SPECIAL TASK FORCE (MEMBER STATES, COMMISSION, EIB) ON INVESTMENT IN THE EU

FINAL TASK FORCE REPORT

DISCLAIMER:

There are **no financing commitments** by the EC, the EIB or any Member State for any of the projects included in this report (country lists and/or illustrative project examples) and the inclusion of projects in the report does not entitle them to preferred access to national or European resources. They have not been subject to specific assessment by the Commission, EIB or the Task Force Members (i.e. Member States) and hence do not imply the support of the particular investment proposal by these organisations.

This document is the result of the work of the Task Force and as such certain views may not necessarily represent the position of the European Commission, the EIB, or any particular Member State.

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LIST OF ABBREVIATIONS

CCS	Carbon Capture and Storage
CEF	Connecting Europe Facility
EC	European Commission
EIB	European Investment Bank
ELTIF	European Long Term Investment Funds
ESFRI	European Strategy Forum on Research Infrastructures
ESIF	European Structural and Investment Funds
ETS	Emissions Trading System
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
ICT	Information and Communication Technologies
KETs	Key Enabling Technologies
PCI	Projects of Common Interest
PPP	Public-Private Partnership
R&D	Research and Development
SET Plan	European Strategic Energy Technology Plan
SMEs	Small and Medium-sized companies
TA	Technical Assistance
TEN-T	Trans-European Transport Network
TEN-E	Trans-European Energy Network

EXECUTIVE SUMMARY

Six years after the global financial crisis started, the pace of economic recovery in the EU is still slow. Weak investment has been the primary reason for the slow recovery. Although there is considerable variation between Member States and sectors, EU investment activity in 2013 was some 15 percent below the pre-crisis peak in real terms, with the shortfall ranging from 25 to over 60 percent in the hardest-hit Member States.

Decisive action is needed in order to create a stable economic, financial and regulatory environment enhancing investment and restoring Europe's attractiveness. The current subdued level of investment activity jeopardises Europe's long-term growth potential. It leads to an erosion of the existing productive capital stock. Europe is not making the productive investment in human and physical capital that is needed for future competitiveness, growth and employment, and is thus falling behind other leading economies worldwide.

Against this background, during its informal meeting in September, the ECOFIN Council requested the Commission and the EIB, in coordination with Member States, to set up a Task Force to identify viable investments of European significance that are currently not being realised due to economic, regulatory or other reasons. This report is intended to serve as an initial building block towards the accomplishment of a comprehensive Jobs, Growth and Investment package promoted by the new President of the European Commission.

The overall objective of the Task Force was to provide an overview of the main investment trends and needs; analyse the main barriers and bottlenecks to investment; propose practical solutions to overcome those barriers and bottlenecks; identify strategic investments with EU added value that could be undertaken in the short run; and make recommendations for developing a credible and transparent pipeline for the medium to long term. The work of the Task Force focused on the following key growth areas: knowledge, innovation and the digital economy; the energy union; transport; social infrastructure; and resources and environment. It has also analysed investment with regard to the SMEs and Mid-caps, given the latters' importance as the backbone of the EU economy, providing for significant job creation, innovation and growth.

The investment potential in Europe is there: over an ambitiously short timeline the Task Force was able to identify EUR 1.3 trillion of potential investments (some 2 000 projects) based on the information it received, out of which EUR 500 billion is over the next three years. In addition to this, the Commission has also identified a number of projects of European importance currently developed under different EU initiatives. Along with it, the Task Force has also identified a wide array of barriers and bottlenecks that currently hamper investment.

Macroeconomic uncertainty, insufficient structural reforms, an incomplete single market, as well as regulatory constraints all take a toll on the investment climate. Furthermore, many governments and parts of the private sector continue to face deleveraging pressures that have been exacerbated by the crisis-induced fragmentation of the EU capital markets, thus reducing the availability of adequate funding. Finally, the preparation and structuring of investment projects suffers from complexities related to the allocation and management of project risks, lack of standard project structures, long lead times for preparation, and special challenges regarding smaller sized and cross-border projects. These barriers were also strongly shared by the private sector in information sharing meetings held.

The key challenge right now is to unlock these barriers that keep promoters - private and public alike - from launching their investments. Importantly, many of the identified projects/programmes can

generate both private and public benefits. This means that well-designed government support for those projects/programmes can potentially catalyse substantial follow-on interest and investment by the private sector. It is exactly the catalytic impetus that needs to be harnessed in order to put Europe on a sustained upward investment and growth trajectory.

The Task Force concludes that immediate action is necessary in order to:

- Develop a credible and transparent pipeline of investment projects;
- Ensure efficient and attractive access to finance for project companies; and
- Foster a business friendly environment across the EU.

A number of key actions have been identified by the Task Force:

1. Improved business environment

a. Sound framework conditions, including better regulation and deeper capital markets are essential for investment. The European Semester should further strengthen those structural reforms that promote a predictable and conducive business climate. In this direction, Member States should step up the implementation of country specific recommendations making Europe an attractive place for investment.

2. Development of long-term investment plans

a. Emphasize long-term political commitment and project/programme (pipeline) administration capacity among Member States and their institutions. That pipeline of socially and economically viable projects/programmes is best articulated in the context of a strategic long-term investment plan, while avoiding extra administrative burden.

b. The transparency of project/programme pipelines and exchange of best practice between Member States will increase the attractiveness for private investment. One such solution could be a central EU-level web site to provide links to the Member States' project/programme pipelines and include an EU project/programme pipeline (e.g. projects under the Connecting Europe Facility and European Structural and Investment Funds). Strategic long-term investment plans as well as project/programme pipelines could be published by Member States on dedicated websites. Confidentiality of commercially sensitive information would naturally be respected.

3. Technical assistance

a. Support for project/programme preparation and implementation should be further increased to also assist in project/programme pipeline selection and design to the extent possible. An EU investment advisory hub should be promoted to ensure a continuous and effective advisory service.

b. Focused project structuring advice, including capacity building and procedural standardisation, such as for PPPs, with a view to attract additional private investment to projects/programmes of EU significance should be fostered.

4. Value for Money assessments

a. For viable project/programmes, Member States should systematically carry out value-for-money project/programme assessments in order to identify the most efficient project/programme structuring solution. The Commission and the EIB could provide advice and develop guidelines in this effect.

5. Financial Instruments

a. In order to advance viable projects that are currently not being financed, the European Commission and the EIB should explore and propose financial instruments. These should be aimed at catalysing private investments in projects/programmes of EU significance, tailored to Member States needs, including also possible cooperation with National Promotional Banks. In this context, the EIB should also consider how to maximise its added value through its participation in these projects.

b. Member States could accelerate and increase the use of financial instruments, including under the European Structural and Investment Funds, for example to support SMEs and Mid-caps including low carbon economy, in order to attract private investment and optimise the use of public funds.

Focusing on the right reforms, expanding the role of the private sector and developing an EU infrastructure market will foster economic growth, competitiveness, employment and social well-being.

1. INTRODUCTION

During its informal meeting of 13 September, the ECOFIN Council requested the Commission and the EIB in coordination with Member States to set up a Task Force to identify viable investments of European significance that are currently not being realised due to economic, regulatory or other reasons. The European Council of 23-24 October welcomed the establishment of the Task Force and invited the Commission and the Council, in close cooperation with the EIB, to take this investment initiative forward without delay, and to report to the European Council in December.

This report concludes the work of the Task Force and contributes to the foundations for a transparent EU long-term strategic investment plan. It is among the important initial building blocks of the comprehensive Investment package promoted by the new President of the European Commission. The Vice President in charge of Growth, Jobs, Investment and Competitiveness is in charge of implementing this plan.

As regards terminology used, the report refers to investment "projects" for brevity, but that reference should be understood to comprise investment programmes as well.

1.1 ECONOMIC OVERVIEW

After more than six years since the onset of the global financial crisis, the pace of economic recovery in the EU has been slow. Weak investment has been one of the main reasons for the weakness of the recovery. Although there is considerable variation between Member States and sectors, EU investment activity in 2013 was 15 percent[1] or some EUR 430 billion below the pre-crisis peak in real terms; in the hardest-hit Member States the shortfall ranges from 25 to over 60 percent. The weakness reflects low demand growth, low levels of capacity utilisation, heightened economic and policy uncertainty, and, in some countries, the bursting of construction/ housing bubbles, corporate deleveraging and financing constraints.

The current subdued level of investment activity jeopardises Europe's long-term growth potential. It leads to an erosion of the existing productive capital stock and, worryingly, it means that Europe is not making the productive investment in human and physical capital that is needed for future competitiveness, growth and employment. Indeed, productivity growth in the EU has trailed behind that in the US and other leading economies since the 1990s. This trend has undermined the ability of European firms to compete in the global economy and to provide rewarding jobs and a high standard of living.

It also helps explain why EU-wide recovery still presents such a challenge. Annual Gross Domestic Product (GDP) growth in the EU this year is anticipated to be relatively moderate at 1.3%, while growth in the euro area is expected to be 0.8%[2]. The EU's recovery appears particularly weak, not only in comparison to other advanced economies but to historical examples of post-financial crisis recoveries.

Expected GDP growth, which was already relatively slow before the crisis as a result of low productivity gains, has fallen further due to low investment and high structural unemployment. Youth unemployment remains at historically high levels. Unemployment is projected to remain high and the euro area's economy to have remaining spare capacity at the end of 2016.

It is imperative to find ways to break this vicious circle and turn it into a virtuous circle, where investment projects contribute towards a stronger increase in employment, most importantly youth employment and demand as well as, to a sustained increase in potential growth. Accelerating sound

[1] Based on ESA 2010.
[2] According to the Autumn 2014 European Economic Forecast
http://ec.europa.eu/economy_finance/publications/european_economy/2014/pdf/ee7_en.pdf

investment is hence not only indispensable for the current economic recovery, but also to secure economic growth and employment in future.

1.2 OBJECTIVES, STRUCTURE AND METHODOLOGY

The overall objective of the Task Force was to provide an overview of the main investment trends and needs in the selected sectors; analyse the main barriers and bottlenecks to investment; propose practical solutions to overcome those barriers and bottlenecks; identify strategic investments with EU added value that could be undertaken in the short run; and make recommendations for developing a credible and transparent pipeline for the medium to long term.

The work of the Task Force focused on the following key growth areas: a) knowledge, innovation and the digital economy; b) energy union; c) transport; d) social infrastructure; and e) resources and environment. The objectives, sectors and deliverables have been agreed between the members of the Task Force and were reflected in the Terms of Reference (see Annex 4) and presented to the EFC and ECOFIN meetings of October.

To collect information, Member States were asked to reply to a questionnaire addressing the main topics of the Task Force (Annex 3). Member States' replies together with the joint Commission-EIB analysis were presented and discussed during the meetings of the Task Force. In the course of the Task Force work, there were also two meetings with a limited number of private sector representatives and private-public associations – the Tatra Investment Forum held in Bratislava on 11 November and a special meeting organised on the 24 November, both of which attended by Member States' representatives, the Commission and the EIB (see annex 4 for the full list of participants).

The report covers the following areas: Section 2 presents the investment projects identified. Section 3 presents cross-cutting investment challenges and bottlenecks, while Section 4 summarises possible solutions to overcome those challenges as identified by the Task Force. Section 5 presents the sectorial analysis (a more extensive sectorial overview together with illustrative project examples per sector is provided in Annex 1 to the report). Section 6 summarises the main proposed actions and conclusions.

While the report below focuses primarily on large investment projects undertaken by the public sector and large corporates, it is important to acknowledge that there are also smaller investments that are important and need public policy support. Small- and medium-sized companies (SMEs) and Mid-caps are the backbone of the EU economy, accounting for two-thirds of private sector employment and even more of the new jobs created. Bottlenecks related to SMEs and Mid-caps are addressed under the cross-cutting section below.

2. PROJECT IDENTIFICATION

One critical output of the Task Force is the compilation of a list of strategic investments, which could be realised in the short term.

2.1 PROJECT IDENTIFICATION

The Task Force members were asked to provide list of potential investment projects according to the following five project selection criteria:

Key criteria:

- The projects' EU value-added (i.e. projects in support of EU objectives),
- Their economic viability (or "value"), prioritising projects with high socio-economic returns,
- A reasonable expectation that projects can start within the next three years (i.e. capital expenditure incurred in the 2015-17 period).

Additional criteria (to be considered flexibly):

- The projects' potential for leverage of other sources of funding,
- Their size and scalability (e.g. the possibility to bundle smaller investments).

The projects identified are included in this report as Annex 2. To make the sector discussion more tangible a number of illustrative projects are presented. These examples are illustrative of typical projects under each category. They have not been subject to assessment or due diligence by the Commission, EIB or the Task Force and hence do not imply the support of the particular investment proposal by these organisations. Consequently, there is no prioritisation of these projects, intended or otherwise, of these illustrations over those in the submissions by the members of the Task Force.

The projects included in Annex 2 were identified on a best effort basis in the short time frame available and in most cases did not go through an official clearance or approval process with the relevant national authorities. At the same time, they are not intended to provide an inventory of possible investment needs and should thus be considered illustrative and non-exhaustive.

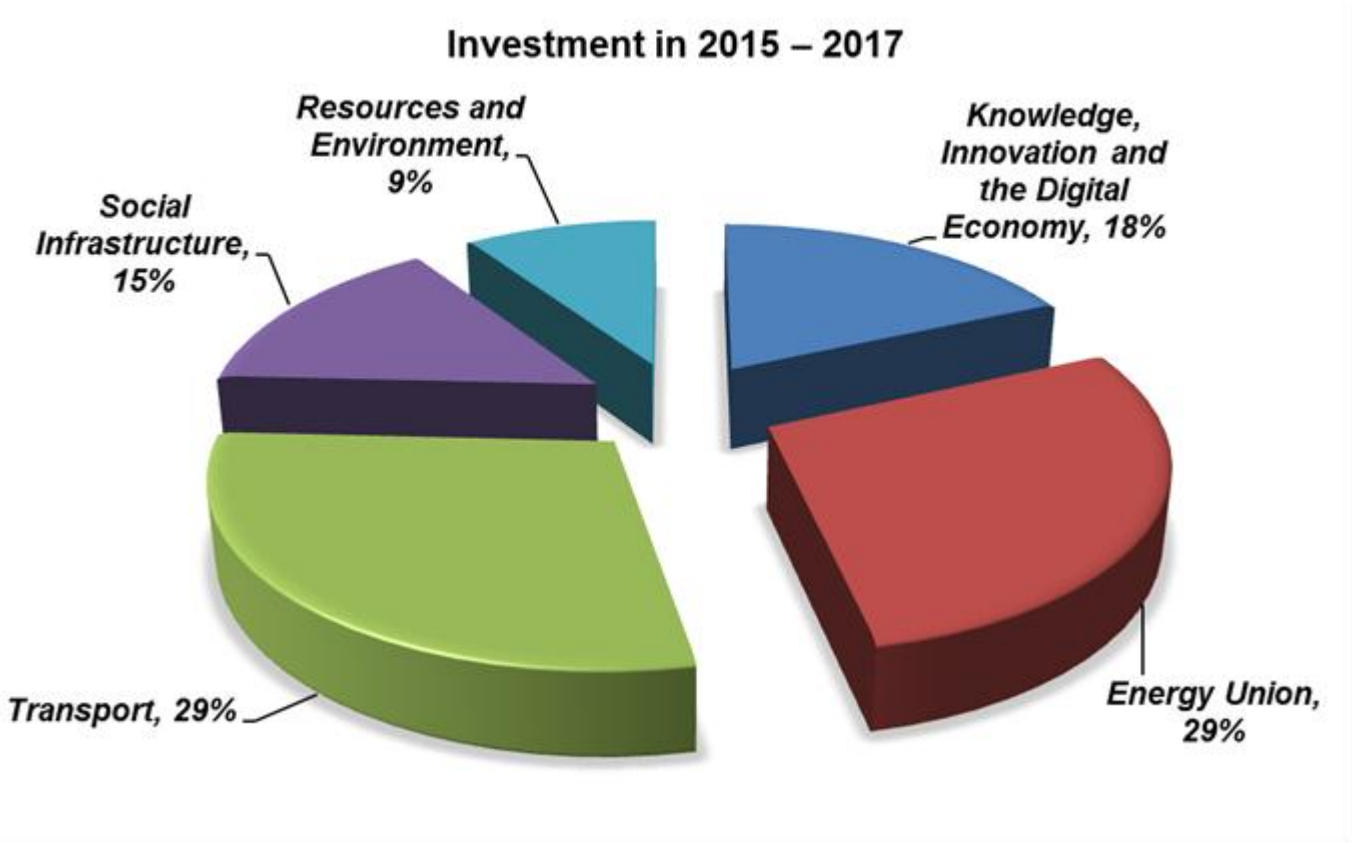
2.2 COUNTRY AND SECTOR DISTRIBUTION

Across Europe, countries are faced with an acute need for long term investment. While significant efforts have been made to improve financing available for investment projects, it is important to recognise that efforts should also be made to more clearly articulate investment needs, notably by establishing strategic investment plans and transparent project pipelines.

All Member States provided illustrative, non-exhaustive lists of potential investments. In total, almost 2,000 **projects** were identified with a total investment cost of EUR 1,300 billion of which **EUR 500 billion** to be realized within the next three years. In most of the cases, Member States did not include projects to be financed by the EIB or by EU programmes such as the European Structural and Investment Funds (ESIF) or the Connecting Europe Facility (CEF). In addition to this, the Commission has also identified a number of projects of European importance currently developed under different EU initiatives.

Given the short time frame, the Task Force was not able to screen the submissions by Member States in detail. These were attached to the report (Annex 2) after minimal re-formatting to ensure consistency of the presentation within the consolidated list. The projects identified by the European Commission are also included in the same Annex.

