europe - away from the classic liberal understandings of democracy, with a strong impact on the role of civil society. On the other hand, there is also a rise of the 4th power putting increasing focus on civil society, governance and co-evolution approaches. Opposing trends concerning the understanding of democracy change over time, this also illustrates diverging value systems and the increasing role of conviction.

Impact on the Baltic Sea Region and the EUSBSR (sub-)objectives

These trends vary in their relevance for sub-objectives of EUSBSR. Here are some quick pointers to which trends may imply increasing challenges to achieve individual sub-objectives and which trends may bring easy gains.

Increasing global tension and not least tensions between Russia and the EU but also nationalistic trends are likely to pose additional challenges to most sub-objectives as they could make cooperation more difficult. At the same time, increasing collaborative governance approaches and the diffusion of power to networks could support cooperation and the joint implementation of EUSBSR and its sub-objectives. The delegation of power to supranational players is expected to generally support EUSBSR sub-objectives, as they are more likely to seek macro-regional rather than place specific solutions. However, this depends largely on the type of supranational power. An example is the sub-objective for reliable energy markets. Private supranational players may have completely dif-
ferent objectives than public players, which could pose additional challenges to achieving this specific sub-objective.

Across the board, most of these trends affect the Baltic Sea Region. The trends impact the social and economic development of the Baltic Sea Region as it is highly international and thus sensitive to international tensions and consequences.

- **A globally embedded Baltic Sea Region will increasingly feel global tensions.** These global tensions imply concrete changes for the Baltic Sea Region in cooperation with Russia. However, their impact is also reflected in the risk of declining global trade with certain parts of the world. Changes in international trade patterns are important for an open and international economy. As will be seen later migration as a consequence of conflicts in other parts of the world impacts the Baltic Sea Region. To a certain degree increasing risks of terrorist attacks and armed conflicts may be on the agenda.

- **Growing power of supranational players.** Countries in the Baltic Sea Region are members of the main international organisations and thus their decision making (power) is affected by agreements and compromises made at European, or other international levels. Also the shift of power towards multinational enterprises affects the Baltic Sea Region as it is home to a large number of international companies and is affected by their decisions on investments or changes of location.

- **Rising tensions in cooperation with Russia.** Challenging relations between Russia and the EU cause discomfort over geopolitical security among Russia’s direct neighbours. This also impacts on cooperation related to the Baltic Sea environment as well as maritime transport.

**Implications for EUSBSR**

Increasing prosperity builds on international trade relations and geopolitical security. More attention may be needed to ensure that sensitivities and vulnerabilities concerning international conflicts are addressed. This goes for all sub-objectives, with a special emphasis on ‘better cooperation’ and ‘fighting cross-border crime’.

Furthermore, a number of the trends point at changing attitudes towards decision making processes and this may impact on joint decision making processes within the Baltic Sea Region cooperation. Be it at highly political or at concrete cooperation project level, diverging views on how democratic decision making might change of the next decade may pose cooperation challenges.

- **Declining interest in finding joint solutions.** Increasingly, own interests override joint objectives also in the Baltic Sea Region. Developments pointing to a stronger focus on national interest and a collaboration attitude shifting away from the focus on compromises and solidarity to recrimination hint at increasing challenges in cooperation. Not at least when it comes to environmental concerns it might point towards an increasing ‘tragedy of the commons’; i.e. individual
users acting independently according to their own self-interest behave contrary to the common good of all users by depleting that resource through their collective action.

- **Declining shared value base.** The Baltic Sea Region faces diverging views on the future of democracy, as the understanding of democracy changes in different ways throughout society. In addition to divides between societal groups, within the Baltic Sea Region a geographical divergence is emerging as concerns the impacts on the trends in the field of democracy and decision making. Diverging understandings of the nature of democratic decision making process might challenge cooperation and joint decision making processes.

### Implications for the EUSBSR

Increasing cooperation challenges might require more attention and possibly concrete action to maintain the positive cooperation culture that has been developed in the Baltic Sea Region over past decades. Reaching out to partners also in the business sector and organisations is considered important. Empowering and including regional and local players in the implementation of the strategy might help make the strategy more visible and the actions more effective. In that sense the trends concern all sub-objectives, maybe with a special emphasis on ‘better cooperation’.

The above trends and other developments come with a wide range of uncertainties. To stimulate the thinking about possible - though unlikely - events which may change the development paths sketched above, annex 2 contains a number of wildcards. These are highly unlikely events, however, with an considerable impact in case they happen. Possible wildcards which may completely change the perspectives sketched above are, e.g. the collapse of the EU or Russia becoming an EU Member State, as well as a privatisation of EU Commission Services.
7. Conclusions and recommendations

Since adoption a range of trends and developments have emerged which will change the context of EUSBSR.

Certainly, it helps if key players in charge of further developing and governing EUSBSR are aware of these trends, closely monitor developments, and are ready to adjust work within their domains if needed. It is important that the strategy responds to changing contexts and new phenomena and that key players think topically rather than institutionally.

Going further, the question is whether the trends reviewed in this report imply the need to change the focus of EUSBSR or even change the objectives in order to be better prepared for the consequences of these trends that are positive as well as negative.

A crucial question that follows is which issues need to be solved at macro-regional level and which are better dealt with at lower or higher governance levels. The figure below provides a quick overview of considerations for identifying issues requiring increased macro-regional cooperation.

The EUSBSR should seek synergies and cross-strategic links with other macro-regional strategies.
As a rule of thumb, cooperation can be beneficial when it contributes to organisational and policy learning and where different stakeholders face similar challenges or opportunities to which common solutions can improve individual responses. This type of cooperation is normally organised as an exchange of experience. In addition, macro-regional cooperation can also help achieve critical mass for an action or economic viability. In this case there is a need to cooperate.

There is an even more imperative need for cooperation where joint solutions or macro-regional structures are required to accomplish the task. In these cases, responses by individual countries will not be able to solve the issue, such as improving the Baltic Sea environment.

The following sections present areas where responses must be found in cooperation, where responses should be developed in cooperation and finally where responses can be developed in cooperation, since they could give added value.

**MUST cooperate**

A number of trends point to changes that require a joint response from countries in the Baltic Sea Region. In particular, these concern the environment, intensified use of common resources and shifting cooperation cultures. This includes both the resilience of the Baltic Sea Region as well as the better use of common potential.

**Environmental and climate change pressures continue to be addressed.** Throughout the report environmental and climate change pressures have received little attention. They are still important. Developments in this field have not substantially altered since adoption of EUSBSR. At the same time, trends addressed in this report point to increased environmental pressures, not least on the Baltic Sea. In consequence, efforts need to be continued and strengthened. Environmental and climate change pressures are strongly connected to other trends, especially technology and geopolitics.

- Should environment and climate change become the main focus of EUSBSR, to concentrate resources and become more effective?