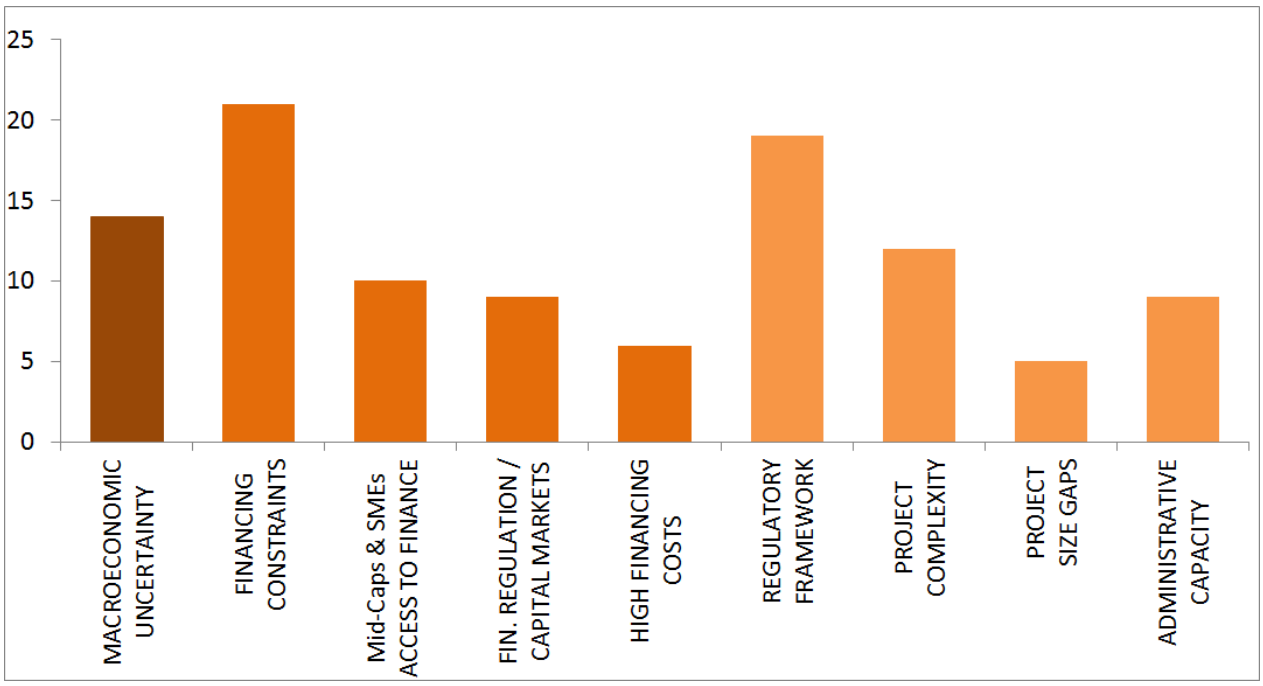
The following graph illustrates the sectorial distribution of the potential investment identified by the Task Force members for the period 2015-2017. Given the time constraints under which the project lists were elaborated and consolidated, these amounts and their sectorial distribution should be considered indicative and subject to revision.



3. CROSS-CUTTING BARRIERS

The Member States' replies to the Questionnaire (Annex 3) consistently clustered around three broad cross-cutting themes: (i) investment climate and regulatory framework, (ii) financing conditions, and (iii) project preparation and management.

The graph below represents the number of different Member States pointing out to a specific issue/ theme:



3.1 INVESTMENT CLIMATE AND REGULATORY REFORM

Macroeconomic uncertainty and the resulting lack of confidence were consistently mentioned by Member States and private sector representatives alike as a major barrier to long term private investment. Macroeconomic uncertainty also feeds into other bottlenecks and barriers, as mentioned throughout this report, creating a self-reinforcing negative effect. Reducing macroeconomic risks should therefore be a key priority for policy makers, even though the Task Force considers that issues related to optimal macroeconomic policy mix fall outside the scope of its mandate.

Economic policy uncertainty brought distortions to investment activity during and in the wake of the sovereign debt problems. Firms, but also households seemed to have postponed spending activity to ‘wait and see’. More recently, overall uncertainty about the economic situation has come to the fore. The longer the period of weak economic growth momentum lasts, the more current economic activity appears to be affected by the economic outlook. Survey-based evidence for the business sector identifies 'insufficient demand' as the most important factor constraining growth in the EU at present[3]. Thus, lack of private sector confidence in future demand restricts the transformation of savings into productive capital.

Member States have undertaken important fiscal consolidation efforts which helped improving market confidence. Growth-friendly consolidation should be accompanied by a renewed commitment to **structural reforms** to reinforce the competitiveness of the European economy and to create conditions to stimulate private investments. Various aspects of the business environment impact on investment

[3] DG ECFIN Business and consumer surveys.

activity, including the costs of starting a business, costs to comply with administrative requirements ("red tape"), access to finance, quality of institutions (including the judicial system), the public procurement regime, protection of property rights (and, on the negative side, extent of corruption), costs of contract enforcement, availability of skilled labour, labour market flexibility, regulatory environment, insolvency and pre-insolvency regulations etc. The Commission has estimated that the euro area GDP could be up to 3.6% higher after 10 years if Member States adopted measures to halve the gap vis-à-vis the average of the three best-performing EU Member States in different labour and product market reform areas.

The **administrative burden** has often been cited as a major bottleneck. According to Commission estimates, a 10% reduction in administrative burdens can over time increase investments by 0.6 percentage point and GDP by 0.8 percentage point. Also the recent report from OECD[4] stressed the importance of administrative simplification. According to this study, unnecessary administrative burdens can be a significant cost for potential investors, especially for SMEs, and can lead to reduced investments and substitution towards the informal sector where rules can be more easily circumvented.

Another major barrier is the lack of a stable and well-designed **regulatory framework** conducive to private investment.

In particular, the **fragmentation** of the internal market is considered a major impediment to investment. An enabling framework, establishing a true single market for network industries, energy, infrastructure, services and the digital economy is a “conditio sine qua non” for Europe's return to sustainable growth.

Regulatory constraints, ranging from non-transposition of EU directives within national laws, to a non-conductive business environment as well as unnecessary regulatory burdens have consistently been pointed out as major impediments to project preparation and investment fruition. In network industries, the regulatory framework agreed with national regulators plays a crucial role in incentivising network companies to invest, and ensuring value for money for customers. In some parts of Europe, such network companies continue to endure structural weaknesses to their balance sheets, which in turns may discourage investment in well-justified individual projects.

3.2 FINANCING CONDITIONS

More than 75% of the Member States, in their answers to the questionnaire, pointed out to **financing constraints** (both in terms of public and private sources of financing) as a barrier to long term investment. At the same time, however, it should be noted that there is high level of liquidity in financial markets. According to some estimates, approximately EUR 800 billion could be available from private funds for investment in European infrastructure until 2023[5], provided that there are enough sound revenue generating projects for investment.

Government budgets are highly constrained in many Member States which has led to a marked decline in government investment, either directly in public-sector projects, or more indirectly through projects delivered by the private sector (concessions; Public-Private Partnerships (PPPs); regulatory support schemes). Launching of new projects has in many cases ground to a halt since the onset of the financial crisis. Some Member States have chosen to cut investment expenditure more than operating spending, which is already being felt in the sluggishness of the economic recovery due to the shorter-term impact of the latter vis-à-vis the former. It is important to note that in many sectors productive

[4] OECD (2014): "Update of the policy framework for investment; Investment policy", COM/DAF/INV/DCD/DAC/WD(2014)1, Paris.

[5] Referring to the Linklaters' recent report 'Set to revive: Investing in Europe’s infrastructure': USD 1 trillion available to European Infrastructure, including some non-EU countries http://www.linklaters.com/Insights/Investing-Europe-infrastructure/Pages/Index.aspx

public investment acts as a catalyst to private investment. Other forms of public intervention may also be needed to catalyse private investment.

Financing discrepancies among Member States have been exacerbated, i.e. while certain countries have historically low financing costs, others are still struggling with prohibitively high costs of long term financing, which is a major hurdle for achieving a well-functioning internal market.

Financing constraints are further affected by the withdrawal of the banks, which have traditionally been a predominant source of funding for long-term investment projects in the EU. The banking sector underwent a significant deleveraging process in the years since the outset of the financial crisis and many banks are still struggling to cope with high levels of non-performing loans.

This has a particular bearing on the SME and Mid-cap sector, which includes the young, high growth potential firms that are essential for future competitiveness. SMEs and Mid-caps usually have little direct access to capital markets and depend on effective bank financing, and also equity finance. The strong dependency of European SMEs on bank financing has made them more prone to the post crisis weaknesses and deleveraging needs of the EU banking sector. Young EU firms face particular challenges in accessing seed stage and early stage venture capital limiting their expansion potential and innovation.

While the worst of the economic and financial crisis has passed, the EU financial system remains fragmented, especially with regard to the **non-integrated capital markets**. EU capital markets have not filled in the gap created by lower long term financing by the banks. EU is lagging behind the United States, where direct capital markets' funding for corporates is far greater. The development of equity financing, including venture capital, is correspondingly limited in most European countries, limiting growth financing options for high growth potential firms. Currently frozen capital across Europe needs to be mobilised in support of Europe’s businesses, particularly SMEs and Mid-caps. Finally, some Member States also pointed to the issues of limitations in EU financing and EIB-offered financial instruments, mostly in terms of size and eligibility requirements as well as limited risk-tolerance.

3.3 PROJECT PREPARATION AND MANAGEMENT

Complex project structuring and preparation has been identified as another barrier with several dimensions:

(i) *higher-risk construction phase*: while there is rising interest by private investors to invest in infrastructure, such investors usually prefer to wait after the completion of the construction phase, as ascertained by recent studies and interviews of investors. Investors tend to prefer brownfield investment due to their more predictable cash flows.

(ii) *renegotiation risk*: sizeable upfront investment and the long-term nature of infrastructure projects means that the life cycle of a project typically spans beyond any government administration or individual regulatory settlement period. Investors are therefore not only analysing the project-specific risks, but are also giving substantial consideration to political risk and regulatory framework stability.

(iii) *grants vs debt/ equity financing*: grant-financing has generally been preferred by Member States, but this may have underexploited the potential to maximise the final total investment stemming from scarce public resources.

(iv) *smaller ticket size projects*: smaller projects typically attract less attention (mainly in the following subsectors: urban transport, energy efficiency, social infrastructure). In effect, fragmentation and high fixed costs has deterred the development of private investment models.

(v) *lack of standardisation of project structures*: some Member States pointed out to the need of more standardised project (especially PPP) structures, mentioning that once a successful project is completed it leads to development of other projects ('projects leading to more projects').

(vi) *lack of administrative/ project management capacity*: many Member States are suffering from insufficient administrative capacities to manage complex projects and lack of technical skills on evaluating, structuring and executing projects, especially PPPs or private-sector delivery models more generally.

(vii) *long lead times*: Large infrastructure projects typically require extensive environmental-permitting and public-procurement procedures. Part of the long lead time can be attributed to excessively cumbersome procedures for organising bidding processes or granting permits, which calls for streamlining as well as greater standardisation. However, long lead times are also a result of thorough project planning and design, and public consultation, which are instrumental in securing the economic and financial viability, environmental and social sustainability, and local acceptance of large investment projects.

(viii) *cross-border challenges*: Lack of standardisation and harmonisation of national technical standards in areas such as truck axle weights, electricity transmission, railway signalling and air traffic management prevents the optimal use of existing networks and reduces the benefits of new infrastructure. In addition, the preparation, implementation and financing of cross-border projects all come with specific challenges (e.g. multinational coordination, applicability of different regulatory regimes and benefit share allocations) that act as a major barrier to the realisation of such projects.

4. SOLUTIONS

A number of barriers and bottlenecks across and within different sectors have been identified above. In this section, the Task Force highlights the four major areas where it feels that actions will have immediate impact on investment.

4.1 IMPROVING INVESTMENT CLIMATE - REGULATORY REFORMS

Recognising the importance of a comprehensive solution to the problem of macroeconomic uncertainty, the European Semester annually reviews and issues country-specific recommendations, addressing needs for fiscal and structural reforms. These reforms are a precondition for a predictable and conducive business climate.

In this context, the focus is on product and labour market reforms, on opening up new business opportunities and improving the business environment, encouraging entrepreneurship and promoting more efficient and modernised public administration. Moreover, a conducive business climate cannot be sustained without a growth-friendly composition of public expenditure and sound public finances.

Regulatory reforms are key to unlock investment in many infrastructure sectors. Many investments opportunities identified in this report concern highly capital-intensive assets i.e. assets with a high initial fixed cost and relatively low operating costs thereafter. In order to be delivered by the private sector, project promoters need to be able to raise finance to cover these high capital costs on the basis of projected revenue streams over many subsequent years. Where this future revenue stream depends to some extent on a commitment from the public sector, investors' appetite and cost of finance will depend critically on their perception of regulatory risk – i.e. is the commitment from public sector credible over the long period of time covered by the agreement? In some sectors, typically natural monopolies such as energy or water networks, the introduction of an independent national regulator has proven an effective mechanism to mitigate this risk, and thus increase investor confidence. Providing further stability and credibility to regulatory support schemes in general, including through the

transposition of relevant EU directives, can help boost investment and drive down financing costs over the medium term. Moreover, given the European or global focus of activities of many asset suppliers, closer coordination amongst Member States in this area can help increase market size and ultimately reduce costs.

Respect for the principles of subsidiarity, proportionality and better regulation will be at the core of the work of the new Commission. The Commission continues to work together with the European Parliament, the Council and the Member States to remove “red tape” at both European and national level. This includes the Commission’s work on the “Regulatory Fitness and Performance Programme” (REFIT) of EU legislation and ensuring the quality of impact assessments. The Commission, together with Member States, could review EU and national procedures and legislative framework with the aim to identify possible actions to reduce administrative burden and unlock investment potential for infrastructure projects.

In the same spirit, Member States should also carry out similar exercises, including reviews of permitting rules and procedures, authorisation requirements, domestic rules on cross-border services and lack of mutual recognition.

Targeted action by the Commission to improve the functioning of the Single Market in some essential areas (digital, energy, transport and services) could be developed in 2015 with a focus on measures conducive to investment at the EU level.

Member States should transpose and fully implement the new public procurement legal framework. The Commission could support these efforts by providing guidance, tailored support and exchange of best practices.

4.2 CATALYSING INVESTMENT FINANCE

Fiscal space, where it exists, can be used to support demand, in particular by stimulating economically productive investment, which would also support growth in the longer term. Where no such fiscal space exists, Member States can reprioritise their budgetary expenditures in favour of investments.

Given the need for increased investment and the lack of fiscal space in some Member States, opportunities for user charging should be exploited where possible, and PPPs should be encouraged as a way to put financial liquidity in capital markets to a more efficient use for the economy at large. While PPPs can be associated with speedier project delivery and lower life-cycle costs, it is critical to ensure that the PPP model is only used in cases where it can indeed offer value for money and not only provide a way to circumvent governments’ budget constraints. Experience in Europe shows that there are risks associated with PPPs whose primary goal is not to create value for money for the taxpayer. PPP structures should be prudently structured to ensure an appropriate and balanced risk-reward structure, hence mitigating downside risks to the taxpayer.

The Commission, the EIB Group and Member States should contribute to this effort by mobilising public funds at EU level to stimulate private investment in the real economy through financial instruments. Innovative financial instruments create a multiplier effect for the public funding by facilitating and attracting other public and private financing for projects. The use of EU level instruments can be expanded in order to stimulate knowledge sharing, critical mass, economies of scale, standardisation, EU added value and risk sharing among project stakeholders. The Commission and the EIB Group should strengthen their cooperation with National Promotional Banks or other entities preforming a similar role, including through a broader use of ESIF, in order to expand private investment in EU policy areas.

The Commission and the EIB Group, as well as Member States, could accelerate and also increase the size of financial instruments including under ESIF, particularly with regard to support to SMEs and Mid-caps. Particular focus should be put in equity investment and support to high quality securitisations of infrastructure and SMEs portfolios.

In response to the financial crisis, a number of initiatives to create a safer and sounder financial sector have been undertaken. These initiatives, which include new **legislation** aiming at stronger prudential bank supervision, improved depositor protection and bank resolution, also present a specific set of challenges.

In this context, the new CRD/CRR package on capital requirements and the Delegated Act on Liquidity currently being scrutinised by the Council and the European Parliament will provide increased incentive to investments in infrastructure and SMEs, including a particular deduction for credit risk on exposures to SMEs, and specific provisions on high-quality securitisations that would facilitate investments into SMEs. Investment flow to corporates is also affected by the more favourable treatment assigned to certain public debt instruments.

Solvency II, applicable from 1 January 2016, will allow insurance companies to invest more in infrastructure, without any quantitative limits in their portfolio. For insurance companies that will not use an internal model to calculate capital requirements, the Commission has ensured that the standard formula does not impose any obstacle to long term investment over short-term[6]. The Delegated Act of 10 October 2014 includes a panel of measures that will support insurers' investments in infrastructure projects, in the form of debt or equity. While investment by institutional investors in less liquid assets such as infrastructure assets has been limited, the search for higher yields in a low interest rate environment is increasing their appetite for such assets

In that respect, the Commission proposed to create European Long Term Investment Funds (ELTIFs) which will enable fund operators to operate throughout Europe without additional barriers. ELTIF will provide a wide range of investors with an easier access to long term investment classes. ELTIFs will be able to invest in a wide range of asset classes, most notably infrastructure investments, unlisted companies or listed SMEs and real estate projects. ELTIFs are going to be available for market participants as from next year. In the same vein, two types of European funds exist since 2013, the European Venture Capital Fund (EuVECA) and the European Social Entrepreneurship Funds (EuSEF). Both funds have been created to open the single market to the niche operators, those that do not meet the size requirements for automatically benefiting from the EU fund marketing passport.