**Increased need for joint civil protection.** Various development patterns and trends in the environmental sector point to a need for corrective policies and emphasise the need for coordinated and even international civil protection. Effective civil protection systems around the Baltic Sea Region require multi-sector cooperation from spatial and physical planning, preventive solutions and coordination mechanisms, to bodies and mutual assistance systems across different countries, ministries and agencies.

- What can be done within the framework of EUSBSR to strengthen and better coordinate civil protection in the Baltic Sea Region?

**Blue growth trends underline the need for joint action.** In many regards blue growth depends on common resources of the Baltic Sea, however developments in one area can impact the potential use of blue growth resources in other parts. A growing blue growth sector underlines
the importance of the EUSBSR focus on preventing pollution and reducing the use of hazardous substances. Working towards these objectives is an important pre-condition for the blue economy.

- How can blue growth activities and maritime planning be better coordinated to ensure a sound use of common maritime resources in the Baltic Sea Region?

**Increasing shipping transport underlines the need for joint action.**
Linked to blue growth is also an expected increase in shipping, globally and in the Baltic Sea Region. To ensure that this increase is handled well, macro-regional cooperation is vital. Increased shipping underlines the relevance of policy areas covering better internal and external transport links, clean and safe shipping, maritime safety and security and cooperation with Russia. Working towards these objectives is an important pre-condition to ensuring that increased transport volumes are handled to the benefit of the region. This needs also to be linked to increasing land and air transport as well as multi-modal transport solutions.

- How can increasing transport demands be better addressed to ensure that the EUSBSR objective ‘Clean and safe shipping’ will be met?

**Safeguard long-term cooperation.** The Baltic Sea Region has had strong links and cooperation since at least the Hansa-period. Political changes started in the 1990s prompted development of the current forms of cooperation around the Baltic Sea Region. Certainly there are ups and downs in cooperation and focus and intensity vary over time. Compared to many other parts of Europe, the Baltic Sea Region has a strong cooperation culture. Therefore, temporary changes to more self-centric behaviour by stakeholders in the Baltic Sea Region will not challenge the overall setting. However, it may be wise to closely monitor developments and proactively illustrate the benefits of cooperation to convince players beyond the usual suspects and to guard against long-term changes in cooperation attitudes.

- What needs to be done to ensure smooth cooperation at operational level among the EUSBSR member states as well as with Russia?

**SHOULD cooperate**

The following trends do not necessitate joint responses, but they would be more effective and efficient. These concern mainly trends in demographic development and technological change.

**Demographic pressures should be met through coordinated approaches.**
Demographic pressures in the form of ageing, migration and brain drain affect most of Europe. Within the Baltic Sea Region increasing demographic pressures take different formats. Some countries and regions will be heavily affected by ageing, having already among the highest median ages in Europe. Other regions and countries will see increasing immigration pressures. In some parts of the Baltic Sea Region increased demographic pressure means increasing brain drain. In that sense, all parts of the Baltic Sea Region will need to cope with these trends and their many implications in the long run. Different developments are interrelated and
all of them concern economic competitiveness in the region as well as the future of welfare systems. It seems that the trends touch on issues which should be addressed mainly at European or national levels. However, coordinated actions can help to ensure a sustainable response for the Baltic Sea Region.

• What can be done within the EUSBSR framework beyond exchanging experience and harmonising approaches among different players?

**Cooperation should address technological changes to the benefit of the Baltic Sea Region.** Technological developments will offer opportunities and challenges for all parts of Europe. Many locations in the Baltic Sea Region have been pioneers and early adopters of previous developments suggesting preparedness. However, there are also considerable differences between countries, regions and cities when it comes to technological innovations and infrastructure, economy, governance and social acceptance linked to that. The Baltic Sea Region has potential hotspots picking-up these trends and pro-actively shaping events. The actions required to ensure appropriate responses to emerging trends may require action at European, national, regional and local levels. However, joint responses e.g. for digitisation, would help to create a critical mass for players in the Baltic Sea Region giving them a chance to be among the leaders. In addition, the question of how emerging technological changes affect the future of our societies may benefit from joint debate and coordinated responses.

• How can EUSBSR contribute to combining strengths and efforts in different locations across the Baltic Sea Region?

**Joint strategy for improving connectivity should help responding to increasing disparities.** Connectivity is an important dimension of regional and local development in the Baltic Sea Region. This concerns both the connectivity of rural and sparsely populated areas, i.e. the link between them and urban areas, as well as the connectivity between cities and the links between the Baltic Sea Region and global networks. Various trends point at the risks of increasing regional disparities in the Baltic Sea Region. A joint strategy for improving digital and physical connectivity both in digital and physical is one step to respond to these risks.

• What can be done within the EUSBSR framework to strengthen connectivity in the Baltic Sea Region - both within in regions and globally?

**Interpret trends together, make a road map and communicate.** Development trends should be interpreted jointly in the Baltic Sea Region. This would result in better coordination as well as a clearer division of labour between different players. Communication and visibility play key roles in a more action-oriented strategy as well as ensuring more attention on this. Adoption of a communication strategy, especially increasing public awareness needs more attention.

• How can a joint EUSBSR communication strategy increase preparedness in the Baltic Sea Region?
CAN cooperate

In some areas cooperation could be considered to see whether joint responses could help to more effectively or more efficiently respond to trends. A joint vision as a framework for ‘concerted’ individual action may ensure that the Baltic Sea Region, in whole and in part, is best prepared to capture positive impacts and mitigate negative impacts. For the above trends, such a joint vision could address three main changes.

**Baltic Sea Region leading the way through the 4th industrial revolution.** The impact of expected technological changes will very much depend on whether an area belongs to the pioneers and earlier adopters or instead accepts the consequences as late as possible. This concerns innovations, the global competitiveness of stakeholders and clusters in the Baltic Sea Region, adjustments in labour markets to new types of jobs, cushioning the impact of an ageing society and impacts on social and territorial disparities. Given the wide range of technological and ICT clusters and profiles in the Baltic Sea Region, there are favourable preconditions for joining forces and developing a framework which could position the region as a leader for the changes to come, both for innovation capacity as well as the development of approaches to economic, social and environmental impacts.

- Can a EUSBSR road map for the 4th industrial revolution improve the use of existing potential to increase global competitiveness?

**Baltic Sea Region preparing for a changing global economy.** Increasing global tensions and a reversion to nationalism, increasing difficulties in cooperation with Russia and ever tougher competition to attract highly skilled labour forces to the region, including a brain drain to vibrant locations outside Europe, are challenging factors for businesses in the Baltic Sea Region that rely on global trade. However, growing markets for goods and services from the Baltic Sea Region, including to the growing middle class in Asia and Africa, point to development opportunities. A joint vision on how to use the strengths of the Baltic Sea Region, as well as its multitude of international players and SMEs with international trade relations, may help to make the best of these trends and provide a platform to prepare economic players, especially SMEs and start-ups, to play their cards well.

- What would a EUSBSR vision for the Baltic Sea Region in a changing global economy look like?

**Baltic Sea Region mitigating increasing demographic pressures.** Impacts of an ageing society need to be addressed in all parts of the Baltic Sea Region. This involves adjustments to social welfare systems and labour markets, as well as addressing social and territorial disparities. At the same time, increasing migratory pressure both from within the EU and from outside will increase the need to develop solutions to absorb and integrate increasing number of migrants. The impacts of migration and a brain drain will become burning issues for many parts of the Baltic Sea Region. While the EU appears to be unable to develop joint approaches, increasing demographic pressures must be addressed.
A joint vision on how to approach these pressures and how to benefit from development opportunities may help.

- What would a EUSBSR vision of ‘next generation demography’ in the Baltic Sea Region look like?

### Stay alert and increase preparedness

The trends addressed in this paper point to a number of changes that will impact the Baltic Sea Region in various ways. There is no certainty about which trend will materialise, when, where and to what degree.

Some of these trends may help to reach some macro-regional (sub-) objectives faster. Other trends may make it even more challenging to achieve targets and will therefore put more stress on cooperation to work along lines set out in the strategy.

All EUSBR objectives and policy areas could be affected by the trends and their impacts. This is why there is a need to stay alert and monitor developments in individual thematic fields. This will increase general preparedness for dealing with impacts of these trends early on.

Boiling it down to the level of EUSBSR sub-objectives, expected developments either make it more challenging to achieve the set policy objectives, or EUSBSR actions can be important stepping stones to utilise development potential that comes with the trends. This mainly concerns issues directly linked to the Baltic Sea.

- Many trends have impacts on the environment and not least on the maritime environment of the Baltic Sea Region. This underlines the need for the sub-priorities ‘ensuring clear water’ and ‘having a healthy wildlife’. However, impact on the (maritime) environment should be monitored and addressed within all environmental sub-priorities.

- Increasing focus on blue growth can help to make best use of Baltic Sea resources and support the development of globally competitive clusters. The blue growth focus may be important for the sub-objective ‘improved global competitiveness’.

- Increasing maritime transport underlines the relevance of the sub-objectives ‘clean and safe shipping’ and ‘improving transport conditions’.

For some areas, EUSBSR could be strengthened as a framework for concerted individual actions. This may ensure that the Baltic Sea Region as a whole, as well as all parts of it, is well prepared to capture positive impacts and mitigate the negative impacts of these trends.

- For trends related to technological change, sub-objectives ‘improved global competitiveness’ and ‘implementing Europe 2020’ may be well placed to increase preparedness in the Baltic Sea Region.
• Addressing trends pointing to increasing tensions in global economic development and cooperation, especially the sub-objectives ‘improved global competitiveness’, ‘implementing Europe 2020’, ‘reliable energy markets’ and ‘fighting cross-border crime’, may require more preparedness in the Baltic Sea Region.

• Trends related to technological change will affect the sub-objectives ‘improved global competitiveness’, and ‘implementing Europe 2020’.

All sub-objectives build on cooperation and the involvement of a large number of stakeholders, often going beyond the usual suspects in transnational cooperation. Consequently, changes related to governance and cooperation matter for all parts of the EUSBSR:

• Observe changes in cooperation culture and attitude to ensure that nationalistic trends and a focus on self-interest does not weaken the basis for EUSBSR cooperation.

• Increase efforts to illustrate the benefits of EUSBSR cooperation and convince people, beyond the usual suspects.

• Interpret development trends together.

• Make a roadmap for the next steps.

• Pick up the increasing involvement of the 4th sector, co-designing, etc. as a way to strengthen the EUSBSR support. This may further increase efforts to bring on board citizens for implementation of the strategy.

DOS AND DON’TS to increase preparedness for the impact of trends with regard to EUSBSR sub-objectives

• Further support the attitude of cooperation around the Baltic Sea Region – especially going beyond the usual suspects for territorial cooperation.

• Do not let geopolitical tensions and diverging views among members affect the work of furthering EUSBSR.

• Further streamline concerns and efforts to improve the maritime environment with respect to new industries and transport.

• Develop a shared approach on how to deal with increasing maritime transport in the Baltic Sea Region, ensuring that clear water objectives can be met.

• Pay particular attention to blue growth development potentials, making use of common resources.

• Increase preparedness for new technologies (4th industrial revolution) and support players in the Baltic Sea Region to be leaders in the world, building critical mass.

• Use EUSBSR to develop a joint vision as a framework for concerted individual actions which concern large parts of the region but which do not require joint responses (e.g. migration, changing economic perspectives, new technologies).
## Annex 1 - EUSBSR sub-objectives and trends affecting them - an overview

The trends discussed above have varying relevance for individual EUSBSR sub-objectives. The table below provides rough indications for each sub-objective of trends may imply increasing challenges (-) and easy gains (+).

<table>
<thead>
<tr>
<th>Links between trends and EUSBSR sub-objectives</th>
<th>Save the sea</th>
<th>Increase prosperity</th>
<th>Connect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensuring clear water in the sea</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Having a rich and healthy wildlife</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Clean and safe shipping</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Better cooperation</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Deepening and fulfilling the single market</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Contributing to implementing Europe 2020</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Improved global competitiveness</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Climate change adaptation</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Improving transport conditions</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Having reliable energy markets</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Connecting people in the region</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fighting cross-border crime and trafficking</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### PARADIGM SHIFTS

- Increasing global tensions
- Delegation of power to supranational players
- Diffusion of power to networks and coalitions
- Thrive towards more democracy
- Increasing role of perceptions and beliefs
- Global demographic growth
- Increasing middle class
- Beyond GDP
- Peak everything
- Decoupling growth & jobs
- 4th industrial revolution
- Changing understanding of privacy
- Changing roles of corporate and public players
- Hypermobility

### MAJOR TRENDS

- Collaborative governance approaches
- Nationalism
- Rising tensions between Russia and Europe
- Ageing society in Europe
- Young and ambitious societies
- Increasing migration pressures and flows
- Further urbanisation
- Rising social inequalities and gaps
- Circular economy
- Sharing economy
- Green growth & clean tech
- Blue growth
- Robotics & digitisation increasing productivity
- Robotics & digitisation replacing humans
- Big data
- Internet of things
- Natural resources becoming important again
- Increasing public debts
- Alternative energy
- Increasing focus on transport hubs
Save the Sea

The Baltic Sea is one of the most polluted in the world, and its poor state threatens the quality of life of 80 million people living in the region. The overall aim of the EUSBSR ‘Save the Sea’ objective is to achieve good environmental status by 2020, as required under the Marine Strategy Framework Directive (MSFD), and favourable conservation status under the Habitats Directive, in accordance with the EU Biodiversity Strategy, and taking into account the related targets by 2021, as required by the HELCOM (Baltic Marine Environment Protection Commission) Baltic Sea Action Plan (BSAP). Achieving the ‘Save the Sea’ objective is also essential to success for the other two objectives to ‘Connect the Region’ and ‘Increase Prosperity’.43

Sub-objective: Clear water in the sea

The sub-objective ‘clear water in the sea’ addresses eutrophication, excessive nutrients in the water, which is a major problem for the Baltic Sea and for the region’s lakes. Although the trends concern clear water in the sea indirectly, the Baltic Sea remains one of most polluted seas in the world. So, the sub-objective remains central for the future of the Baltic Sea Region. To meet additional challenges to this sub-objective, it may be necessary to further strengthen efforts.