Work will continue to ensure that capital requirements remain adequately calibrated over time. Other institutional investors, more notably the pension funds, the liabilities of which represent a natural match for the long-term nature of investment projects, are limited by fragmented regulation. Such regulations often require independent project credit-rating, which is not straight-forward to obtain in many Member States, especially when smaller ticket-size projects are concerned.

The Solvency II Delegated Act, however, stops short of creating a tailored asset class for infrastructure investments/projects. This is because of the difficulty in setting out a homogenous definition and in finding corresponding data on market, prices and default rates for such investments. Nevertheless, the Commission recognises the potential of insurers to invest and hold their assets for a longer term and will continue to analyse this question. This examination could be considered in the context of the review of the delegated acts for the Solvency II-framework directive.

[6] See press release on: http://europa.eu/rapid/press-release_MEMO-14-578_en.htm?locale=en.

4.3 BUILDING A FORWARD-LOOKING AND TRANSPARENT PROJECT PIPELINE

In the informal ECOFIN Meeting of September it was acknowledged that liquidity in markets exists, however financeable projects are lagging behind. The existence of a stable, credible and transparent pipeline of economically viable projects is the first important step towards finding an overarching solution to the underinvestment problem.

That project pipeline can be articulated in the context of a long-term investment plan for the government. The plan serves mainly a communication purpose, rather than supporting decision-making on individual projects. The investment plan should identify the sectors or economic activities whose investment is critical for long-term growth and, notably, whose investment requires public policy intervention to materialise. That policy intervention can comprise direct government investment, identified in the government project pipeline, or broader programmes of public support to private actions that are in the public interest. Both the investment plan and the pipeline of individual projects should be communicated transparently so as to help the private sector identify the projects where their participation might be mutually beneficial. There should be transparent and clearly articulated criteria for including projects in the pipeline, notably as concerns their economic viability.

This is particularly the case for productive investment in infrastructure. While significant efforts have been made to improve financing available for infrastructure projects, it is important to recognise that efforts should also be made to more clearly articulate investment needs, notably by establishing national infrastructure investment plans and transparent project pipelines as well as addressing data gaps.

Regarding existence of national infrastructure investment plans, there is fragmentation among Member States. While majority of the Member States have long-term investment plans and sectorial strategies, only few, including the UK (see Box) and the Netherlands, have managed to aggregate their needs into a comprehensive national infrastructure investment plan with transparent project pipeline.

BOX: UK National Infrastructure Plan and Project Pipeline

Starting in 2010, the UK HM Treasury developed a comprehensive approach to build a National Infrastructure Plan outlining the government vision for the future of economic infrastructure, as well as publish a project pipeline on their web site.

The National Infrastructure Plan sets out the challenges facing UK infrastructure and the government's strategy for meeting the infrastructure needs of the UK economy. The plan contains major commitments for investment in important infrastructure projects and explains how the public sector will attract new private sector investment.

Infrastructure Plan: https://www.gov.uk/government/collections/national-infrastructure-plan
Pipeline: https://www.gov.uk/government/publications/national-infrastructure-pipeline-2014

Maintaining a sufficient/extensive pipeline contributes significantly towards investors' confidence and allows for the building of necessary internal capabilities and local expertise. Recent transaction experience has also shown increasing competition among private financers for projects (mostly PPPs) that are economically sound and appropriately structured. This reinforces the conclusion that the time now is ripe for public administrations to step up their project preparation efforts, including efforts to present their pipelines to the market in a transparent and credible manner.

In an ambitious and limited timeframe, the Task Force has compiled potential investments, in line with its mandate to identify strategic investments with EU added value that could be undertaken in the short run (see Annex 1 and 2).

4.4 TRANSPARENT PROJECT PREPARATION AND MANAGEMENT

It is very important that projects are market-oriented and demand-driven. To this end Member States should carry out value-for-money project assessments in order to identify the most efficient type of procurement solution.

Standardisation and harmonisation of projects in different sectors and employing different structures (e.g. PPP, concessions, etc.) could potentially decrease overall costs and times. The Commission and the EIB are currently extending some pilot initiatives, such as for example the Project Bond Initiative that can help promoting this objective. However, further efforts should be made at EU level to promote standardisation among procuring authorities.

EU level financial instruments could be enhanced to provide a broader coverage to critical risks, such as construction and demand risk. National promotional banks and/ or export credit agencies can also help in this direction.

Pooling of similar projects is a solution for smaller ticket sizes in order to build critical size and thereby make projects more attractive to investors. Pooling can be standardised through sectorial regulations.

Some Member States have established a centralised PPP unit within their governments and this seems to be working well in terms of having a leading project co-ordinating authority. Such centralised PPP units can also improve cross-border co-ordination and disseminate knowledge to regional and local levels of government.

To ensure an effective catalytic impetus on infrastructure investments in particular, supported projects should be consistent with state aid rules. Those projects should address unmet needs (i.e. not duplicate existing ones), crowd in private financing to the maximum extent and avoid crowding out privately financed projects. Equally, to maximise user benefits, supported infrastructure should generally be open to all users, including competing operators. To maximize the catalytic impact of such investments, the Commission will formulate a set of core principles which projects will have to meet to be eligible for a support.

Targeted technical assistance can also improve and shorten project preparation, while also contributing to knowledge sharing and the building of project management expertise. Currently there are different TA streams: one at the initiative of the Commission/EIB (centrally managed); and another at the initiative of a Member State (shared management). The JASPERS facility is a good example of a well-designed TA facility with a proven track record of improving project quality, while ELENA provides the project development assistance directly to project promoters. New TA support instruments are being designed for the 2014-2020 period, especially with regard to financial instruments (for example, the new Fi-Compass initiative).

It has been identified that TA can have a greater impact on project quality if it is introduced in project planning at an earlier stage. For this, a more strategic approach is required based on an analysis of Member States project planning capacities.

Cross-sectorial, horizontal assignments to develop administrative capacity, especially in areas such as project structuring and structural reforms have a major role, where the Task Force identified existence of significant barriers and bottlenecks. It is important therefore to enhance TA efforts in order to ensure continuous and effective advisory service whilst avoiding possible overlaps and fragmentation.

5. SECTORIAL ANALYSIS

As explained in the Introduction, the Task Force focussed its project identification efforts on five key sectors that are critical for Europe's long-term growth prospects, namely a) knowledge, innovation and the digital economy; b) energy union; c) transport; d) social infrastructure; and e) resources and environment. In these five sectors, an analysis of the investment context; barriers to investment; and possible solutions to those barriers was undertaken. The detailed analyses can be found in Annex 1; a summary of those detailed analyses is provided below.

5.1 KNOWLEDGE, INNOVATION AND THE DIGITAL ECONOMY

Research, development (R&D), innovation and the digital economy have become the main drivers of growth and prosperity. The EU has set itself the aim of investing 3% of its gross domestic product (GDP) on research and development. Since 2011, an increasing number of Member States have started to cut back direct R&D spending. As a consequence, most EU Member States lag significantly behind their national targets. Most of this shortfall is due to low levels of private R&D investment. Given the increasing investment gap, boosting investment in innovation should be a key priority.

R&D and innovation

Significant early-stage commercial and technical risks discourage private investment in disruptive innovations, even when the long-term economic benefits are large. As a consequence, private investors spend too little on innovation. Innovative SMEs and Mid-caps, as well as the deployment of breakthrough technologies (e.g. Key Enabling Technologies (KETs), Strategic Energy Technologies (SETs), clean-tech and green transport technologies, emerging low carbon technologies, etc.) are particularly affected by these market failures and funding constraints. The economic case for targeted public intervention is thus strong.

Addressing these challenges requires support for innovative SMEs and Mid-caps through dedicated finance facilities for sub-investment grade borrowers. Furthermore, strengthened support for Venture Capital and late-stage investment vehicles and where appropriate R&D tax credit schemes, will enhance the capabilities of companies to invest.

Other solutions revolve around possibilities to partly de-risk the investments in R&D and innovation for the private-sector investor, potentially through grant support, repayable advances, the use of financial instruments, or co-investment by the public-sector, thereby sharing the higher risks, e.g. through Horizon 2020, NER300 or ESIF. In addition, large-scale private European industrial initiatives can be promoted through EU-level instruments, such as "Industrial Projects of Common European Interest".

Public-Private Partnership in R&D models can be used by the public sector, when warranted by Value for Money considerations while a more strategic use of demand-side policies, including public procurement but also faster standard-setting and innovation friendly regulations, would help to stimulate the deployment of innovative technologies in European value chains.

ICT infrastructure and digital infrastructures

ICT networks are key components of modern infrastructure. The expected further increase in data volumes necessitates a permanent upgrading of broadband infrastructure to reach the targets set out by the EU: for 2020, i.e. all EU citizens having access to broadband speeds above 30 Mbps, and 50% of the population subscribing to speeds above 100 Mbps.

Broadband, other elements of innovation-enabling infrastructures and skills are essential elements of an ecosystem of growth. Investment needs to fill gaps in broadband networks is estimated in the range of EUR 30 billion a year until 2020. Around two-thirds of this investment is needed for a combination of different technologies (mainly fixed-line broadband) in rural and suburban areas of the EU, which currently lack financial viability. This effort has to be matched by funding to innovation and digital

infrastructure and the provision of skills to EU citizens. Investment is also needed for a number of programmes that act on the demand side and stimulate use of the infrastructure. Smart cities and communities, E-Government, KETs and/or open data are all relying on digital infrastructure. The aim is to reap the benefits of game changing paradigms such as big data, cloud technologies or 'internet of things' to foster total factor productivity.

One of the greatest barriers in building the digital single market is the lack of interoperability between organisations, both private and especially public. The development of Digital Service Infrastructures (DSIs) would facilitate the cross-border and cross-sectorial interaction of public administrations and industries, as well as enable the provision of essential, but diverse services. DSIs are the key elements in making the EU a Digital Single Market, a target set out in the Europe 2020 flagship initiative Digital Agenda for Europe. In the public sector, one of the main challenges is that public procurement of digital infrastructures and services is currently done in numerous administrative silos and the EU level and national level binding interoperability frameworks are in many cases non-existent. This leads into scattered and often inefficient public spending regarding digitisation of society and thus hampers also private investments.

Solutions to address the shortfall in public funding include project financing models, with a combination of public funds, including ESIF and private-sector investors, and more widespread use of financial instruments to better leverage scarce public money, including the recourse to funding mobilised by the CEF. Close collaboration of public sector and industry is needed and joint-funding mechanisms need to be provided to speed up the digitalisation of the EU. Furthermore, the regulatory framework should be reviewed to ensure that it can spur investment in all types of areas.

5.2 ENERGY UNION

Access to competitive, secure and sustainable sources of energy is fundamental to economic growth and competitiveness in Europe. Delivering on Europe’s climate and energy goals, including the completion of the Internal Energy Market, requires sustained investment across the energy supply chain: from indigenous sources of supply, through gas and electricity grids to power and heat production, including from renewable sources. This needs to be complemented by investment to reduce demand through improving energy efficiency, notably in buildings and industry. Over the next three years, the EU is estimated to need to invest annually just over **EUR 200 billion** to meet agreed energy objectives.

In principle the market is expected to deliver the bulk of this investment, either in the form of private companies or individuals reacting to market prices, or regulated network companies reacting to incentives set out under a regulatory framework. The implementation of a solid regulatory and legislative framework is therefore vital. However, in practice a range of barriers risk delaying, or even preventing investment, exacerbated by Europe’s currently mixed economic outlook. These barriers – and potential solutions – differ between (i) grid and production projects, which by their nature tend to be large-scale, technically complex, capital-intensive; and (ii) energy efficiency and distributed renewable energy projects, which by contrast tend to be much smaller and technically more straightforward but more numerous and dispersed.

Grids and production

The full implementation of the regulatory and legislative framework remains crucial to incentivising investment, attracting finance and minimising the cost of capital for large-scale projects. In terms of interconnections and smart grids, first steps have been taken at European level for example, through the ‘Projects of Common Interest’ agreed with the Member States and the present Member State plans to roll out smart metering systems by 2020. However, some areas remain isolated from the European Internal Energy Market and urgent measures need to be taken to ensure the achievement of a minimum target of 10% of existing electricity interconnections and to facilitate the implementation of

projects of common interest particularly in those areas as detailed in the October European Council conclusions. .

A well-designed, predictable and cost-effective policy framework for renewable generation remains central in lowering the overall financing cost for renewable projects; recent experience has shown that proportionality and cost-efficiency as well as a well-designed, stable and transparent regulatory environment are vital for a support system to be sustainable. Investment sentiment remains mixed: many European utilities continue to contract their balance sheets, while access to long term finance, especially for smaller, independent project developers, can be problematic. These constraints may be relieved to some extent by attempts to attract new sources of finance, notably from capital markets, through well-targeted guarantees.

Furthermore, local public opposition continues to delay projects or increase costs. Streamlining permitting and consultation procedures, such as introduced by the TEN-E regulation, could help in this regard, but may not suffice on its own. And finally, access to finance remains a problem for smaller energy companies, particularly in Eastern and Southern Europe. Grants or financial instruments, such as the CEF or through ESIF, could help alleviate such constraints.

Energy Efficiency

In most parts of Europe, the challenge remains to attract a sufficient scale of investment into improving energy efficiency, notably in buildings. For public sector buildings (schools, hospitals, etc.), local administrations often have limited technical and financial capacity to structure bankable renovation projects/ programmes. Energy efficiency gains materialize during a long period of time, while investment costs need to be accounted for in just one or two years, with a sizeable impact in public accounts. They can be addressed in part through dedicated project development assistance, potentially complemented with targeted use of public resources, including ESIF, to share risk with private financial intermediaries and support the use of Energy Performance Contract (EPC).

For the private building sector, incentives tend to be split between owners and occupiers and thus act as a barrier to invest, together with lack of information, low creditworthiness and short-payback period expectations displayed by many owners. Germany, to name an example, has developed a large-scale programme as part of home renovation loans, which is supported by a legislative framework that facilitates owners recouping costs through rental charges.

Adequate and tailored financing for energy efficient residential housing remains a major challenge. Improving access to finance would contribute to boosting demand, helping this way also the construction sector which is characterised by high concentration of SMEs and strong potential to create local jobs. Significant amounts are earmarked under the ESIF for energy efficiency over the next seven years. Potential remains at both EU and national level to optimise further the use of these funds, in particular through dedicated financial instruments. Economic instruments, however, should go hand in hand with implementation of related legislative framework, namely the Energy Performance of Buildings Directive and the Energy Efficiency Directive.

5.3 TRANSPORT

Reliable transport links are essential for the internal market and economic activity in the EU. The transport industry directly employs more than 10 million people, accounts for 4.5% of total employment, and represents 4.6% of GDP. The provision of transport infrastructure is predominately the responsibility of the public sector although private sector involvement has been successfully introduced in many countries. The Commission estimates that **EUR 1.5 trillion** is required for transport infrastructure investment up to 2030.

Corridors and missing links

Creating an integrated trans-European transport system is essential for EU competitiveness and territorial cohesion. The development of strategic transport networks is a long term capital intensive activity which even in normal circumstances faces many obstacles: statutory, political, economic and financial. In the current economic climate, investments have slowed down significantly from the long term average. Worryingly, insufficient projects are being prepared to allow this situation to be reversed quickly as there are fewer "on the shelf" projects awaiting funding. Alternative financing options such as adopting the user pays principle and/or stimulating private sector investment should be considered where possible. This can be achieved through public sector managed user charging or by the use of PPPs and innovative financial instruments.

There are institutional and regulatory barriers in certain countries which will need to be overcome if the quality of projects is to be enhanced and their implementation accelerated. Some countries lack the capacity at the project level to prepare and deliver good quality projects. In many countries, there is a lack of institutional capacity to embed best practices in public investment and managing the use of private finance. There is an urgent need for a stable pipeline of projects to provide long term visibility for both public and private investors comprising of sound prioritised projects. The risk profile of some projects (e.g. construction / demand risks) can make them unattractive to private investors and the credit quality of promoters can also be a barrier. Both issues underline the need for financial instruments to address such issues. At EU level there is a need for coordination between countries to address missing links, bottlenecks for long distance traffic, interoperability border crossings, multimodal connecting points and to share best practices; this is being addressed by the new TEN-T policy and notably its nine multimodal corridors, to be financed under the CEF and ESIF.

Coupled with the overall decline in new investment, investments in keeping the existing networks in good working order have been neglected. The renewal and optimisation of ageing infrastructure generally offers strong socio-economic returns but has often been deprioritised.

Business enablers

Transport infrastructure is a business enabler, both in terms of sustaining logistics performance of European industries and in terms of demand generated for products and services in the automotive, aviation, shipping and railways sectors. Intelligent transport systems can open up new business opportunities and spur positive economic impacts. Much of the investment in logistics is already undertaken by commercial interests with public authorities playing a catalytic role. "Last mile" delivery to the final customer still relies on aging urban infrastructure shared with competing uses. In addition, ports and airports need proper connections to function efficiently. There is a need to invest in modern traffic management and control systems to reduce the cost of congestion and to roll out the complimentary investment in alternative fuel networks and automated vehicles.

The same is true for investments in more efficient vehicles with cleaner propulsion systems, which are regarded as high risk due to the new technologies being deployed. Similarly, investment in modern fleets is often hindered by credit considerations, in particular for small companies operating in competitive markets. Such investor reluctance could be addressed by credit enhancement mechanisms, either for the companies themselves or by using investment funds dedicated to the sectors.