<table>
<thead>
<tr>
<th>Trends pointing to increasing challenges</th>
<th>Trends pointing to easy gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>A number of trends pose increasing challenges to international cooperation and the achievement and implementation of international compromises:</td>
<td>A number of governance related trends may support the sub-objective:</td>
</tr>
<tr>
<td>• Increasing global tension</td>
<td>• Delegation to supranational players</td>
</tr>
<tr>
<td>• Nationalism</td>
<td>• Diffusion of power to networks and coalitions</td>
</tr>
<tr>
<td>• Rising tensions between Russia and Europe</td>
<td>• Collaborative governance approaches</td>
</tr>
<tr>
<td>Other trends point to more sources of eutrophication, including growing demands for products from the Baltic Sea Region:</td>
<td>Some economic trends may also work in favour of the sub-objective as they indicate a more sensible handling of goods and production processes and an increasing appreciation of natural resources. This may in turn provide the basis for less pollution of sea waters:</td>
</tr>
<tr>
<td>• Increasing middle class (= increasing consumption)</td>
<td>• Peak of everything</td>
</tr>
<tr>
<td>• Natural resources becoming important</td>
<td>• Circular economy</td>
</tr>
<tr>
<td>Working towards clear water in the Baltic Sea also implies public intervention. Trends pointing to increasingly scarce financial resources may make that more challenging:</td>
<td>• Green growth &amp; clean tech</td>
</tr>
<tr>
<td>• Increasing public debts</td>
<td>Another economic trend may work in favour of the sub-objective if considering only environmental aspects. At the same time, it may increase challenges if these aspects are not respected:</td>
</tr>
<tr>
<td>Climate change and environmental trends will further challenge achievement of this sub-objective:</td>
<td>• Blue growth</td>
</tr>
<tr>
<td>• Climate change</td>
<td></td>
</tr>
<tr>
<td>• Scarcity of natural resources</td>
<td></td>
</tr>
<tr>
<td>• Pollution of the sea</td>
<td></td>
</tr>
</tbody>
</table>
Sub-objective: Rich and healthy wildlife

The sub-objective ‘rich and healthy wildlife’ addresses the unique ecosystem of the Baltic Sea Region. The wildlife and in particular marine biodiversity are threatened by many factors beyond those addressed under the ‘clear water’ objective, e.g. other types of pollution, invasive species and fisheries. The trends discussed and their implications on this sub-objective are very much similar to the sub-objective on ‘clear water’.

<table>
<thead>
<tr>
<th>Trends pointing to increasing challenges</th>
<th>Trends pointing to easy gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>A number of trends pose increasing challenges to international cooperation and the achievement and implementation of international compromises:</td>
<td>A number of governance related trends may support the sub-objective:</td>
</tr>
<tr>
<td>- Increasing global tension</td>
<td>- Delegation to supranational players</td>
</tr>
<tr>
<td>- Nationalism</td>
<td>- Diffusion of power to networks and coalitions</td>
</tr>
<tr>
<td>- Rising tensions between Russia and Europe</td>
<td>- Collaborative governance approaches</td>
</tr>
</tbody>
</table>

There are also other trends which may imply increasing threats to biodiversity, among others in terms growing demands for products from the Baltic Sea Region:

- Increasing middle class (= increasing consumption)
- Natural resources becoming important

Working for an improved ecosystem of the Baltic Sea Regions also implies public intervention. Trends pointing to increasingly scarce financial resources may make that more challenging:

- Increasing public debts

Climate change and environmental trends may further challenge achievement of this sub-objective:

- Climate change
- Pollution of the sea

Some economic trends may also work in favour of the sub-objective as they indicate more sensible handling of goods and production processes and appreciation of natural resources. This in turn may provide the basis for lower threats to the ecosystems:

- Peak of everything
- Circular economy
- Green growth & clean tech
- Blue growth
Sub-objective: Clean and safe shipping

Issues under this sub-objective are becoming more and more important as maritime transport on the Baltic Sea is constantly increasing. A number of trends may imply increasing challenges for this sub-objective. However, there are a few trends which may imply easy gains, though the overall picture is challenging.

<table>
<thead>
<tr>
<th>Trends pointing to increasing challenges</th>
<th>Trends pointing to easy gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>The most important trend with regard to this sub-objective concerns centralisation in transport systems, which may also imply a changing role for ports and routes in the Baltic Sea:</td>
<td>A number of governance related trends may support the sub-objective:</td>
</tr>
<tr>
<td>• Hypermobility</td>
<td>• Delegation to supranational players</td>
</tr>
<tr>
<td>• Increasing focus on transport hubs</td>
<td>• Diffusion of power to networks and coalitions</td>
</tr>
<tr>
<td>A number of trends pose increasing challenges to smooth international cooperation and the achievement and implementation of international compromises:</td>
<td>• Collaborative governance approaches</td>
</tr>
<tr>
<td>• Increasing global tension</td>
<td>Some economic trends may also work in favour of the sub-objective as they indicate more sensible handling of goods and production processes and appreciation of natural resources. This in turn may provide the basis for less pollution of sea waters:</td>
</tr>
<tr>
<td>• Nationalism</td>
<td>• Blue growth</td>
</tr>
<tr>
<td>• Rising tensions between Russia and Europe</td>
<td>• Circular economy</td>
</tr>
<tr>
<td>Other trends point to increasing sources for eutrophication, among others growing demand for products to be transported on the Baltic Sea:</td>
<td>Working towards clean and safe shipping in the Baltic Sea also implies public intervention. Trends pointing to increasingly scarce financial resources may make that more challenging:</td>
</tr>
<tr>
<td>• Global demographic growth</td>
<td>• Increasing public debts</td>
</tr>
<tr>
<td>• Increasing middle class</td>
<td>Climate change and environmental trends will further challenge achievement of this sub-objective:</td>
</tr>
<tr>
<td>Working towards clean and safe shipping in the Baltic Sea also implies public intervention. Trends pointing to increasingly scarce financial resources may make that more challenging:</td>
<td>• Climate change</td>
</tr>
<tr>
<td>• Increasing public debts</td>
<td>• Growing importance of the Arctic</td>
</tr>
</tbody>
</table>
Sub-objective: Better cooperation

This sub-objective addresses the need for closer cooperation between coastal countries to deal with common environmental challenges. Cooperation is crucial for achieving targets on clear water, a rich and healthy wildlife and clean and safe shipping. As outlined earlier, a number of trends point to an increasingly challenging cooperation environment and efforts may be needed to face these, which may make it harder to implement Baltic Sea Cooperation actions.

<table>
<thead>
<tr>
<th>Trends pointing to increasing challenges</th>
<th>Trends pointing to easy gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>A number of trends pose increasing challenges to international cooperation and the achievement and implementation of international compromises:</td>
<td>A number of governance related trends may support the sub-objective:</td>
</tr>
<tr>
<td>• Increasing global tension</td>
<td>• Delegation to supranational players</td>
</tr>
<tr>
<td>• Increasing role of perceptions and believes</td>
<td>• Diffusion of power to networks and coalitions</td>
</tr>
<tr>
<td>• Nationalism</td>
<td>• Thrive towards more democracy</td>
</tr>
<tr>
<td>• Rising tensions between Russia and Europe</td>
<td>• Collaborative governance approaches</td>
</tr>
</tbody>
</table>

Better cooperation implies public intervention. Trends pointing to increasingly scarce financial resources may make that more challenging:

• Increasing public debts

Connect the Region

The Baltic Sea Region is characterised by long distances (especially to remote northern parts), the sea that links but also divides sub-regions and long external EU borders. All these pose special challenges to communication and physical access in the region. In particular, the Eastern Baltic Member States, with their internal networks largely oriented East-West, are in need of substantial investment in communication, transport and energy infrastructure. In addition to being costly and energy inefficient, these missing links are obstacles to the Internal Market and to the goal of territorial cohesion.

Sub-objective: Good transport conditions

This sub-objective addresses transport challenges which come with the geography of the Baltic Sea Region. Transport is particularly important for development of the region as the distances - internally, to the rest of Europe and to the wider world - are great and conditions for traffic are often difficult. The region, which is on the periphery of the economic centre of Europe, depends strongly on foreign trade in goods. Well-functioning transport infrastructure is essential for economic growth. A number of trends point to the importance of transport, and to increasing and changing transport needs. Some trends could radically change the way transport is thought about and handled today. Further concentration on transport hubs may challenge locations in the Baltic Sea Region.
A number of trends point to additional needs for improving good transport conditions and the smooth handling of emerging transport needs and routes, both within the regions and internationally.

- Increasing focus in transport hubs
- Further urbanisation
- Migration pressures and flow

Improving transport conditions also needs to take into account trends regarding material resources and financing possibilities:

- Peak of everything
- Increasing public debts

New solutions and changing contexts may support the development and improvement of transport conditions:

- 4th industrial revolution
- Hypermobility

Increasing transport demands at the global level may also provide positive stepping stones for improving transport conditions in the Baltic Sea Region:

- Global demographic growth
- Increasing middle class

Sub-objective: Reliable energy markets

This sub-objective addresses the further development and integration of energy markets within both the Baltic Sea Region and the EU. This primarily concerns Estonia, Latvia and Lithuania, which still depend on imports of energy from third countries and are considered an ‘energy island’ in the EU. Energy issues will certainly remain important for the future and the discussion will be shaped by international cooperation, energy resource trading and scarce resources, as well as new energy resources and economic and technological changes providing new solutions and needs.

A number of trends pose increasing challenges to smooth international energy cooperation with Third countries:

- Increasing global tension
- Delegation of power to supranational players
- Nationalism
- Rising tensions between Russia and Europe

Building reliable energy markets also needs to take into account trends regarding material resources and financing possibilities:

- Peak of everything
- Increasing public debts

New solutions and changing contexts may support the development and improvement of energy market conditions:

- 4th industrial revolution
- Alternative energy

Some economic trends may also work in favour of more integrated and also local energy solutions:

- Circular economy
- Green growth & clean tech
- Blue growth

Some governance related trends may support the sub-objective:

- Diffusion of power to networks and coalitions
- Collaborative governance approaches
Sub-objective: Connecting people in the region
This sub-objective addresses people who need to be connected to cooperate. This includes access to communication networks and the internet for a seamless flow of information and closer and more instantaneous cooperation and exchange. Although some trends point to challenges related to this sub-objective, most trends seem to support developments to a more connected world.

<table>
<thead>
<tr>
<th>Trends pointing to increasing challenges</th>
<th>Trends pointing to easy gains</th>
</tr>
</thead>
</table>
| Social changes for which broad acceptance may be challenging and which may pose challenges to increasing connectivity and the use of ICT:  
  - Changing understanding of privacy  
  - Changing roles of corporate and public players  
Building connecting infrastructure needs to take into account trends with limiting factors:  
  - Further urbanisation (as concerns rural areas left out)  
  - Increasing public debts  | New solutions and changing contexts may support the connection of people:  
  - 4th industrial revolution  
  - Robotics & digitisation increasing productivity  
  - Robotics & digitisation replacing humans  
  - Big data  
  - Internet of things  |

Social changes favouring a more connected society:  
  - Diffusion of power to networks and coalitions  
  - Collaborative governance approaches

Sub-objective: Better cooperation in fighting cross-border crime
This sub-objective highlights that a lack of a sense of security and confidence makes it extremely difficult, if not impossible, to achieve development of any kind. Long external EU borders, which are easy to cross, pose particular challenges to the Baltic Sea Region, including the (national) responsibilities of many Member States to protect the safety and security of the Union as a whole. Most trends which can be related to this sub-objective point to increasing challenges in the area which underline the need to increase efforts.

<table>
<thead>
<tr>
<th>Trends pointing to increasing challenges</th>
<th>Trends pointing to easy gains</th>
</tr>
</thead>
</table>
| A number of trends pose increasing challenges to international cooperation and the implementation of international compromise:  
  - Increasing global tension  
  - Nationalism  
  - Rising tensions between Russia and Europe  
Other trends may hold challenges for better cooperation:  
  - Increasing migration pressures and flows  
  - Increasing public debts  | A number of governance related trends may support the sub-objective:  
  - Delegation to supranational players  
  - Diffusion of power to networks and coalitions  
  - Collaborative governance approaches  |
Increase Prosperity

Some of the most successful and innovative regional economies in Europe are in the Baltic Sea Region, and parts of the Baltic Sea Region are fast catching up with the European average. In general, the region’s competitiveness is closely related to high education levels. Other key factors are entrepreneurship, innovation and trade. Germany, Poland and Sweden, the three biggest trading countries in the Baltic Sea Region, have a smaller share of total trade within the Baltic Sea Region than do Estonia or Lithuania.

Sub-objective: Baltic Sea Region as a frontrunner for deepening and fulfilling the single market

With the exception of Germany, domestic markets in the Baltic Sea Region are relatively small and depend heavily on trade within the Baltic Sea Region to maintain their competitiveness. Consequently, it is important to fully implement the single European market and lower unjustified trade barriers to neighbouring countries. While some trends imply increasing projectionism and support ‘drawbridge up’ tendencies, other economic and technological trends will bring a stronger focus beyond domestic markets and drive increasing market integration where there are competitive advantages for players in the Baltic Sea Region.