Urban transport

In the context of growing cities, EU economies are experiencing increased congestion with their accompanying adverse environmental and cost impacts. Local authorities need to develop sustainable urban mobility strategies and projects that address these. Investments will have to increasingly be multi-faceted comprising not only traditional infrastructure but also management systems using

Intelligent Transport System, the provision of alternative modes of transport and the deployment of electric and low emission vehicles.

Introduction of early-stage funding and grants to pay for initial research, pilot projects, feasibility studies, capacity building and policy design have proven to be catalysts for private-sector investment. At municipality level there is a strong need for technical assistance and sharing of best practices across the EU. The credit profile of weaker authorities should also be addressed using financial instruments in order to stimulate investment. Finally, smaller urban projects can be bundled together to form a portfolio of an attractive size for private investors.

5.4 SOCIAL INFRASTRUCTURE

Social infrastructure, for the purpose of this report, covers education, training and human capital; health; as well as the built environment, including cities and urban services. Both education and health are key for sustained productivity growth, while with 75% of the EU population living in cities, the entire urban context, including social housing and the provision of urban services is of major importance in the EU policy agenda.

Education and training

Education is key to productivity and growth and has high private and societal returns. Currently, there is a significant investment gap in education across the EU, while other regions in the world are using education as a strategic investment to strengthen their competitiveness.

Skills in high demand will likely become scarce in a number of areas that support the application of new technologies such as IT, mechatronics, robotics, or medical technology. The stock of educational facilities has deteriorated significantly to a point where broad-based modernisation programmes are needed, ranging from school and early childhood education and care to higher and vocational training, including also investment in digital pedagogic tools. To close the large maintenance backlog in education facilities, around EUR 10 billion per year would be required.

An increase in the level of investment and its swift implementation requires a wider use of PPP models when they can provide Value for Money, stronger administrative capacity to enable pooling of smaller projects, increase standardisation, and structural reforms to support education investment programs. Measures and reforms to ensure a Youth Guarantee, such as Active labour-market measures, as well as, apprenticeship schemes and youth employment measures also play a particularly important role.

Health

Good health is a precondition for a productive workforce and economic prosperity. The healthcare sector accounts for about 10% of the EU's GDP and around one-third of social policy budgets.

Healthcare delivery is a Member State responsibility; there is no EU policy on healthcare. The combination of public-sector budget constraints and the fragmentation of the healthcare systems have resulted in a backlog of investments that is difficult to quantify.

Similarly to other sectors, also for healthcare facilities, PPP models could be more broadly used solutions if they can provide Value for Money. At the same time, investments aimed at improving the efficiency and performance of the entire healthcare system are needed. More flexibility to use ESIF for the innovative financing of the modernisation of health systems could be foreseen.

Built Environment and Urban Services

With almost 75% of the EU population living in urban areas, the development of more sustainable cities and communities is now at the forefront of the EU policy agenda. Cities and towns not only offer the most significant share of business and employment opportunities but also the widest range of tourism

and recreational opportunities in particular for cultural activities and shopping. Investment in the built environment and regeneration projects that exploit urban resilience are becoming increasingly important. However, shrinking regional and municipal budgets are having a negative impact on urban social services, including the provision of social housing in several Member States. Another area requiring significant resources is the development of public buildings and facilities, in particular in deprived urban areas.

The energy consumption in buildings (heat, cooling and electricity) represents c.a. 40% of total energy consumption in Europe. It is estimated that their retrofitting to achieve the building-sector emission reductions consistent with EU objectives will be in the region of EUR 100 billion per annum between now and 2020.

At a broader level, taking into account the fragmentation of many urban sub-sectors, the transition towards smarter and more resilient cities require the development of financial aggregators (including not-for-profit actors) and new financial instruments.

5.5 RESOURCES AND THE ENVIRONMENT

Europe must contend with a limited resource base, coupled with a parallel increasing amount of waste, and vulnerability to climate-related hazards. Investing in resource efficiency and security of supply, eco-innovation, the bio-economy and the management of resource-related and climate-related risks can contribute to Europe's competitiveness, prosperity and well-being. The potential is huge and it is important not just to deploy existing technologies and solutions, but to invest in smarter solutions of systemic nature.

Natural resources: efficient use and secure availability

European public and private sectors are becoming aware of the financial benefits of investments into resource efficiency and they are ever more alert on the vulnerability of their value chains to effects from exogenous events (e.g. climate change, overuse, contamination, etc.) on the availability of natural resources.

Resource efficiency and secure access to natural resources and raw materials include three types of interventions. First, improving the management of scarce resources, increasing the efficiency in their extraction, production, allocation and use, and where applicable protecting them from contamination. Second, increasing waste prevention, as well as the treatment, (re)generation, reuse, recycling and extraction of materials from all types of waste, in line with EU priorities for the environment sector. And third, the sustainable production (or extraction), processing and transfer of resources.

One way to increase investment is scaling-up of innovative options (guarantees, increased risk taking facilities or funds, etc.)[7] to catalyse private investment, enhance leveraging of public funding, particularly for promoters that would otherwise have problems accessing long-term market funding. This could be complemented with increased technical assistance, especially for developing a larger pool of similar projects.

To overcome the small project size limitation and the mismatch between asset life and available credit maturities, a bond investment structure was recently used to support the multi-annual investment programme of a group of small operators in the water/wastewater sector in Italy. Such instruments

[7] As an example, the Water Technology Platform has recently proposed to establish a dedicated water innovation investment fund. This fund is aimed at innovative ventures seeking first rounds of financing, if not supported by a public player. It is based on a capital time horizon from 8-12 years requiring only capped returns. If appropriate, guarantee schemes should be established by the MS.

provide promising templates for the financing of “public goods” that have been traditionally primarily funded by grants and public budgets.

Resilience to Climate Change

Europe is exposed to many climate-related hazards, and levels of resilience to them are very diverse. Among natural disasters, floods are the largest source of GDP losses in Europe. However, Europe requires major investments in sustainable urban and rural drainage, as well as coastal protection. Large-scale forest fires also pose a threat to population, infrastructure and ecologically valuable habitats. Drought cycles together with wind and water based soil erosion are exacerbated by climate change with the consequence of decreasing agricultural and forestry productivity, as well as the value-added and economic sustainability of rural and agricultural economies. Therefore, it makes sense to improve planning and increase resilience against climate variability and change, through investments in water supply and distribution systems, in fire prevention measures, in well-planned afforestation and vegetation coverage that can tackle loss of precious topsoil, flood disaster prevention and help avoiding landslides due to heavy rainfalls.

Very large opportunities for investment in the management of risks associated to natural disasters exist, but they need a well-defined, long-term strategy; actors that are willing to borrow and manage the flow of funds; and competent implementing agencies and coordination mechanisms.

Similar to other cases, innovative financial instruments are needed to support investment in these areas.

6. CONCLUSIONS

The work of the Strategic Task Force over the last two months draws key messages and conclusions for stimulating investment in Europe. Achieving sound public finances, focusing on the right reforms, expanding the role of the private sector and developing an EU infrastructure market will foster economic growth, competitiveness, employment and social well-being.

Immediate action is thus of outmost importance to:

- Develop a credible and transparent pipeline of investment projects;
- Ensure efficient and attractive access to finance; and
- Foster a business-friendly environment across the EU.

Investment potential in Europe is there: the Task Force was able to identify a significant amount of potential investments[8] (total of EUR 500 billion), which are potentially economically viable and provide EU value added, and which can start quickly (2015 – 2017). In addition to this, the Commission has also identified a number of projects of European importance currently developed under different EU initiatives. These projects, while primarily concern investment in infrastructure, will also require in their majority appropriate human capital investment in order to be sustainable. As such, there is a powerful potential for job creation, including youth employment.

Concerted action between Member States, the EC and the EIB has high potential for synergies in the delivery of an ambitious EU investment programme. This Task Force is a live proof of how much can be achieved, even in such a short time when there is political will and close collaboration and networking. A strategic, coordinated action at EU level and within Member States is crucial for making Europe an attractive place for investment.

[8] The project list is illustrative and non-exhaustive while the projects have not been subject to any due diligence and do not commit any of the involved parties (MS, EC, EIB).

To do that a wide array of barriers and bottlenecks that hamper the development of this critical mass of investment projects in Europe should be addressed. The key challenge right now is to unlock the barriers that keep promoters, private and public alike, from embarking on their projects. Many of the projects that have been identified are such that they can generate both private and public benefits. That means that well-designed public support (both at EU and national level) for those projects can potentially catalyse the much needed interest and investment by the private sector. And it is exactly that catalytic impetus that the public sector should seek to give to set investment in Europe again on a sustained upward trajectory. The Task Force was the starting point for unleashing this potential but more work is necessary at all levels in order to achieve tangible results.

While the report focuses primarily on large investment projects undertaken by the public sector and large private corporates in a number of key sectors selected by the Task Force, it does not consider all sectors of the economy. In addition, the important role of smaller investments often promoted by SMEs and Mid-caps, as the backbone of the EU economy, was acknowledged.

A number of key actions have been identified by the Task Force:

1. Improved business environment

a. Sound framework conditions, including better regulation and deeper capital markets are essential for investment. The European Semester should further strengthen those structural reforms that promote a predictable and conducive business climate. In this direction, Member States should step up the implementation of country specific recommendations making Europe an attractive place for investment.

2. Development of long-term investment plans

a. Emphasize long-term political commitment and project/programme (pipeline) administration capacity among Member States and their institutions. That pipeline of socially and economically viable projects/programmes is best articulated in the context of a strategic long-term investment plan, while avoiding extra administrative burden.

b. The transparency of project pipelines and exchange of best practice between Member States will increase the attractiveness for private investment. One such solution could be a central EU-level web site to provide links to the Member States' project/programme pipelines and include an EU project pipeline (e.g. projects under the Connecting Europe Facility and ESIF). Strategic long-term investment plans as well as project pipelines could be published by Member States on dedicated websites. Confidentiality of commercially sensitive information would naturally be respected.

3. Technical assistance

a. Support for project/programme preparation and implementation should be further increased to also assist in project/programme pipeline selection and design to the extent possible. An EU investment advisory hub should be promoted to ensure a continuous and effective advisory service.

b. Focused project structuring advice, including capacity building and procedural standardisation, such as for PPPs, with a view to attract additional private investment to projects/programmes of EU significance should be fostered.

4. Value for Money assessments

a. For viable project/programmes, Member States should systematically carry out value-for-money project/programme assessments in order to identify the most efficient project/programme structuring solution. The Commission and the EIB could provide advice and develop guidelines in this effect.

5. Financial Instruments

a. In order to advance viable projects that are currently not being financed, the European Commission and the EIB should explore and propose financial instruments. These should be aimed at catalysing private investments in projects/programmes of EU significance, tailored to Member States needs, including also possible cooperation with National Promotional Banks. In this context, the EIB should also consider how to maximise its added value through its participation in these projects.

b. Member States could accelerate and increase the use of financial instruments, including under the ESIF, for example to support SMEs and Mid-caps including low carbon economy, in order to attract private investment and optimise the use of public funds.

As regards the work and set-up of the Task Force, this report should not be seen as the end of the process; rather, it will hopefully mark the beginning in Member States of more systematic and transparent exchange of information about their investment pipelines, as well as clarification of the criteria, especially as pertains economic viability, and processes for including major projects in those investment pipelines.

Finally, financial constraints and access to finance are only two of several issues which the Task Force identified as problematic in delivering investment. Hence, it is important to optimise the use of EU public resources, including those of the EIB, but it is also critical that decisive action is taken to create the right economic, financial and regulatory environment for private investment to take off. Indeed, the well-known but politically difficult structural reforms to remove micro-economic and regulatory barriers are a key catalyst for private investment, and they also boost the impact of all investment in terms of long-term growth and employment creation.

ANNEX 1 – Sectorial overview and illustrative project examples

1. KNOWLEDGE, INNOVATION AND THE DIGITAL ECONOMY

Research, development (R&D), innovation and the digital economy have become main drivers of global growth and competitiveness. More than ever before, growth and prosperity in Europe depend on further refining our skills, expanding our knowledge and the translation of both into new products and services. The EU has set itself the aim of investing 3% of its gross domestic product (GDP) on R&D[9].

Since 2011, an increasing number of Member States have started to cut back direct R&D spending. As a consequence, little progress has been made with regard to reaching the 3% target. Europe's shortfall mainly derives from low levels of private R&D investment, which contrasts with what is happening in other peer countries such as the US, Japan, South Korea and China.

Several countries have reduced substantially their R&D expenditure within their fiscal consolidation efforts, even if in some cases this was partly compensated through increased R&D tax incentives. Others have managed to increase their expenditure on R&D[10]. Still, the fact remains that while certain countries exceed or are approaching the 3% R&D intensity objective, most EU Member States lag significantly behind their national targets.

Notably, the uptake of R&D results remains a challenge: not enough innovative ideas turn into new product and process.

1.1 Public R&D

Context

Public sector spending on R&D accounted for 0.75% of GDP in the EU in 2012. Governments are a major provider for the whole range of R&D in the higher education and business sectors, from fundamental research to closer-to-market R&D activities, supporting the generation of radical innovations with large long-term economic consequences, especially where significant early-stage scientific, commercial and technical risks and insufficient innovation-friendly framework conditions discourage private investment.

The economic case for public intervention is thus strong: it is based on evidence that, due to market inefficiencies and funding constraints, private investors, in particular, hold back (or cannot go ahead with) their investments and spend less on R&D and innovation than is perceived as economically optimal. Moreover, R&D and innovation activities have important positive spill-over effects that are not accounted for by corporates in their investment decisions. The ultimate rationale for public intervention in this field should always remain the link between funding allocated and its actual economic impact and added value to society. This is best achieved to the extent elements of competition and reward are included in public research activity, as well as contributions from private sector are considered.

Investment needs and perceived barriers

Public support is needed to develop the next generation of European large scale research infrastructures. For this reason, an EU Roadmap has been developed by the European Strategy Forum

[9] COM (2014) 339 final, 'Research and innovation as sources of renewed growth'.

[10] Figure 1 in COM (2014) 339. http://ec.europa.eu/research/innovation-union/pdf/state-of-the-union/2013/research-and-innovation-as-sources-of-renewed-growth-com-2014-339-final.pdf

on Research Infrastructures (ESFRI). It contains 48 infrastructure projects worth more than EUR 10 billion[11].

Public support is needed to build industrial leadership around the development and the deployment of breakthrough technologies in a number of key areas such as clean and efficient energy technologies, including emerging low carbon technologies at an early stage of development, environmental technologies (notably in the field of water security), alternative fuels and green transport, innovative medicines and healthy aging and food security.

The ensuing obstacles are twofold: in the case of the next generation of European large-scale research infrastructures investment projects are often delayed or downsized as Member States' budgetary plans do not envisage funds for the construction and operational phase of the facilities. Often, the implementation cannot start until the last Member State has given its legally binding commitment (or until the majority of investments is secured). This also applies to the establishment of the legal vehicle for such infrastructures. Secondly, although some facilities dedicated to applied research could in principle be partly funded by private users, they are still almost exclusively financed by the public sector alone. This further adds to the budget constraints and, therefore inhibits, or at least delays, the implementation of investment plans for even smaller facilities.

The same applies to innovation-oriented applied research in general: various obstacles, such as budget constraints, macroeconomic uncertainty, fragmentation and duplication of work within and across Member States, ability to access innovation talent and resources worldwide, as well as an increasingly felt shortage of skilled professionals limit the effectiveness and efficiency of public research institutions (incl. those subject to private law). These issues prove to be a particular hindrance in the case of the development of breakthrough technologies also linked to societal challenges that are capital-intensive and face short innovation-cycles amid intense international competition, including Key Enabling Technologies (KETs).

Solutions

Public R&D investments need to encompass both research and innovation activities by providing seamless and coherent funding from idea to market, including the full deployment of Horizon 2020, investments in the next generation of large scale research infrastructure and facilities for applied research, and the promotion of PPP models to pool public and private investment efforts. Member States should also encourage and promote effective links between higher education, research and business.

Horizon 2020 is designed to make Europe more attractive for businesses to invest and carry out R&D and innovation actions to improve European leadership in industrial technologies with dedicated support for R&D and demonstration activities to facilitate the transition from innovative ideas and laboratory to industrial production capabilities, notably with large scale demonstration market replication projects, support to innovation public procurement, prototyping and piloting.

An important part of the European Structural and Investment Funds' (ESIF) support to public as well as private R&D investments is increasingly based on smart specialisation strategies setting a limited number of innovation priorities per region and aligning investment decisions, thus helping to reinforce synergies and avoid overlapping between various Member States R&D initiatives. These strategies also put the focus on maximising the entrepreneurial potential (i.e. the demand-side) in addition to the supply-side with R&D infrastructure.

Investments in particular in the six KETs (micro and nano-electronics, photonics, advanced materials, nanotechnologies, industrial biotechnologies, advanced manufacturing), digital technologies and the

[11] *Roadmap - A high level expert group report*, European Commission August 2013 and http://www.elettra.eu/ELRI2014.

societal changes are essential to increase industrial competitiveness and commercial innovation. Those public investments will need to be combined with substantial private investments from industry in order to have a leverage effect.

In this context a specific need (especially for SMEs) is the access to the technological infrastructures facilitating the transition from innovative ideas and laboratory to industrial production capabilities, notably by hosting prototyping, piloting and demonstration activities.

Public authorities, as well as enterprises, should make a more effective and efficient use of ESIF and the new possibilities offered by the revised EU State Aid regulation and guidelines (i.e. the expanded scope and size of the General Block Exemption Regulation, the Risk Finance Guidelines and the new Important Projects of Common European Interest).

For the next generation of large scale research infrastructures bridge financing is required in order to avoid delays in the implementation of projects, such as those earmarked on the ESFRI Roadmap, and to overcome coordination problems. This would enable the main shareholders of the infrastructure to launch the construction phase even before all prospective members have committed their share of funding. In order to mitigate the risk of moral hazard, "latecomers" could be incentivised to join the consortium early and to comply with the agreement (e.g. through penalties or specific benefits).

PPP models can be used for dedicated facilities for applied research as well as innovation-enabling infrastructures. Such facilities often also have private-sector users. These users could be incentivised to contribute to the financing of the infrastructure (e.g. through discounts on user fees). In order to attract more private funds for applied research that is today carried out in public research institutions, the removal of unnecessary bureaucracy is needed (e.g. simplifying reporting obligations) as is a more strategic use/orientation of public procurement (e.g. more oriented towards pre-commercial or first-commercial good and services, taking advantage of the new legal framework for public procurement, including sustainability considerations) to stimulate the deployment of innovative technologies.

In addition, the European Institute of Innovation and Technology (EIT) and its Knowledge and Innovation Communities (KICs) demonstrate a high potential for accelerating innovation via a tight integration of key players (research, higher education, business) supported by a strategic outreach approach and with a clear access to market objectives - via existing markets and new business creation activities and can be further exploited.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
ELI pan-European research infrastructure **(CZ, HU, RO / Public)** Extreme Light Infrastructure (ELI), an umbrella name for four complementary open-access, high capacity laser-based Research Infrastructures of pan-European interest which are part of the European ESFRI Roadmap, including investment in supporting facilities (e.g. science park) that ensure technology and knowledge transfer	850	850	• Lack of long term finance for some of the participating Member States (Bridge financing needed to avoid delays in the implementation, particularly when several member states are involved; use of ESIF)

ESS pan-European research infrastructure **(DK, SE / Public)** One of the largest science infrastructure projects in Europe, the European Spallation Source (ESS), a partnership of several European countries, to be hosted in Sweden and Denmark *[Project based in DK and SE and involving 17 Partner Countries, of which 14 Member States: CZ, EE, ES, DE, DK, FR, HU, IT, LT, LV, NL, PL, SE, UK]*	1,800	1,800	
BBMRI ERIC pan-European research infrastructure **(IT, GR, AT, EE, FI / Public)** Biobanking and Biomolecular Research Infrastructure (BBMRI), part of the European ESFRI Roadmap	170	170	

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The investment figures are preliminary estimates and are subject to review and amendment when projects are developed.

1.2 Private R&D and innovation

Context

The EU remains a world leader in a number of medium- and high-technology sectors, (e.g. automotive, maritime, aerospace, engineering, chemicals, pharmaceuticals and clean energy technologies). It has increased its contribution of high and medium-tech products and knowledge-intensive services to the overall trade balance, progressing from 7.6% in 2004 to 10% in 2011. The EU still represents the highest world share of global value chain income, although with a decreasing evolution since 2008. The EU remains competitive in medium-tech and high-tech products, as well as in business and other market services[12].

However, Europe's position is increasingly being challenged. For more than a decade, Europe has fallen behind other economies in the competition for leading-edge products and services. In 2011, more than 70% of world's knowledge production was taking place outside the EU.

Most observers agree that one important factor for this relative decline is Europe's apparent inability to translate fast enough the wealth of its knowledge and expertise into new products and services. This "innovation gap" continues to widen, for two reasons: first, leadership in innovation is no longer the exclusive preserve of North America, Europe and Japan. Other countries, such as South Korea and China, have joined the ranks and have become veritable competitors in the global market for knowledge-intensive goods and, increasingly, also services. Secondly, Europe has lost its leading role

[12] European Commission Innovation Union Competitiveness Report 2013.

in some key science and technology areas, such as digital technologies and life sciences, to the US and Asian economies.

Investment needs and perceived barriers

The most important break-through technologies with prospects for high economic returns that are ready for implementation include: (i) KETs (including advanced manufacturing, nanotechnologies, industrial biotech and advanced food processing technologies); (ii) technologies addressing societal challenges such as healthy ageing and food security; (iii) new energy technologies identified in the European Strategic Energy Technology Plan (SET-Plan), and in particular the related European Industry Initiatives, such as Carbon Capture and Storage (CCS), energy storage, green transport technologies, such as electric battery- or fuel-cell/hydrogen vehicles and their associated infrastructure as well as large scale demonstration projects for low carbon technologies in energy intensive manufacturing sectors and transport fuels; and (iv) other technological developments such as robotics, or remotely piloted aircraft systems (drones).

Many companies, and in particular Mid-caps and SMEs in a number of European countries, currently face difficulties to access credit (due to banking sector restraint, smaller size of investments, credit risk profile, etc.) to implement investments bringing to market innovative technologies. They are often forced to postpone investments in process innovation and new equipment thus slowing down the process of uptake of innovation.

The incomplete appropriation of returns from investments in R&D leads to lower levels of investment than would otherwise be economically optimal. This proves to be a particularly relevant constraint in the case of the deployment of breakthrough technologies (or so-called “First-Of-A-Kind” technologies), where both technical and market risks are high. Therefore, private-sector investors are normally reluctant to finance the investment without appropriate public-sector support, which may lead to delays in the adoption of new technologies.

The regulatory environment also plays an important role. For example, there is regulatory uncertainty for disruptive technologies and CCS and project promoters are not willing to assume all the cost related to the revenue risk. Europe is not sufficiently aligning and stabilising market regulation for emerging technology areas and creating conditions for radical innovation.

Solutions

Addressing these challenges requires investments in R&D and Innovation in line with the concept of smart and growth-friendly fiscal consolidation to allow Europe to capture the new growth opportunities in terms of economic prosperity, jobs, competitiveness, and productivity gains. However, it also clearly requires that those investments go hand in hand with a step change in reforms of the national R&D and Innovation systems and tool box in order to increase the quality, efficiency and impact of those investments and get the most value for every euro invested. Member States and the Commission have recognised the size of the funding gap and committed to higher budgets for technology development and innovation in priority areas with a decisive shift in the Union budget for 2014-20 towards R&D and Innovation and other growth enhancing items and a 30% real terms increase in the budget of Horizon 2020. Furthermore, contribution is expected to be invested in R&D and Innovation as well as SMEs through ESIF. Other ways of raising additional funding through usage of new EU level instruments should be also examined. For instance, the InnovFIn ('EU finance for Innovators') set of financial instruments launched by the European Commission and the EIB Group within Horizon 2020 will provide financing for R&D and innovation by SMEs and large companies and the promoters of research infrastructures.

Other solutions revolve around possibilities to de-risk the investments in R&D and innovation for the private-sector investor. One way to achieve this is to provide grant support to compensate for that part of the (uncertain) returns that the investor will not be able to appropriate. Support should also be

directed towards helping companies partner at international level for R&D and technology demonstration purposes.

The public-sector could also co-invest alongside the private-sector investor (either through equity, mezzanine and/or debt), thereby sharing the higher risks. Examples include the deployment of offshore wind technologies, large-scale demonstration projects for low-carbon technologies (e.g. CCS, innovative renewable energy), electric and hydrogen vehicle charging infrastructure, personalised medicine and advanced manufacturing technologies. Options to de-risk an investment could also include some sort of public-private partnership that could manifest itself in different forms of co-operation, such as the Joint Technology Initiatives and (contractual) PPPs launched in the context of Horizon 2020 and the NER 300.

In order to tackle the access to finance issue, an increase in dedicated finance facilities for sub-investment grade borrowers with significant R&D programmes and innovators across the private sector are expected to have the biggest impact with regard to achieving higher levels of RDI investments throughout the economy. Furthermore, strengthened support for Venture Capital and later stage investment vehicles (e.g. incubators) and where appropriate, R&D tax schemes, will largely enhance SME's capabilities to invest in R&D and Innovation.

To facilitate large-scale private investment European industrial initiatives can be promoted financed through EU-level instruments. They can now be supported by EU-wide instruments such as the Industrial Projects of Common European Interest[13].

Support systems for SMEs should be reorganised in some Member States, particularly in those with lower efficiency and effectiveness, to better stimulate research and innovation activities especially at pre-commercial stage. Solutions should address the difficulties that (especially smaller) companies face in accessing affordable and tailor-made sources of finance, as well as access to technological infrastructures (e.g. pilot lines) that can facilitate the transition from innovative ideas and in laboratory settings to industrial production capabilities, notably by hosting prototyping, piloting and demonstration activities. Introduction of a European patent may improve the intellectual property rights protection in Europe and incentivise researchers to finalise their inventions.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
Network of hydrogen refuelling facilities for fuel cell vehicles **(DE / Private)** Extension of the National Innovation Program "Hydrogen and fuel cell technology II" between the federal government and industry beyond 2016 with the aim to speed up the marketability of the technology	3,000	1,000	• Financial barriers

[13] See European Council conclusions of March 2014, which call for this type of initiatives.

UK coal-fired generation with CCS **(UK / Private)** Carbon Capture and Storage (CCS), one of the key available technologies for cutting CO2 emissions from fossil fuel-based power generation (coal and gas) - currently two commercial scale CCS projects in development in the UK, with combined capacity of less than 1GW	4,000	2,000	• Nascent technology • Lack of appetite from debt and equity providers to finance CCS projects (NER300 support; EIB senior and sub-ordinated debt or loan guarantees; EU Capital grants to fund FEED studies and construction costs of non-competition projects and storage and transport infrastructure)
Financing support to innovative Mid-Cap companies **(EU / Private)** InnovFin financial instrument to provide loans to innovative and high growth SME and mid-cap companies	17,900	7,700	• Access to finance (credit crunch) • Current business economic cycle • Lack of confidence and risk taking in the private sector • Firms under-investment

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The investment figures are preliminary estimates and are subject to review and amendment when projects are developed.

1.3 ICT and digital infrastructures

Context

ICT networks are key ingredients of a modern infrastructure. The fast penetration of digital technologies requires the provision of a state-of-the-art communications infrastructure in all parts of the EU. The expected further increase in the number of devices and the ensuing growth in data volumes necessitate a permanent upgrading and extension of the digital ecosystem, including broadband and cloud infrastructure, sensing environments and data centres.

Digital growth and digital reform are crucial to exert macroeconomic impact in the EU and have been widely documented[14].

[14] Lorenzani D.,Varga J. (2014) The economic impact of digital structural reforms. Available at:

As recently confirmed by President Juncker, Europe has made the digital economy and society one of its key priorities. The EU has outlined two primary objectives in support of ICT: by 2020, all EU citizens having access to broadband speeds above 30 Mbps and 50% of the population subscribing to access speeds above 100 Mbps.

Investment needs and perceived barriers

Investment needs to fill gaps exist at two levels: first, for broadband networks, the pace of investment is lagging behind the need, notably for high-speed networks in less densely populated regions, where the financial return to investors from subscriptions is lower than needed to justify the investments in competitive financial markets. This is also particularly relevant for the 'last mile', where public support is needed.

Some EU countries are already making significant progress thanks to implementation of a broadband strategy for the country. But nevertheless, there are still important needs for catching up, also because private investment is currently not showing signs of significant increase. The total gap with the leading regions in the world is estimated in the range of EUR 30 billion a year until 2020[15]. Around two-thirds of this investment is needed for a combination of different technologies (mainly fixed-line broadband) in rural and suburban areas of the EU, which lack financial viability. This effort has to be matched by funding to innovation and digital infrastructure and the provision of skills to EU citizens.

Secondly, investments are needed for a number of programmes that act on the demand side and stimulate use of the infrastructure. Smart cities and communities, E-Government, KETs and/or open data are all relying on digital infrastructure. The aim is to reap the benefits of game changing paradigms such as big data, cloud technologies or 'internet of things' to foster total factor productivity.

As an example, data management services in data centres have emerged as an even faster growing market than data transmission, providing high processing speeds and secure data handling to complement the expansion of data traffic. Providing European users and businesses with the option to route through and store their data in EU-based servers will ensure better protection of business secrets and intellectual property rights and will thus eventually improve EU competitiveness. Likewise, the development of Digital Service Infrastructures (DSIs) would facilitate the cross-border and cross-sectorial interaction of public administrations and industries, as well as enable the provision of essential, but diverse services (e.g. electronic identification and procurement, interoperable health services and cybersecurity). Total investment needs to implement the Digital Agenda amounts to EUR 180-270 billion for the period 2011-2020[16] and would thereby exceed the investment needs for broadband, which are estimated at EUR 73-221 billion for the same period.

A significant part of the investments in new generation telecom networks and new data centres are likely to be financed by the telecom or software providers themselves, the most significant barrier to investments in latest generation fixed and mobile networks consists in the need to speed up the deployment of these networks and the limited availability of financially viable proposals for less densely populated areas.

At this stage, however, private and public investments seem to have fallen short of the needed effort to meet the Digital Agenda targets, namely 100% coverage of fast broadband (i.e. at least 30Mbps) and 50% take-up of ultra-fast one (i.e. at least 100 Mbps) by 2020. In 2013, fast broadband coverage was around 62% (yet, up from 54% in 2012) and only 3% of homes subscribed to at least 100 Mbps. In this context, it seems crucial to create the right regulatory and financial incentives for private operators to

http://ec.europa.eu/economy_finance/publications/economic_paper/2014/ecp529_en.htm

[15] *The Economic Impact of Fixed and Mobile High-Speed Networks*, 2011 EIB Papers (Vol. 16, No. 2, pp. 30-60). Estimates are for 2014 to 2020.

[16] European Commission – CEF Impact Assessment Report 2011.

invest. Evidence from other regions show that with the implementation of very high speed broadband infrastructure on the supply side, a feedback loop on the demand side will develop, with the diffusion of services that need very high speed access. New applications and services emerge both in the private and public sectors that lead to further productivity growth.

The regulatory framework in place has promoted competition (including infrastructure competition) and as a result prices have decreased in Europe, aiding take-up. However, shrinking revenues and the financial downturn might have weighted on investment. Fragmented regulatory regimes in the EU, including ones on protection rules for end-users, may create barriers to cost-efficient roll-out of pan-European services.

As a result, there is a lack of a digital single market facilitating scaling up of content and new online services. The former is due to copyright laws still regulated as national rights, as well as ownership regimes and licensing practices varying considerably across Member States; the latter rather depends on existing rules, combining a single market legislation for e-commerce with nationally defined consumer rights or anti-competitive practices.

A recent review of EU Guidelines for the application of state aid rules in relation to the rapid deployment of broadband networks allows public intervention to boost private investment (including through soft loans or subsidies) for the deployment of this needed infrastructure. The implementation of these guidelines will be monitored to determine their effectiveness.

Solutions

Potential solutions comprise more widespread and more innovative use of financial instruments and grants to better leverage scarce public money, as well as risk-sharing operations to support broadband infrastructure projects. Solutions also include project financing models with a combination of private and public funds, for instance such as the CEF and ESIF. Provided there is an appropriate mix of technological solution (e.g. including also wireless technologies) reducing the risk profile, these operations could also be a way to further leverage public funds. Close collaboration of public sector and industry is needed and joint-funding mechanisms need to be provided to speed up the digitalisation of the EU. Furthermore, the regulatory framework should be reviewed to ensure that it can spur investment in all types of areas. New state aid rules in relation to the rapid deployment of broadband networks and the General Block exemption regulation will facilitate the provision of state aid where is necessary. This has to be accompanied by investment in digital infrastructure and to ensure that an efficient and reliable connectivity eco-system exists. This entails to strengthen the power of high performance computing and distributed computing and data processing capacity in Europe. Finally, the provision of skills to EU citizens has to be part of the effort to make Europe digital.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
Broadband Austria **(AT / Public, Private)** Establishing an area wide fibre glass net	1,000	500	• Public national contribution of EUR 1 bn until 2020 and a frontloading of EUR 500m until 2017 is agreed and will mobilize private investment. According to estimates, the project requires total investments up to € 5 bn.

Broadband infrastructure roll-out in Spain (ES / Public, Private) Expansion of a high speed fixed and mobile broadband network, through concessional loans	600	600	• Lack of financing
Smart and sustainable manufacturing (IT / Public) Public support incentive scheme related to "Smart Manufacturing" aiming to promote KETS projects able to achieve a significant strategic and technological advancement	400	400	• Lack of long term finance • Difficulty to capture and monetise all spill-over effects
Renewal of industry through digitalisation (FI / Public, Private) Internet of things pilot network as a driving environment for industry - new pilot environments will be built in Oulu, Tampere, Espoo and Lappeenranta; new service model and network of key PPP players will be created; industry driven projects will be started	1,000	1,000	• Current resources divided in several organisations and sectors

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2. ENERGY UNION

Access to competitive, secure and sustainable sources of energy is fundamental to economic growth and competitiveness in Europe. It is central both to meeting greenhouse gas emission reduction targets, as well as to energy security concerns in the most cost-effective way. Europe's dependence on imported fossil fuels has a significant impact on its trade balance, while energy prices are an important determinant in EU industrial competitiveness and consumer welfare. In addition, geopolitical risks related to importing energy pose an important threat to Europe's energy security.

Delivering on these climate and energy policy objectives requires sustained investment across the energy supply chain: from indigenous sources of supply through gas and electricity networks (grids) and power generation (production), predominantly from renewable energy sources. This needs to be complemented by investment to reduce demand through improving energy efficiency. Over the next three years, the EU is projected to invest annually some EUR 205 billion on average in the energy sector[17]. Accordingly, some EUR 96 billion need to be invested each year in power generation, most of which in renewable power, and grids; EUR 89 billion in energy efficiency measures in building stock and some EUR 19 billion to improve energy efficiency of the industry. This is much more than the investment pattern from the past.