<table>
<thead>
<tr>
<th>Trends pointing to increasing challenges</th>
<th>Trends pointing to easy gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trends posing more challenges for further market integration as they put national interests first:</td>
<td>A number of governance related trends may drive market integration:</td>
</tr>
<tr>
<td>• Nationalism</td>
<td>• Delegation to supranational players</td>
</tr>
<tr>
<td>Other challenging trends concern the scarcity of natural resources and public funding, as well as social</td>
<td>• Diffusion of power to networks and coalitions</td>
</tr>
<tr>
<td>changes for which broad acceptance may be challenging and result in ‘drawbridge up’ behaviour:</td>
<td>• Collaborative governance approaches</td>
</tr>
<tr>
<td>• Peak of everything</td>
<td>New solutions and changing contexts may drive players to larger internal markets and in consequence market integration:</td>
</tr>
<tr>
<td>• Increasing public debts</td>
<td>• Green growth &amp; clean tech</td>
</tr>
<tr>
<td>• Changing understanding of privacy</td>
<td>• Blue growth</td>
</tr>
<tr>
<td>• Changing roles of corporate and public players</td>
<td>• 4th industrial revolution</td>
</tr>
<tr>
<td></td>
<td>• Robotics &amp; digitisation increasing productivity</td>
</tr>
<tr>
<td></td>
<td>• Robotics &amp; digitisation replacing humans</td>
</tr>
<tr>
<td></td>
<td>• Big data</td>
</tr>
<tr>
<td></td>
<td>• Internet of things</td>
</tr>
</tbody>
</table>
Sub-objective: EUSBSR contributing to implementation of Europe 2020 Strategy

EUSBSR links closely to the Europe 2020 strategy and current EU policy developments for smart, sustainable and inclusive growth. EUSBSR also reinforces other EU policies, such as climate change policies, resource efficiency or the new approach to European areas and innovation. While some trends point to changing understanding of economic growth, which may challenge the Europe 2020 objectives, there are a wide range of economic and technological trends which could drive smart, sustainable and/or inclusive growth.

<table>
<thead>
<tr>
<th>Trends pointing to increasing challenges</th>
<th>Trends pointing to easy gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>New economic models, alternative thinking which challenge the jobs and growth argument of the European 2020 strategy:</td>
<td>New solutions and changing contexts may drive developments towards smart, sustainable and inclusive growth:</td>
</tr>
<tr>
<td>• Beyond GDP</td>
<td>• 4th industrial revolution</td>
</tr>
<tr>
<td>• Decoupling of growth &amp; jobs</td>
<td>• Circular economy</td>
</tr>
<tr>
<td>• Ageing society</td>
<td>• Sharing economy</td>
</tr>
<tr>
<td>• Further urbanisation</td>
<td>• Green growth &amp; clean tech</td>
</tr>
<tr>
<td>• Rising social inequalities and gaps</td>
<td>• Blue growth</td>
</tr>
<tr>
<td>• Robotics &amp; digitisation replacing humans</td>
<td>• Robotics &amp; digitisation increasing productivity</td>
</tr>
<tr>
<td>• Increasing public debts</td>
<td>• Big data</td>
</tr>
<tr>
<td></td>
<td>• Internet of things</td>
</tr>
<tr>
<td></td>
<td>• Alternative energy</td>
</tr>
</tbody>
</table>

Sub-objective: Improved global competitiveness of the Baltic Sea Region

Globalisation implies increased competition and collaboration between players in different countries and regions regarding investments in production, knowledge, and innovation. EUSBSR strives to increase cooperation in key economic areas to ensure that the Baltic Sea Region creates a vibrant, innovation environment. A number of governance related trends point to ‘drawbridge up’ developments which may challenge further globalisation. This could be supported by trends pointing to increasingly difficult comparative positions of players in the Baltic Sea Region compared to other areas in the world. This may also affect acceptance of measures to increase global competitiveness. On the other hand, a number of governance, technological and economic trends may support globalisation and the position of Baltic Sea Region players in a global context.
### Trends pointing to increasing challenges

A number of ‘governance’ trends pose increasing challenges to a smooth approach towards more globalisation:

- Increasing global tension
- Nationalism
- Rising tensions between Russia and Europe

Trends that may inhibit a stronger positioning of the Baltic Sea Region in a globalised economy:

- Decoupling of growth & jobs
- Ageing society in Europe
- Young ambitious societies outside Europe
- Rising social inequalities and gaps
- Robotics & digitisation replacing humans
- Increasing public debts
- Increasing focus on transport hubs

### Trends pointing to easy gains

A number of governance related trends may drive market integration:

- Delegation of power to supranational players
- Diffusion of power to networks and coalitions
- Collaborative governance approaches

New solutions and changing contexts may drive developments towards smart, sustainable and inclusive growth:

- 4th industrial revolution
- Circular economy
- Green growth & clean tech
- Blue growth
- Robotics & digitisation increasing productivity
- Big data
- Internet of things
- Natural resources becoming important again

Global demographic developments may increase the number of customers elsewhere in the world:

- Global demographic growth
- Increasing middle class

---

**Sub-objective: Climate change adaptation, risk prevention and management**

The Baltic Sea Region is a sensitive eco-region, and all countries are vulnerable to climate change with potential impacts on human security, the environment and competitiveness. The impacts of climate change on the ecosystem of the Baltic Sea Region can be particularly severe because of the region’s location, the cold climate and vulnerability of the natural environment. Although the trends discussed concern climate change adaptation rather indirectly, the sub-objective remains central for the future of the Baltic Sea Region.

### Trends pointing to increasing challenges

Trends inhibiting smooth international cooperation on climate change:

- Increasing global tension
- Nationalism
- Increasing public debts

Trends that will further challenge achievement of this sub-objective:

- Climate change
- Scarcity of natural resources
- Growing importance of the Arctic

### Trends pointing to easy gains

Governance related trends that may support the sub-objective:

- Diffusion of power to networks and coalitions
- Collaborative governance approaches

Trends that may support climate change adaptation:

- Peak of everything
- Circular economy
- Green growth & clean tech
- Blue growth
Annex 2 -
Wildcards and uncertainties

The above trends and other developments come with a wide range of uncertainties. To stimulate thinking about possible - though unlikely - events which may change the development paths sketched in the above chapters, this section presents wild cards. Some of them may actually be not so ‘wild’ and perhaps should be viewed as emerging trends, so called ‘seeds’. What is a wild card and what is a ‘seed’ we leave are up to the reader to judge. The wild cards are largely taken from existing studies.44