[17] Based on PRIMES, IA 2030 framework, investment figures covering power, networks and energy efficiency in all sectors assuming full achievement of 2020 binding targets, and 10-year Network Development Plan, (ENTSO-E).

The first section below addresses investment in grids and production, which mostly consists of medium- to large-scale infrastructure projects or investment programmes. These share many typical features and barriers (high capital intensity, low public acceptance…). The second section turns to energy efficiency, which typically involve much smaller projects undertaken by private households, firms and public authorities. Innovation, as a common theme cutting across various sectors, and of particular importance in meeting long term energy goals – has been addressed earlier in Section 1 of this Annex.

2.1 Grids and production

Context

The European energy market is evolving rapidly. On the network side, investment is driven by the need to replace and modernise ageing national infrastructure, to integrate the growth of renewable energy sources within the network, as well as to integrate national systems better within a European energy network, including through the priority investments identified through the European Projects of Common Interest (PCI) framework. Recent events in Ukraine have heightened the focus on short and medium term projects required to increase security of supply, especially in Eastern Europe and the Baltics.

On the generation side, investment decisions are determined through national policies, shaped in turn through EU policies on climate and energy (notably through targets), as well as energy security and deepening the internal energy market. In many countries, governments are currently looking at the way renewables are supported as the technologies mature and their costs fall, and increasing the degree of exposure of the renewable sector to market dynamics. The (temporary) lack of stability discourages investors and prevents several countries from reaping the benefits of the continuously decreasing costs. Relatedly, the issue of securing adequate generation capacity on the system is under active policy discussion in many Member States, highlighting the need for more investments in strategic, smart and flexible infrastructure.

Investment needs and barriers

Turning first to grids, under the Project of Common Interest (PCI) programme a comprehensive pipeline of 248 transmission projects needed until 2020 has been agreed with Member States. Nearly EUR 119 billion will be required to implement all the 248 projects. Out of these, 72 PCIs, costing c.a. EUR 50 billion, are mature and will be implemented (i.e. capital engaged in construction or completed projects) until the end of 2017. Twenty of these mature projects have been identified as urgent to ensure EU security of supply[18]. Beyond PCI projects, investment in MS internal grid and production systems is important for growth and competitiveness, for example through investment in distribution systems (e.g. smarter grids, plans to install 200 million smart meters for electricity and 45 million for gas by 2020). On the generation side, based on the modelling work referenced earlier, EU Member States together with the private sector are estimated to invest annually some EUR 48 billion to meet renewable targets set for the end of the decade.

In principle, it is the market which is expected to deliver the bulk of this energy infrastructure investment - either through private companies responding to wholesale market prices and renewable energy support schemes, or through regulated monopolies (Transmission and Distribution System Operators) responding to incentives set out under a regulatory framework agreed with the national regulatory body. However, in practice, a range of barriers may delay, or even prevent investment in this sector. These can be broadly grouped around issues of regulation, public acceptance and financial barriers.

[18] Part of the 33 projects included in the Communication on European Energy Security of Supply (COM(2014) 330 final).

The regulatory and legislative framework is crucial to incentivising capital-intensive investment. For networks, the regulation of national or regional companies has been traditionally focussed primarily on ensuring greater efficiency in delivering clearly-defined network services. Meeting long term emission targets typically poses new investment challenges, however, in particular regarding the timing, location and volume of network investment. In terms of cross-border interconnections, national network companies have traditionally faced only relatively weak incentives to overcome the additional complication of coordination, planning and implementation with neighbouring companies operating under different regulatory regimes.

In terms of interconnections and smart grids, steps have been taken at European level for example, through the 'Projects of Common Interest' agreed with the Member States and the present Member State plans to roll out smart metering systems by 2020. However, some areas remain isolated from the European Internal Energy Market and urgent measures need to be taken to ensure the achievement of a minimum target of 10% of existing electricity interconnections and to facilitate the implementation of projects of common interest particularly in those areas as detailed in the October European Council conclusions.

On the generation side, investment in capital-intensive energy infrastructure assets requires a stable investment environment. Renewable energy is particularly sensitive to any actual or perceived risk of ex-post changes aimed to adapt the support schemes towards market-oriented support mechanisms. Recent experience in Europe is testimony to the urgent need to increase investor confidence in the regulatory framework, in particular by ensuring such schemes are cost-effective and financially sustainable in the long run. Failure to effectively integrate mature renewable technologies within the wider internal electricity market has also proven to be a barrier to the sector.

Turning to the second type of barrier, a low degree of local public acceptance can often significantly delay or even prevent large-scale energy infrastructure projects or raise costs (e.g. requiring power cables to be buried underground instead of cheaper overhead power lines).

Financial barriers remain potentially important. Budget constraints and consumers' unwillingness to bear additional charges and levies to fund subsidies are restraining investments in renewables in several countries. Many European utilities are currently contracting their balance sheets, in particular consolidating recent losses on their thermal power generation fleet. Despite historically low interest rates, a lack of access to long term finance (or only at prohibitive terms) constitutes an important barrier in some markets. Non-recourse project structures, which are relevant to some renewable sectors (e.g. wind), may help address this constraint, particularly where it provides access to new sources of funding. However, there is not a long track record of investment by institutional investors in renewable energy infrastructure in Europe. In addition, some energy companies, particularly in Eastern Europe, suffer from structural balance-sheet weakness which penalises access to finance, while smaller, independent developers of renewable projects have found access to finance problematic in recent years.

In conclusion, the combination of such barriers in practice discourages or delays investment, and pushes up the cost of finance.

Solutions

The barriers outlined above need not be prohibitive: well-targeted public intervention, including through financial means, can help overcome such constraints and thus accelerate project delivery.

Whilst it is predominantly the private sector which invests in networks and power generation, stable, well-designed regulation (also vs. third countries) is crucial in facilitating economically-productive investment, and driving down risks and thus the cost of capital. On the network side, effective regulation is required to ensure that network companies make sound investment decisions to meet both short- and long-term energy goals such as maintaining high security standards in a cost-effective

manner, promoting electricity and gas trade, facilitating connection of renewable energy projects in a reasonable timeframe or rolling out smarter grids and metering technology. In turn, the regulatory framework should enable network companies to access long-term finance. This same principle applies to renewable generation.

This needs to be supported by a clear policy framework at European level. In this regard, the Commission will continue to give priority to the full implementation of existing legislation, in particular of the third internal energy market package adopted in 2009 and the TEN-E Regulation adopted in 2013. The Commission will intensify support to ensure better coordination of efforts to complete the Projects of Common Interest with all relevant stakeholders, including the EIB. Strong political support and an integrated approach on both sides of a border remains a pre-requisite to accelerate these large projects, which underpins the need of reinforcing the PCI approach with complementary legislative and financial measures to ensure adequate interconnection of Member States. An integrated approach for multi-Member State infrastructure (e.g. Northern Seas offshore energy system) could facilitate investment.

Further EU funds and EIB support should be considered, not only for the implementation of PCIs, but for projects in individual Member States. In particular, a greater role for EIB in low carbon energy generation and transmission projects to complete the internal energy market, where projects are large scale or high risk should be considered.

In general terms, the adoption of the Emissions Trading System (ETS) reform through a Market Stability Reserve will help stabilise and reinforce the investment climate. In the case of renewable support schemes, the new Environmental and Energy State Aid Guidelines provide a clear framework for needed reforms for stability and market-based schemes against which the Commission will verify the compliance of national support schemes (auctioned support as of 2017 while offering Member States flexibility to take account of national circumstances) and supporting cross-border energy infrastructure to further the Single European Energy Market. In addition, as technologies mature, increasing market integration (e.g. through access to liquid short-term national wholesale and balancing markets) will further boost investment certainty. The Commission will also continue to ensure that capacity remuneration mechanism design optimally supports supply and demand-side investments and is open to cross-border participation.

In addition to regulatory issues, public authorities can address financial barriers. This is partly in the form of grants or financial instruments e.g. the CEF or ESIF. For instance, CEF instruments can help accelerate PCIs and, by reducing the value of assets entering the companies' regulated asset base, can reduce network charges. In addition, public money can help to galvanize new sources of funding, for instance acting as risk capital to enhance the credit rating of non-recourse projects. Many network projects, or renewable energy projects, with long term regulated revenues, often indexed to inflation, are in principle an attractive investment class to capital markets– but until a certain track record is established in the market, limited public support may help provide an important demonstration effect.

Illustrative example of project(s)

Project (Country / Promoter type)	**Total investment cost (EURm)**	**Investment in 2015-17 (EURm)**	**Barriers to implementation (Solution)**
Greece-Bulgaria power interconnector **(BG, GR / Public)** Construction of a new single-circuit interconnector with a length of 130 km and a capacity of 2000 MVA between Maritsa East 1 (BG) and Nea Santa (GR) (onshore)	48	38	• Lack of funding • Political and regulatory difficulties in developing cross-border interconnection projects

North - South Gas Corridor **(HR, PL, SK, CZ, HU, SI / Private)** North - South Gas Corridor will connect the LNG terminal in Swinoujscie through PL, CZ, SK, SI and HU to the LNG terminal in HR. The project will increase the integration of regional gas markets, increase of security of supply and give access to new sources of supply for Eastern Europe	4,200	1100	• Large financing needs • Permitting (Cross-border coordination & permitting helped by inclusion on shortlist of high priority strategic investment PCI projects)
Integration of the Iberian electricity market to the internal energy market **(ES / Private)** New transmission infrastructure aimed at improving Spain and European market interconnection, e.g. Basque Country-French border * estimated costs, pending completion of technical and environmental studies	4,000*	4,000	
Integration of the Italian electricity market to the internal energy market **(IT / Private)** HVDC electric power transmission infrastructure to the French border aimed at improving Italy and European market interconnection	480	480	
Integration of the Eastern Baltic region to the internal energy market **(FI, EE, LT, LV, PL/ Public, Private)** New transmission infrastructure aimed at improving market interconnection and security of gas supply in the region, including several Projects of Common Interest, e.g. BALTIC-CONNECTOR, regional Baltic LNG terminal, enhancement of Klaipeda-Kiemenai pipeline, GIPL interconnector (PL-LT)	750	500	
North Sea and Baltic Sea offshore wind projects **(DE / Private)** Multiple offshore wind farm projects in the North and Baltic Sea, and supporting grid infrastructure; to be seen as part of a wider energy system optimising the development of the new offshore generation capacities and	19,900	17,700	• Regulatory uncertainty on future renewable support • Technical challenges to integrate planned projects with mainland transmission grid and markets

interconnections of national networks of countries in the Northern Seas region			• Technological risks • Administrative burdens • Access to finance
North sea offshore wind **(UK / Private)** Offshore wind development including specific projects of around 2667 MW	21,300	10,400	• Future offshore wind projects will be installed in deep waters, considerably increasing construction and maintenance costs (Debt financing or loan guarantees could help attract private investment)
Energy network infrastructure **(LU / Private)** Energy network investments in Luxembourg, including grid expansion, refurbishment, installation of intelligent infrastructure and cross-border networks with PCI components	348	100	• Permitting • Large financing needs compared to historic levels • For the interconnectors, cross-border coordination with other operators (Permitting for PCI components facilitated by new TEN-e regulations)

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2.2 Energy efficiency

Context

The large cost-effective potential for saving energy across Europe has been identified in numerous studies. For instance, approximately 40% of final energy is consumed in buildings, of which around three-quarters pre-date the introduction of energy-related building codes. Currently refurbishment rates are low – at just over one percent of the total building stock per year. A key issue to address is therefore how to increase the rate and depth of renovation of existing buildings.

Beyond the building sector, energy-intensive industry (e.g. steel, cement, chemicals) consumes approximately a further 15% of final energy in Europe, with an additional 10% from remaining industrial players. Whilst European manufacturing firms have already significantly reduced their energy

intensity[19], these gains have not been sufficient to offset rising energy costs. Possibilities to save energy still remain in most enterprises including in SMEs, for which energy is not a major cost and, therefore, has not elicited so far strong management and operational focus.

Lastly, district heating (including fuel switching from fossil fuels to renewable energy) represents an area with important investment potential in particular in Central and Eastern European countries.

Building on the 20% target for 2020 which had been assessed by the Commission[20] highlighting the need to leverage private investment, the European Council has recently endorsed an indicative target of at least 27% for 2030 which will be reviewed by 2020, having in mind an EU level of 30%.

Investment needs and barriers

Annual energy efficiency investments in buildings are projected at EUR 89 billion over the period 2016 to 2020, i.e. some EUR 61 billion for households and EUR 28 billion for the tertiary sector (public buildings & offices). There is considerable potential for private sector involvement (e.g. through Energy Performance Contracting). Energy efficiency improvements to buildings do not generally entail technically complex investments, but a range of barriers often mean that, in practice, even investments with a strong financial rationale or with available funding do not take place.

Different types of buildings typically face different investment barriers. Commercial buildings, such as offices or shops, often lack the "business case" at the level of the property manager/investor, or face split incentives between the building owner and occupier. Public-sector buildings, such as schools, hospitals or administrative centres face limited technical capacity of a local administration to prepare and tender bankable projects. In relation to private residential buildings, the main barriers relate to high transaction costs and short pay-back expectations by owners, combined, especially in the new Member States, with difficult access to finance due to low creditworthiness of the individuals or home-owner associations. Another issue is the lack of standardised financing products, stemming mostly from the "early market" characteristics of energy efficiency investments. Taxation and subsidy regimes of different energy products in the European Union also are not always consistent with incentivising investments in energy efficiency. Lastly, evidence[21] suggests that lack of robust "history" on performance of energy efficiency investments leads to high risk perceptions at the side of debtors, underwriters, valuators and therefore investors.

Solutions

In assessing best practice in Europe, it is useful to distinguish between potential solutions directed towards public-sector and private-residential buildings.

As regards public-sector buildings, further assistance is required to relatively weak local public administrations to prepare investment programmes. A relevant mechanism to achieve stronger uptake of energy efficiency investments is to upscale and widen the project development facilities, including those set up at EU-level[22], to both public and private sector entities. Resources available under ESIF for the technical assistance should target assistance on project level as well as supporting the design of a regional/national programme. However, it is important in parallel to ensure strong implementation of the regulatory framework and removal of regulatory barriers. As well, a provision of long-term low-cost capital will be essential should investments in this sector be up-scaled. Combining these three points would allow public and private entities to structure large scale energy efficiency programmes of

[19] European Competitiveness Report 2014,*Helping Firms Grow*, http://ec.europa.eu/enterprise/policies/industrial-competitiveness/competitiveness-analysis/european-competitiveness-report/index_en.htm.

[20] In its “Communication on energy efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy” the Commission estimated that the EU will achieve energy savings of only around 18-19% in 2020.

[21] Energy Efficiency Financial Institutions Group, Interim report, 2014

[22] Financed under the Horizon 2020 Energy Efficiency Work programme (PDA call and ELENA Facility)

their building stock which could be delivered by the private sector. This has been the experience of the US, and can be replicated in Europe.

Regarding private sector buildings, Germany has developed a large-scale programme over the last decade, implemented through KfW, to promote energy efficiency investments as part of home renovation loans. This programme has been tailored to a national context with a large percentage of rental accommodation, and in particular supported through a legislative framework that facilitates owners recouping investment costs by adjusting rental charges. Similar schemes could be expected in many EU Member States. Other mechanisms are at a more preliminary stage in other countries, including schemes which tie the repayment of the investment cost to the property rather than the owner and to ensure that property valuation and mortgaging schemes reflect the value of the energy efficiency improvements.

Most of the Member States have already developed or are currently developing energy efficiency programmes targeting both public and private buildings, many of which involve the ESIF for the 2014-2020 period. In 2013, 16 Member States have had established subsidised loan schemes[23] for buildings renovation. Support from ESIF may be used in existing schemes while focusing on linking the support intensity with the achieved energy savings, and establishing new schemes in countries where needed. The ESIF "renovation loan" off-the-shelf instrument and EU level instruments can be used as a model to accelerate investment.

Potential remains at both EU and national level to further increase and optimise the use of these funds, in particular using financial instruments to target limited public money more effectively to maximise overall investment. The EU investment instruments should be designed to enable the Member States to make maximal use of the funds and a close cooperation with and flexibility of the European Commission are crucial. Additionally, further harmonisation of tax and subsidy treatment across the EU, in manner which promotes energy efficiency, would help promote investments. Certain Member States initiatives such as the development of programmes for reinvesting the revenues from the auctioning of ETS allowances into energy efficiency projects should be used as examples for other Member States. It should be also taken into consideration that the needs of each Member State can differ across the EU.

There is a high untapped potential for the modernisation of district heating in Central and Eastern Europe. Some Member States have allocated resources for these investments, and additional lending programme(s) could help to unlock this important investment area.

To conclude, strong implementation of the current European energy efficiency regulatory framework is a fundamental element to scale up investment in this sector[24], accompanied with instruments which take into account the fragmented and heterogeneous nature of the market.

[23] "Financing building renovations", 2014, JRC

[24] Communication on energy efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
Public buildings energy efficiency **(FR / Public)** Programme for the construction and rehabilitation of public buildings in France aiming at improving their energy efficiency	710	530	• Debt limit of the public authorities
Public and residential energy efficiency **(SK / Public, Private)** Energy efficiency investments in public and residential buildings in Slovakia	600	400	• Limited grant resources. (Use of financial instrument to achieve higher leverage) • Project preparation (Possible support for project preparation)
Energy efficiency and energy upgrading of households **(CY / Public)** A special fund to offer loans to households under competitive terms for energy efficiency and energy upgrading	120	50	• Lack of (co-)funding for ESI funds (Use of financial instrument to achieve higher leverage)
Social housing **(NL / Public)** Investments supporting retrofitting of social housing to create energy-efficient housing (scaling up of the pilot phase of the "Energiesprong" project). (This project can also be expanded to the affordable housing and private owners-sectors at a later stage)	6,000	1,500	• Financing difficulties • Regulatory • Synchronisation between demand and supply of retrofitting (Existing EIB funding for targeted funds could be expanded)

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3. TRANSPORT (enabling infrastructure)

Transport facilitates trade and connects people and businesses. Good transport connections are vital for Europe's growth and competiveness. Sound transport investments both sustain aggregate demand

in the short run and secure solid investment returns in the long run. Apart from physical infrastructure, investments are needed to transform the transport system towards low carbon, environmentally-friendly technologies and to deploy intelligent transport systems to make better use of existing infrastructure. Extensive innovation in propulsion, navigation and alternative fuels are also needed.

Long run transport investment levels (new investments) in developed EU economies have traditionally been approximately 1% of GDP whilst newer Member States have been spending more as a percentage of GDP in order to catch up and complete their basic networks. However the recent trend - exacerbated by the financial crisis - is that this level of investment has decreased. The EU-27 average in 2011 was 0.7% of GDP. The short term impact of such lower investment may appear easily managed but in the long term it creates a backlog which will create further bottlenecks for trade and growth in Europe.

Transport infrastructure has typically been the responsibility of the public sector and this trend continues today. However, in some Member States, there has been significant private sector investment associated with infrastructure in particular that generates revenues from users: toll roads, ports and airports. In a fiscally constrained environment encouraging the use of the user-pays principle as well as private participation is an important part of the solution to accelerate investment.

3.1 Corridors and missing links

Context

At the European level the establishment of a coordinated transport network in support of the internal market and territorial cohesion in the EU is a priority. The TEN-T guidelines identify the Trans-European Transport network for the horizons 2030 and 2050, for all of the main modes of transport. Completing the 'core network' of key corridors will be the first priority at EU level.

Investment needs and perceived barriers

A significant investment effort is required if the investment backlog is to be reversed. The Commission estimates that the investment needs for all transport infrastructure is EUR 1.5 trillion by 2030. Indeed, more than EUR 600 billion of investment needs until 2020 have been identified in the preliminary drafts of the work plans for the 9 multimodal European Corridors.

In a number of countries with mature or intensely used transport networks, the renewal of ageing or worn-out infrastructure at the end of their useful working lives should be a priority. Such projects generally offer strong economic returns, however historically rehabilitation has often been deprioritised in favour of more urgent new investments as the impact of not renewing assets is only felt over time. Such investments also make sense from an environmental sustainability perspective as long as the project does not increase capacity and there are no better alternatives. Some EUR 20 billion per year is needed for the rehabilitation of existing networks. In the current constrained fiscal environment, it is clear that Member States will not be able to meet such investment needs through traditional public financing alone.

As a result of the crisis, there are fewer “on the shelf” projects ready for funding. This combined with the long lead times for preparing complicated infrastructure projects due to public approval procedures, means that accelerating major new transport investments may take time.

A key element for delivering successful projects and for building private sector confidence is the existence of an appropriate legislative and regulatory environment. In some Member States the transparent application, simplification and acceleration of permitting and procurement procedures would facilitate the implementation of projects. Whilst in principle private investors are interested in transport investments, they prefer assets already in operation where the risks are clear. This makes

greenfield projects more difficult to finance in particular in sectors and countries where investors are wary of assuming construction and demand risk.

Lack of standardisation and harmonisation of standards at the European level is another barrier. This is particular the case in areas such as railway signalling (adoption of the European Rail Traffic management System) and air traffic management (Single European Sky) which hinders the optimal use of existing networks and reduces the benefits of new infrastructure.

The capacity to select and develop major transport projects is weak in some countries. Both public and private sector promoters can require support, however their needs are different. Public sector promoters in certain Member States or at the local authority level lack capacity to structure and deliver infrastructure projects. Private sector promoters need support due to weak credit profiles and difficulties in accessing funding. Countries wishing to establish PPP programmes often do not have the specialist skill sets required in the public sector. Previous negative experiences with poorly structured PPPs along with the greater cost, lead times and complexity also create disincentives to adopting this solution.

Solutions

In a fiscally constrained environment, it is even more important to improve the quality and efficiency of public spending. Efficient public sector delivery of projects backed by an increased adoption of the user-pays principle is one possible solution. Another solution is stimulating private sector investment in projects. This can be achieved by the use of PPPs where appropriate and financial instruments, the establishment of a clear regulatory basis for the operation of monopoly transport assets and long term concessions. These solutions are all well understood but depend on political preferences in Member States.

There is a clear need for increased support in some Member States to improve the quality of projects and to accelerate their preparation. Established and/or other forms of specialised models of advisory initiatives may be necessary to meet this need. Sharing of best practices can also contribute to the solutions.

There is a need for a stable pipeline of sound projects to provide long term visibility for both public and private investors. Projects must be subjected to robust prioritisation using clear socio-economic criteria. At the European level the legal framework for prioritising the future TEN-T project pipeline is clear.

The Commission is prioritising the development of nine TEN-T priority corridors for which work plans will be presented to the Council in early 2015. These are expected to focus on key sections with the highest European added value, in particular cross-border sections, missing links, multimodal connecting points and major bottlenecks. Many of these investments are already under preparation and should be ready for early implementation. European funding can play an important catalytic role in securing the delivery of these projects. The EIB will assist the Commission and Member States in identifying those projects that could be suitable for the use of financial instruments. In addition, the Commission and the EIB are continuing the development of new financial instruments to support transport projects with specific financial needs.

Where possible, opportunities for user charging should be exploited and national administrations could systematically screen larger projects to assess their suitability for PPP and/or the use of financial instruments. A particular effort should be made to support the combination of EU grants and private funding for PPPs. This may be achieved through improved guidance, the promotion of successful examples and support through technical assistance. The amount of subsidy granted to any given project should be such as to allow the project to proceed and act as a catalyst to private investment. Risk sharing techniques to allow private sector financiers to accept project risks and weaker counterparts than they might currently be inclined to accept should be explored. This could include calibrating financial instruments to take account of uncertain economic prospects over the life of the

project. Public authorities should be adequately equipped to assess those risks to find the right risk-sharing arrangements to avoid placing undue burden on tax-payers.

The efficient use of existing infrastructure can be improved by the deployment of innovative technology and operational concepts to manage networks better. The monetisation of assets in sectors with clear commercial activities, such as ports and airports could be exploited, allowing new investments to proceed. Finally, regulatory reforms in the railway markets are needed in a large number of Member States where often competition is low and still dominated by former monopolies.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
Fixed link between Denmark and Germany across the Fehmarnbelt **(DK / Public)** A 19 km long fixed connection between Scandinavia and continental Europe, creating a strong transport corridor between the Øresund region in Denmark/Sweden and Hamburg in Germany (TEN-T core network)	6,200	1,700	• Large and highly complex cross-border project (Budget envisages significant funding from CEF)
Sections of the Warsaw - Kaunas - Vilnius - Riga - Tallinn railway line (Rail Baltica) **(EE, LV, LT, PL / Public)** European gauge fast rail connection between Estonia, Latvia, Lithuania and Poland, priority project for the Connecting Europe Facility, seeking to integrate the Baltic States with the European railway network and bring future economic growth to the region, reaching to Finland and Poland	4,500	2,000	• Political and regulatory difficulties in developing cross-border connections, particularly when several countries are involved • Permitting issues, leading to possible delays • Long preparatory work (land acquisition, public procurement, technical documentation) • Lack of long term finance (Strong political support and project coordination needed as well as EU financial support).
Express road and motorway programme - North-South corridor **(PL, SK, HU / Public)** Investments to remove bottlenecks on TEN-T road network (PL: A1, S3, S11, A1/S1/S69, S61 and S19; HU: M15, M30; SK:D3, R4) to increase connectivity in the region	17,500	6,000	• Permitting issues leading to possible delays • Lack of public funds for large investment needs (Financing solution based on a mix of own and EU funds and EIB lending)

Investments in the Mediterranean and Atlantic Priority Corridor **(ES / Public)** Access to ports and railways, replacing the congested existing access and linking to the Connecting Europe Facility Mediterranean corridor	10,500	2,300	• Lack of financing, due to budget constraints
Kiel Canal (Nord-Ostsee-Kanal) **(DE / Public)** Essential for the trade between countries of the Baltic area and the rest of the world and in need of upgrades, in particular the locks, to accommodate bigger ships	1,500	500	• Possible delays due to choice of financing model

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3.2 Business enablers

Context

The transport industry plays an important role in the EU economy, directly employing more than 10 million people, accounting for 4.5% of total employment, and representing 4.6% of GDP. Manufacture of transport equipment provides an additional 1.7% of GDP and 1.5% of employment. Transportation and logistics related costs as a percentage of sales range from 5% to 15% depending on industry sector for companies.

The ability of industry to generate growth and to deliver products to market depends critically on the transport system to facilitate the import of raw materials and components, and to export finished products to both European and international markets. Europe's seaports and airports form the international gateways for European trade and business with the rest of the world, and need to be connected to a modern, efficient and reliable logistics system based on a land based transport network and modern vehicle fleets incorporating modern and clean technology.

Increasingly companies expect to be able to manage all elements of their supply chains and to rely on just in time deliveries. Consequently much of the investment focus is on multi-modal logistics platforms to enable bulk long distance cargos arriving by sea or rail to be broken down into smaller loads for local distribution by road. This process also often involves the transformation of generic goods into products customised for the European market. This drives demand for large warehousing and light industrial units as part of these logistics platforms.

However, the benefits of efficient long distance transport can be lost in the last few kilometres of the journey which usually take place in urban areas – the so called "last mile" problem.

Investment needs and perceived barriers

Apart from the long distance networks, much of logistics investment is already undertaken by commercial entities with public authorities playing catalytic roles in designating sites, coordinating the provision of transport access and facilitating planning approvals. However, delivery to the final customer still relies on shared urban infrastructure with competing uses. Despite decades of development, urban traffic management systems in many cities are relatively unsophisticated, and

there is a need to invest in modern traffic management and control systems in order to reduce the cost of congestion (estimated at 1% of GDP) and to roll out complimentary investment in alternative fuel networks and automated vehicles.

Seaports are often the first element in the logistics chain. A recent example of a major port investment is the privately financed deep water container terminal at the port of Liverpool connected to the TEN-T rail and road network as well as an inland waterway. The private and landlord port models have brought much needed private investment to ports, with some of Europe's largest being amongst the most efficient in the world. However, many less efficient ownership and operations models still exist, and the investment climate in others is constrained by uncertainty about public sector investment in connecting infrastructure, particularly railways.

In the shipping sector there are significant investment needs related to the improvement of energy efficiency, lowering of emissions and the improvement of transport safety. The European marine equipment industry is a technology leader in a global market with a volume of some EUR 40 billion per year. However, investments have been delayed due to the global crisis in shipping and shipbuilding and an uncertain regulatory situation in the International Maritime Organisation. The retro-fitting of many ships will be necessary to comply with new stricter legislation on emissions (Sulphur Directive) and ballast water treatment. Compliance with these new requirements is burdensome and, considering the current economic environment, there may be a need for public policy support to the sector. The current uptake of such investments are slow with industry estimates of between 1,000 and 2,000 sulphur scrubber installations over the next five years corresponding to EUR 5-10 billion of investment.

More generally investment in modern rolling stock, shipping and vehicles is often hindered by credit considerations, in particular for small companies operating in competitive markets.

Solutions

The proposals outlined above in the section 'Corridors and Links' apply equally to the long distance part of logistics chains. In particular, the need to more proactively identify projects with high European interest and to be able to more flexibly target support to these at whatever level is required to implement them. The current Corridor Studies and the previous work done on Rail Freight Corridors now could be turned into a pipeline of projects of European interest which are agreed by the Member States on the basis of more flexible EU support.

Europe's major seaports and airports are capable in general of raising the necessary finance to fund expansion. These successful private and 'landlord' models could be extended more widely, with a resulting boost to public sector finances and a more market focused operation. The uncertainty here relates to extended planning procedures and political uncertainty. Given the long lead time for these projects, Member States should be encouraged to develop strategic plans for the future of their Core Network airports and seaports and to progress these through national planning processes on the basis of measurable milestones. Planning and ensuring proper hinterland connections to ports and airports are key.

Support to Mid-caps and SMEs for rolling stock, shipping and vehicles could be further boosted by credit enhancement mechanisms, either for the companies themselves or for revolving investment funds dedicated to the sectors.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
New terminal for Helsinki airport **(FI / Private)** Phased capacity increase of TEN-T Hub airport	900	350	• Possible issues with statutory permits
Dublin Port - Alexander Basin Redevelopment **(IE, Public)** Infrastructure works in the port of Dublin (TEN-T Hub port), including the redevelopment /reconfiguration of Alexandra Basin to accommodate larger ships and to provide for a substantial increase in port capacity	150	50	• Lack of public financing (Financing solution based on a mix of own and EU funds and EIB lending)
Breakwater for Valletta's second harbour **(MT / Public)** Breakwater to render Valletta's second harbour – Marsamxett – an all-weather port	130	130	• Technical studies • Regulatory and environmental issues • Financing (With the right incentives, the project could be modelled to involve private sector co-financing)
New terminal Frankfurt airport **(DE / Private)** Extension of the existing Frankfurt Airport (TEN-T Hub) by a third terminal building	3,000	1,500	• Political decision at federal state level to re-assess the need of the project

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3.3 Urban transport

Context

Today some 2/3 of our population already lives in urban areas and this share is forecast to rise to some 85% of the population by 2050. Transport infrastructure in urban areas has a significant impact on the

competitiveness of a city and its surrounding region. In effect there is little point having efficient long distance transport if all the cost savings and time gains are lost in the last kilometres. The improvement and optimisation of the 'the last mile' is linked strongly to the SMART Cities agenda. However, such investments need to be integrated with comprehensive urban development and mobility plans balancing the needs of all transport users as well as the urban environment.

Despite many years of development (toll rings / supplementary licencing / congestion charging), the extension of the 'user pays' principle to transport has been patchy, and no more so than in urban areas. As well as rationalising the use of limited space in urban areas, it has the potential to generate revenue streams which can underwrite further investment.

Most journeys begin and end in cities. In many urban areas, however, increasing demand for urban mobility has created a situation that is not sustainable: severe congestion, poor air quality, noise emissions and high levels of CO2 emissions. Urban congestion jeopardises EU goals for a competitive and resource-efficient transport system. The total cost of congestion in European towns and cities is estimated at EUR 80 billion annually.

With the Urban Mobility Package adopted in December 2013 and the new TEN-T framework, the Commission recognises this problem and has introduced the concept of the "urban node" which focuses on integrating the inter-urban TEN-T links with the cities they serve.

Investment needs and perceived barriers

Urban areas are diverse in their needs and circumstances. Therefore local authorities need to develop urban mobility strategies and projects that fit their particular situation. At the same time it is important to avoid unnecessary fragmentation in the deployment of technologies such as Intelligent Transport System (ITS) solutions and policy-based measures. A patchwork of solutions that confuse users or lack interoperability undermine efforts for the creation of a single European transport area which offers easy and seamless door-to-door mobility across the EU. This is also partly due to a lack of capacity at local and regional level in understanding how to organise and coherently plan actions for urban development and mobility.

Again, many of the bottlenecks are shared with those identified under the section 'Corridors and Links' above, in terms of the provision and upgrade of transport networks, provision of missing links and the reduction of congestion. Notably, interest by private investors is limited due to the longer term nature of urban projects and generally low financial returns (vis-à-vis high social benefits).

Solutions

Introduction of early-stage funding and grants to pay for initial research, feasibility studies, capacity building, policy design and TA have proven to be catalysts for private-sector investment. Funds for research and innovation in this area are being launched under the Commission's Horizon 2020 programme.

If urban growth is to be managed in an environmentally sustainable way, investments will have to increasingly be multi-faceted comprising not only traditional infrastructure but also management systems using intelligent transport technology and the provision of alternative modes of transport. Also, investments need to increasingly encourage the switch to alternative fuel and engine technologies, which need to be integrated into existing modal choices.

New approaches to urban mobility planning are emerging as local authorities seek to break out of past silo approaches and develop strategies that can stimulate a shift towards cleaner and more sustainable transport modes but are still in the early stages of development and support is required to further enhance this development.

The concept of "Sustainable Urban Mobility Plans" provides guidance to local authorities on how to implement strategies for urban mobility that build on a thorough analysis of the current situation. A clear vision for the sustainable development of an urban area must be further integrated in decision-making and bundling of investments programmes. The sustainable urban mobility plans should be developed in cooperation across different policy areas and sectors (transport, land-use and spatial planning, environment, economic development, social policy, health, road safety, etc.); across different levels of government and administration; as well as with authorities in neighbouring areas - both urban and rural. For the period 2014-2020, the preparation/development of Sustainable Urban Mobility Plans by local authorities is eligible to support by ESIF in all types of regions.