### Political wildcards

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Early indications</th>
<th>Likelihood</th>
<th>Impact</th>
<th>Duration</th>
<th>Geography</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>End of EU Cohesion Policy</strong></td>
<td>Following an economic and short term argument that investments in single projects and single sector policies are more efficient than comprehensive regional development policies, the EU winds down Cohesion Policy after 2020 and abolishes it by 2028.</td>
<td>Side-lining Cohesion Policy and putting more focus on the Juncker Plan and similar investment plans.</td>
<td>MEDIUM</td>
<td>STRONG</td>
<td>LONG</td>
<td>All over the EU, but in particular Southern and Eastern Europe would suffer.</td>
</tr>
<tr>
<td><strong>EU no more</strong></td>
<td>Increasing dissent between EU Member States leads to a series of voluntary as well as forced exists which subsequently leads to the collapse of the EU.</td>
<td>Brexit and perhaps Greece leaving the EU, followed by for instance Sweden or Denmark.</td>
<td>LOW</td>
<td>VERY STRONG</td>
<td>LONG</td>
<td>All over the EU, more pronounced at the Northern and Southern fringes.</td>
</tr>
</tbody>
</table>
### Privatisation of EU Commission Services

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Early indications</th>
<th>Likelihood</th>
<th>Impact</th>
<th>Duration</th>
<th>Geography</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privatisation of EU Commission Services</td>
<td>As private sector management is considered to be more flexible and efficient, the European Commission and Parliament steadily outsource their back office functions. By 2030, they decide to close all their administration services and outsource to a single tenderer.</td>
<td>Reduction of employees in the Commission Services while increasing outsourcing through easy-to-handle framework contracts.</td>
<td>LOW</td>
<td>MEDIUM</td>
<td>LONG</td>
<td>All over the EU.</td>
</tr>
</tbody>
</table>

**Likelihood**

**Impact**

**Duration**

**Geography**

### Russia joins the EU

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Early indications</th>
<th>Likelihood</th>
<th>Impact</th>
<th>Duration</th>
<th>Geography</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia joins the EU</td>
<td>Despite regular geopolitical conflicts, the process of economic integration between the EU and Russia will continue. First, a pan-European single market is established, later Russia becomes a regular member state of the EU.</td>
<td>The Russian and EU economies are already highly interdependent. Both sides would benefit from transnational trade agreements. Tariff reductions would pave the way towards more integration.</td>
<td>LOW</td>
<td>HIGH</td>
<td>LONG</td>
<td>The Eurasian arc, would emerge as a powerful new player on the world stage.</td>
</tr>
</tbody>
</table>

**Likelihood**

**Impact**

**Duration**

**Geography**

### Societal wildcards

<table>
<thead>
<tr>
<th>Description</th>
<th>Early indications</th>
<th>Likelihood</th>
<th>Impact</th>
<th>Duration</th>
<th>Geography</th>
</tr>
</thead>
<tbody>
<tr>
<td>From a global perspective urbanisation is often driven by poverty and many roads lead to the slums. There is a population surplus which is expelled as it is not required for the economy or society to function. Translated to Europe and the issue of ageing, there is a question of whether, in future, pensioners will become a surplus population and expelled to “grey slums”.</td>
<td>Increasing poverty of pensioners</td>
<td>MEDIUM</td>
<td>STRONG - Increasing social and territorial disparities and conflict.</td>
<td>LONG</td>
<td>Rural areas in particular, areas surrounding urban agglomerations.</td>
</tr>
<tr>
<td>Name</td>
<td>Europeans emigrate to boom economies in Asia and Africa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Europe is an old continent with regard to demographic processes. For lifestyles and business opportunities, however, Europe increasingly frequently follows trends set by booming economic centres in Asia and Africa. Consequently, young talent with a hunger for life and development leaves Europe and emigrate to “where the music is playing”.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early indications</td>
<td>It becomes ever more difficult for companies in Europe to attract global talent. In leading sectors, the best Europeans seek jobs in other parts of the world.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood</td>
<td>MEDIUM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact</td>
<td>HIGH - The downward demographic trend accelerates and the social welfare system totally collapses, only receivers remain in Europe while potential contributors clamour to leave the ‘sinking ship’.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>LONG - It would probably take a number of generations before people see Europe again as an attractive place.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td>While rural areas already experience the ‘brain drain’, such a development would impact urban areas with a young and well-educated population.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Severe pandemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>A severe epidemic of infectious disease spreads through human populations across a large region, multiple continents, or even worldwide. Not noticed in time it spreads rapidly in a globally integrated world with a lot of causalities.</td>
</tr>
<tr>
<td>Early indications</td>
<td>WHO monitoring notes emerging epidemics, how far they are spreading and what treatments are available.</td>
</tr>
<tr>
<td>Likelihood</td>
<td>MEDIUM</td>
</tr>
<tr>
<td>Impact</td>
<td>MEDIUM - Global, with hotspots of infections and causalities. Some areas see social and economic activities and long-term perspectives severely affected.</td>
</tr>
<tr>
<td>Duration</td>
<td>SHORT - Probably a few years.</td>
</tr>
<tr>
<td>Geography</td>
<td>Worldwide, with specific geographical hotspots</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Globalisation stalls or even moves backwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Increasing global tensions lead to breakdowns in world trade, implying that interaction between players in different countries does not develop, or even declines. As global trade is an important driver for economic development this implies the loss of economic benefits from global markets rather than national ones.</td>
</tr>
<tr>
<td>Early indications</td>
<td>Increasing number of trade hindrances and major players - e.g. the USA - leaving the World Trade Organisation and its trade agreements, while not replacing them with bilateral free trade agreements.</td>
</tr>
<tr>
<td>Likelihood</td>
<td>MEDIUM</td>
</tr>
<tr>
<td>Impact</td>
<td>MEDIUM - Declining global trade would impact economic growth and prosperity in areas dependent on exports. These suffer economic decline and rising unemployment with spillover effects on areas from where they import.</td>
</tr>
<tr>
<td>Duration</td>
<td>MEDIUM - In the medium turn the economic system and societies would adjust to the new situation.</td>
</tr>
<tr>
<td>Geography</td>
<td>Worldwide with a particular focus on regions very open to global trade.</td>
</tr>
</tbody>
</table>
## Technological wildcards

<table>
<thead>
<tr>
<th>Name</th>
<th>Breakthrough in nuclear fusion technology changes energy landscape and stops global warming</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>A nuclear fusion reactor would replicate the sun’s energy on Earth - with limited energy input - substantially changing the availability of energy and impact of energy use on the environment and climate change. This would change all kinds of economic and social activities which are limited today by price and the scarcity of energy.</td>
</tr>
<tr>
<td><strong>Early indications</strong></td>
<td>Possibility to generate fusion energy with lower energy input than output.</td>
</tr>
<tr>
<td><strong>Likelihood</strong></td>
<td>HIGH</td>
</tr>
<tr>
<td><strong>Impact</strong></td>
<td>HIGH - Substantial impact for all activities relying on energy input.</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>LONG - By the middle of this century fusion technology may function and replace existing energy sources.</td>
</tr>
<tr>
<td><strong>Geography</strong></td>
<td>Generally, this would change energy supply issues worldwide. Depending on who invents and owns the reactor, it may actually become a tool for advanced economic and political power plays and limit access to some areas.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Back to analogue - the collapse of ICT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>More incidences concerning the misuse of electronic information (partly on purpose by companies with access to personal and business information and partly through hacking) leads to a loss of trust in ICT technology. People increasingly work and communicate offline. By 2025 the share of people and businesses no longer trusting in online systems reaches a critical level and kicks off a downwards spiral which ends in internet and online services only being used by a few hard core ‘nerds’.</td>
</tr>
<tr>
<td><strong>Early indications</strong></td>
<td>Increasing internet security problems and decreasing use of internet, online and cloud solutions by people and businesses.</td>
</tr>
<tr>
<td><strong>Likelihood</strong></td>
<td>LOW</td>
</tr>
<tr>
<td><strong>Impact</strong></td>
<td>HIGH - Stopping development towards a fully interconnected information society will require us to rethink and reorient the ways in which business and private life is organised.</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>LONG - It would probably take at least one generation before people are open again to move in another direction.</td>
</tr>
<tr>
<td><strong>Geography</strong></td>
<td>For urban areas this will mainly affect high-end business developments, while in rural areas remote service provision will be affected.</td>
</tr>
<tr>
<td>Name</td>
<td>Nuclear War or WDM/Cyber Attack</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Description</td>
<td>Geopolitical tensions are not solved by diplomatic means but turn to damaging aggression by countries or other organisations able to employ devastating tools. This could be nuclear war or a cyber-attack.</td>
</tr>
<tr>
<td>Early indications</td>
<td>Increasing aggression of powerful players with access to advanced tools and indicating the willingness to use them.</td>
</tr>
<tr>
<td>Likelihood</td>
<td>LOW</td>
</tr>
<tr>
<td>Impact</td>
<td>HIGH - Depending on the magnitude of the event, smaller or larger territorial areas will be affected and in these economic activity will slow. With a nuclear attack the population will be badly affected. A cyber-attack could range from a disruption of services to a changed balance of global power.</td>
</tr>
<tr>
<td>Duration</td>
<td>LONG - for a nuclear attack the effects would be measured in thousands of years, for a cyber-attack the duration could be from weeks to years.</td>
</tr>
<tr>
<td>Geography</td>
<td>Any part of the world could be affected. Nuclear powers such as Russia and Pakistan and potential aspirants such as Iran and North Korea.</td>
</tr>
<tr>
<td>Name</td>
<td>Solar Geomagnetic Storms</td>
</tr>
<tr>
<td>Description</td>
<td>A temporary disturbance of the Earth’s magnetosphere could result from a solar wind shock wave and/or magnetic cloud that interacts with the Earth’s magnetic field. This would impact all electric systems and communication infrastructure.</td>
</tr>
<tr>
<td>Early indications</td>
<td>Declining strengths of the earth’s magnetic field, magnetic poles moving.</td>
</tr>
<tr>
<td>Likelihood</td>
<td>LOW</td>
</tr>
<tr>
<td>Impact</td>
<td>MEDIUM - The solar storm would affect technology, hitting almost every aspect of the modern world relying on electronic devices, the internet and satellite navigation systems. Most impacts would be on areas of economic activity but also general services such as transport, sanitation and medicine.</td>
</tr>
<tr>
<td>Duration</td>
<td>SHORT - Although expensive to repair the effects would be short lived.</td>
</tr>
<tr>
<td>Geography</td>
<td>Worldwide.</td>
</tr>
</tbody>
</table>
## Environmental wildcards

<table>
<thead>
<tr>
<th>Name</th>
<th>No common climate action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Climate governance responsibilities shift from the EU to Member States. These lobby for less EU regulation and more voluntary action by themselves in climate action. This leads to the loss of binding EU targets and EU commitments to the UNFCCC, and to the weakening of EU power to take countries to court if they breach commitments.</td>
</tr>
<tr>
<td><strong>Early indications</strong></td>
<td>Several summits take place but little progress is made. Developing countries claim their ‘fair’ share of CO2 and greenhouse gas emissions.</td>
</tr>
<tr>
<td><strong>Likelihood</strong></td>
<td>MEDIUM</td>
</tr>
<tr>
<td><strong>Impact</strong></td>
<td>HIGH - Complete failure to limit EU greenhouse gas emissions, voluntary consensus on emissions cuts would not be achieved and agreements already concluded would not be followed.</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>LONG - If the common ground vanishes, it will take a long time to rebuild trust and negotiate new agreements, especially at the global level.</td>
</tr>
<tr>
<td><strong>Geography</strong></td>
<td>First in the EU, afterwards international.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Much more rapid climate change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Climate change models are too modest, underestimating feedback loops and their impact on accelerating climate change. In turn humanity is surprised by much faster and stronger climate change, making even the most extreme forecasts of the IPCC look modest.</td>
</tr>
<tr>
<td><strong>Early indications</strong></td>
<td>Rapidly increasing greenhouse gases and volatile weather conditions over most parts of the world with extreme events replacing each other ever faster.</td>
</tr>
<tr>
<td><strong>Likelihood</strong></td>
<td>LOW</td>
</tr>
<tr>
<td><strong>Impact</strong></td>
<td>HIGH - Environmental conditions changing so fast that economic and social systems are unable to address the changes, leading to severe economic downturn and social unrest.</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>LONG - Climate change would not be possible to reverse.</td>
</tr>
<tr>
<td><strong>Geography</strong></td>
<td>The world.</td>
</tr>
</tbody>
</table>
Endnotes

3 Institute for Futures Studies and Technology Assessment, ‘Meetings and Conventions 2030: A Study of Megatrends Shaping Our Industry’ (German Convention Bureau, 2014).
8 Institute for Futures Studies and Technology Assessment.
9 National Intelligence Council.
12 Glenn, Florescu and the Millennium Project Team.
13 National Intelligence Council.
14 According to http://world.bymap.org/MedianAge. html the figures are Sweden 41.2, Finland 42.4, Estonia, 42.1, Latvia 42.9, Lithuania 43.1, Poland 39.9, Germany 46.5, Denmark 41.8, Norway 39.1 and Russia 39.1.
17 Randers.
18 Institute for Futures Studies and Technology Assessment.
19 Amanatidou, E. et al.
27 Nordic Council of Ministers.
28 European Commission.
29 Royal Dutch Shell.


34 European Commission; EY; Ross.

35 Steve Case, *The Third Wave* (Simon & Schuster, 2016); Glenn, Florescu and the Millennium Project Team.

36 European Commission.

37 KPMG International and Mowat Centre.


40 European Strategy and Policy Analysis System.


42 European Strategy and Policy Analysis System.