Finally, a way to make urban projects more attractive to private investors would be to pool similar projects in to a portfolio, thereby creating an investment vehicle of an attractive size.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
Brussels Urban Mobility Plan **(BE / Public, Private)** Urban mobility investments comprising: parking spaces; automation of metro lines; construction of a new metro line; renovation and safety works of tunnels for car traffic	2,900	1,250	• Access to finance • Cost of finance
New metro line in suburban Paris **(FR / Public)** First construction phase of line 15 in South of Paris (first in a series of investments in Paris for new metro in suburbs)	5,200	3,000	• Insufficient long term financing (A combination of low cost finance and subsidies is necessary. User fees will cover part of the costs)
Infrastructure for electromobility **(CZ / Public, Private)** Charging stations, enhancement of network in key nodes, ICT systems supporting the development of mobility, which helps to reach EU goals - decarbonization, dependence on the import of primary energy sources etc.)	55–75	33–45	• Insufficient long term financing • Significant non-monetised benefits mean that revenues are insufficient to cover the high price of technology

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4. SOCIAL INFRASTRUCTURE

Social infrastructure for the purpose of this paper covers three sub-segments, education and training, health as well as the built environment and cities. Both education and health are key for sustained productivity growth, while with 75% of the EU population living in cities, the entire urban context, including social housing has a key importance in the EU policy agenda.

4.1 Education and training

Context

Should current trends persist, Europe's economy will face a significant shortage of highly-skilled workers, conservatively estimated at 5 to 8 million people by 2020[25]. Scarce skills in high demand will likely be found in a number of areas that support the application of new technologies such as IT, mechatronics, robotics, or medical technology. Conversely, technological developments, global trade and offshoring will reduce further job opportunities and labour income for the low- or even medium-skilled people.

Education is thus key to productivity and growth and has high private and societal returns. Currently, there is a significant investment gap in education across the EU, while other regions in the world are using education as a strategic investment to strengthen their competitiveness.

Europe needs to be in the forefront in digitalising education. Although digital competences are essential for employment, only 30% of students in the EU can be considered as digitally competent; and still 28% of students in the EU have practically no access to ICT, neither at school or at home.[26]

There is a public interest in having as high as possible educational achievement of citizens. Assuming that Europe's competitiveness will remain increasingly based on knowledge-intensive activities, the demand for young people with excellent post-secondary education and training and an adequate skill-set will increase. This indicates a need for more and better education and training systems (up-skill and re-skill), including pre-school and school education, tertiary education, vocational education and training and adult learning.

Investment needs and perceived barriers

The EU spends about 6% of its GDP on education, with 8%[27] of this amount invested in facilities (mostly school buildings and equipment). In the course of the last four decades, the stock of educational facilities has deteriorated significantly to a point where broad-based modernisation programmes are needed to make the facilities fit for purpose and equip them with latest generation technology.

To close the large maintenance backlog in education facilities, around EUR 10 billion[28] per year would be required for education infrastructure. Further investments are needed to modernise the IT infrastructure of educational institutions, including targeted investments to boost the use of new technologies in higher education.

[25] McKinsey Global Institute: *The world at work: Jobs, pay, and skills for 3.5 billion people*, June 2012.

[26] European Commission COM/2013/0654 final.

[27] Source: EUROSTAT, COFOG 2012

[28] EIB estimates based on industry data and publications.

This applies to most EU Member States and pertains to all levels of education. Many EU Member States reduced their education budgets in real terms since 2010. As the public sector is the most important source of funding in the EU, the funding gap is expected to widen with negative long term implications for Europe's economy. In addition, the long term nature of education investment, the inadequate financial returns and externalities limit potential private financing. Other bottlenecks are (i) the small individual project size (the need to combine projects in order to attain certain critical size); (ii) dispersed and complex multi-level governance of education; (iii) administrative barriers preventing cooperation between educational institutions and private sector (representing future employers); and (iv) lack of private investment in lifelong learning (market failure), putting older workers at a disadvantage; and (v) encouraging the creation and support of open, digital learning environments, new methods and technological learning solutions where content is widely accessible.

Solutions

Investment in education infrastructure should aim at: (i) upgrading the equipment to modern IT standards for teaching and learning; (ii) plugging the gaps in school infrastructures, including in remote areas and localities populated by marginalised communities (e.g. e-learning); (iii) aligning the supply of early childhood education and care infrastructures with demand; (iv) developing and modernising the infrastructure of vocational and educational training institutions as well as, higher education institutions including super-fast broadband, laboratories, teaching facilities and support structures (e.g. student housing), (v) encouraging the creation and support of open, digital learning environments, new methods and technological learning solutions where content is widely accessible; and (vi) creating incentives for employers to invest in their employees' life-long learning.

In order to increase the level of investment in education facilities and to bring forward their implementation, additional measures might be envisaged. For example, a wider use of PPP models would alleviate the pressure on public budgets in the short-term, while also better supporting education infrastructures. Administrative capacity needs to be strengthened to enable pooling of smaller projects, increase standardisation and structuring education investment programs. Active labour-market measures, as well as apprenticeship schemes and youth guarantee measures also play a particularly important role. A whole ecosystem is needed bringing together developers and users of digital education services to broaden access to education, and promoting wider use of new technology and open educational resources

At the same time, investments that promote and provide access to high-quality and more innovative education at all stages should be envisaged. Such investments should be embedded in a strategic policy framework for structural reforms aimed at the modernisation of education and training systems. In addition, student loan schemes as well as human capital development and corporate training promoted by enterprises could complement the activities in the sector. . Investment in projects aimed at getting the younger generation back to work in decent jobs, complementing efforts on the Youth Guarantee Scheme, are particularly important. Indeed, investments in infrastructure in the area of education will nearly always require accompanying investments in human capital to complement and valorise the physical investment and ensure that the new infrastructure and equipment can be fully used and exploited.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
School facilities investment programme **(GR / Public)** Provision of adequate school facilities (energy efficiency, technological upgrade, improvement of safety standards in laboratories, earthquake damage repair)	580	280	• Lack of finance (Possibly EU funding)
Italy's national plan of School Reform ("La Buona Scuola") **(IT / Public)** Italy's national plan of school reform (school building renewal, including vocational schools, training infrastructure, digitalisation, training of teachers, innovative school-to-work schemes)	8,750	7,670	• Fragmented policy solutions, layered over time • Budgetary cuts and scarce investments, especially for mid and long term projects • Multi-centered decision system for several core processes (Implement a comprehensive school investment programme in line with the Country Specific Recommendations for education; requires a single management unit to coordinate and supervise the implementation as well as facilitate financial partnership with lenders and local authorities)
Modernisation of higher education facilities **(IE / Public-Private)** New and replacement facilities in higher education programmes to allow for new buildings, libraries, teaching facilities, enhancement of IT infrastructure and strategic property acquisitions	2,400	2,400	• Lack of financing
European e-Campuses **(FR / Public)** Creation of networks of associated and connected universities (e.g. existing European University of Bretagne). Investment in fast broadband and other digital technologies for e-teaching and e-learning	900	900	• Lack of financing (the budget indicated is just for FR but the idea is also to create cross-border e-Campuses)

imply the support of the particular investment proposal by these organisations. Consequently, there is no prioritisation of these projects, intended or otherwise, of these illustrations over those in the submissions by the members of the Task Force.

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4.2 Health

Context

Good health is a precondition for economic prosperity. Universal access to affordable, preventative, curative and rehabilitative healthcare services is a key input to maintaining a healthy workforce, and thus the quantity and productivity of labour. It helps to decrease inequalities between different socio-economic groups and reduces the risk of poverty.

The healthcare sector accounts for 8% of the total European workforce and about 10% of the EU's GDP (with wide variations across Member States from under 6% to over 11% of GDP). Equally, health spending is an important part of public budgets - representing around one third of social policy budgets, it was one of the fastest growing spending items in almost all Member States before the financial crisis. This trend is expected to continue, albeit at a slower pace, and public expenditure for health and long term care are forecasted to increase by one third by 2060. The main growth drivers are demographic changes (an ageing population) and technological advances.

In February 2013, the Commission adopted the Staff Working Document (SWD) "Investing in Health", as part of the Social Investment Package (SIP), which presents health as a value in itself and as a "growth-friendly" investment. It recommends investing in three key areas: health systems sustainability, people's health as human capital and reducing health inequalities.

Investment needs and perceived barriers

Healthcare delivery is a member state responsibility. The EU supports Member States in ensuring accessible, quality and sustainable health systems. National healthcare systems often remain fragmented and do not provide integrated care services. In addition, there is the lack of a regulatory framework for private sector providers, which compounds the fragmented approach even further. There is also the limitation of the often short term (annual) approach to contracting by many Health Insurance Funds. Finally, there is the question of the public sectors' ability to absorb, manage and implement an accelerated investment programme.

The combination of public-sector budget constraints and the fragmentation of the healthcare systems in some Member States may result in a deteriorating stock of healthcare facilities and a sub-optimal investment in more efficient administrative processes, notably with regard to data handling and decision making (e.g. a lack of investments in "e-health").

The involvement of local entities in many countries makes it difficult to implement an integrated strategy unless an entity (i.e. Ministry) takes responsibility for coordination.

Solutions

At the level of healthcare facilities, solutions include the broader use of PPP models with the aim of bringing forward the introduction of modern, more efficient healthcare delivery, for example a "not-for-profit" PPP model aimed at giving better value for money for the public sector. Alternatively, the public sector could consider outsourcing certain services to the private sector.

At the same time, investments aimed at improving the efficiency and effectiveness of the entire health system are needed. Individually small but collectively huge, such projects would make a significant contribution as the EU tackles the ageing society problem. At least parts of these investment schemes,

which would include smaller investments in primary health care, care in the community and e-monitoring systems for patients at home, could also be outsourced to private-sector service providers.

The ESIF Operational Programmes that are currently under negotiation contain health sector investment proposals. Similar interventions for rural areas might be funded by the rural development programmes under the European Agricultural Fund for Rural Development. A higher degree of flexibility to use EU funds under shared management for the innovative financing of the modernisation of health systems could be foreseen.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
Regional hospital modernisation programme **(BE / Public)** Modernisation of hospitals in Wallonie	1,050	350	• Limited investment capacity at regional and national level, given fiscal consolidation. • Banks' reluctance to invest in large construction projects.

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4.3 Built Environment and Urban Services

Context

With almost 75% of the EU population living in urban areas, the development of more sustainable cities and communities is now at the forefront of the EU policy agenda. Investment in the built environment and regeneration projects that exploit innovative and smart technologies to improve both quality of life and urban resilience will become increasingly important. Moreover, in the current economic climate, the economic performance of EU cities and their infrastructure is deemed crucial to both the economic recovery and longer-term pursuit of the EU's convergence objectives. Cities are also popular tourism destination with increasing potential for future development and significant private sector investment. And yet, cities in some of Europe's most prosperous regions contain some of the most serious pockets of deprivation and acute urban poverty to be found within the EU. As a result there is a clear need for a broader perspective on cohesion policy that embraces a more integrated approach to investment, the generation of a productive and attractive built environment, and the provision of appropriate urban services to less affluent sectors of society.

Investment needs and perceived barriers

Shrinking regional and municipal budgets are negatively impacting urban social services, including the provision of social housing in several Member States. The sector offers limited profitability, when calculated using traditional methods of measuring return on investment, making it unattractive for private investors. In addition, the current fragmentation of the social sector in various Member States results in diseconomies of scale and small investment size.

Similarly, another area requiring additional resources is the development of communal buildings and facilities which are becoming increasingly necessary to provide answers to the mounting need for social infrastructure in deprived urban areas in or at risk of poverty. Public authorities are also increasing efforts to create age-friendly housing allowing older citizens to remain independent in old age.

At the same time, public authorities are expected to play an exemplary role, e.g. in engaging in state-of-the-art renovation and modernisation of public buildings for improved resilient and energy efficiency. Some regional and national authorities have therefore launched new initiatives that aim to develop new public buildings, including for social housing, as 'active buildings', that is, structures and housing that focus not only on energy efficiency, but also quality of life issues, such as indoor air quality, fresh air, and natural sunlight.

Several Member States have established Metropolitan areas, based on functional criteria rather than administrative boundaries. However, the provision of integrated services across the broader metropolitan area has often proved difficult to coordinate and implement in practice.

Solutions

Buildings, including communal and public structures, commercial spaces, industrial plants and housing, are responsible for 40% of final energy use in Europe. It is estimated therefore that their retrofitting to achieve the building-sector emission reductions consistent with EU objectives will be in the region of EUR 100 billion[29] per annum between now and 2020. At a broader level, the transition towards smarter and more resilient cities in the context of sustainability is already paving the way for new investment opportunities and business models which will allow scaling up small projects and mainstream initiatives that have shown limited profitability so far.

A more attractive built environment can act as a magnet for tourism and cultural development with potential for a virtuous spiral of investment.

In terms of the social impact of the crisis, demand for social infrastructure including social housing is also likely to increase. With respect to social housing, two different types of operations comprising both retrofitting and new construction can be identified: (i) direct and (ii) intermediated operations, i.e. via public or commercial counterparts. Taking into account the fragmentation of the sector, this area provides opportunities to support the development of 'financial aggregators' and the deployment of financial instruments. At the same time, the potential to further involve not-for-profit actors, e.g. social landlords and housing association in the social housing sector needs to be explored. For services of general economic interest Member States can entrust private operators with the provision of these services, ensuring that public contribution is used in the most efficient and effective way.

[29] EIB estimates based on industry data and publications.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
National programme for urban renewal (FR / Public) Regeneration of 200 neighbourhoods among the most underprivileged, to prevent polarisation and foster social inclusion, through renovation and reconstruction of residential buildings and improved public transport	25,000	5,000	• Lack of public funding to finance mature projects (loans / project bonds to accelerate investments for mature projects)
See also the **Social housing (NL / Public)** example under *Energy Union – Energy efficiency in buildings*			

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5. RESOURCES AND ENVIRONMENT

In its quest for jobs and growth, Europe must contend with a limited resource base, coupled with a parallel increasing amount of waste, and vulnerability to climate-related hazards. Investing in resource efficiency and security of supply, eco-innovation, the bio-economy and the management of resource-related and climate-related risks can contribute to Europe's competitiveness, prosperity and well-being while maintaining its ambitious environmental and social goals. In these fields, large single projects are often less prevalent.

The 2013 State of the Innovation Union report mentions that the only sectors in Europe that have consistently grown during the years of crisis and that have increased their research intensity were those related to resource management: energy, water, waste and agroindustry. The potential is huge and there are societal (and thus investment) needs linked to resources as well as to climate. It is important not just to deploy existing technologies and solutions, but to invest in smarter solutions of systemic nature.

5.1 Natural resources: efficient use and secure availability

Context

Resource efficiency can be defined as using limited resources in a sustainable manner, i.e. to minimise input of natural resources, reduce environmental degradation and strengthen competitiveness. Resource security recognizes that dependence on some fragile resources remains even when all efficiency options are exploited. Resource efficiency is therefore the first step towards resource security. Resource efficiency and secure access to natural resources and raw materials (both primary, secondary and tertiary) include three types of interventions : (i) improving the management of scarce resources, increasing the efficiency in their extraction, production, allocation and use, and where

applicable protecting them from contamination that would impair their use or increase their cost; (ii) increasing waste prevention and minimization, as well as the treatment, (re)generation, reuse, recycling and extraction of materials from all types of waste, as well as (iii) the sustainable production (or extraction), processing and transfer of resources.

European economies depend on continued, secure access to Earth's limited resources and face mounting pressures from population and income growth, urbanization and the consequent increases in demand for water, food, and energy foreseen over the next 20 years, compounded by a changing climate. It is estimated that improved resource management would increase European industries' turnover by EUR 245-604 billion per year (3-8% of annual turnover), depending on the technology uptake scenarios.[30] Industries are becoming increasingly aware of the financial benefits of investments into resource efficiency. Companies could be encouraged to increase those investments, since they are held back by the lack of business confidence and the high up-front expenditures needed to modernize industrial production. At the same time, they are ever more alert on the vulnerability of their value chain[31].

Investment needs and perceived barriers

Overall, investment needs for resource efficiency, security of access to resources and raw materials and increased resilience to climate change are estimated in the range of EUR 422-527 billion[32] over the next three years (excluding RDI expenditures). There are little incentives for uptake of efficient technologies as the market for secondary raw materials from waste and products made out of recycled raw materials in the EU is still limited in many areas, including agriculture. Therefore, additional investment is needed in production facilities able to recover and utilise secondary raw materials. Also, regulated prices of resources like water are often too low to reflect scarcity and environmental impacts, while the prices for raw materials and energy tend to be volatile, as a result of market developments.

Responsibilities for the activities related to materials and waste management, protection of marine, water, land and air ecosystems, recovery or reuse are scattered across many sectors and different institutions complicating coordination between different value chains and institutional levels Large amounts of finance are needed up-front for investment in resource efficiency and security of supply, but access to finance can be difficult in areas that at times suffer from a lack of predictable and sufficient revenue streams (e.g. caps on possible tariff increases in regulated sectors; uncertainty about future revenues; and information asymmetries (lack of understanding by financiers of the revenue/risk profiles of some sectors and lack of knowledge of available financing mechanisms by smaller promoters); all stand in the way of financing investment. They also perceive the risk of investments into insufficiently proven resource-efficient technologies as high. To overcome some of these constraints, public funding could be used either to complement insufficient revenue streams (where this does not introduce market distortions) or to provide credit enhancement (e.g. guarantee schemes) to increase the appetite for private funding.

As an example, bio-refineries for the combined and efficient production of food, feed, biofuels and biomaterials are long-term, capital intensive investments in innovative, partially unproven break-through technologies. The EU has successfully supported research and technology development in these areas but very few of the investment support instruments currently available within the EU are effective in incentivising the required private investment in industrial scale production plants which are

[30] The opportunities to business for improving resource efficiency, Final Report, European Commission, Doc Reg No. 31305 13071i1.

[31] COM(2014) 297 final – Communication on "On the review of the list of critical raw materials for the EU and the implementation of the Raw Materials Initiative".

[32] EIB estimates based on industry data and publications.

characterised by high technological risks and volatile markets. Investments in bio-refineries are also limited by fear about regulatory instability, in particular with regard to incentive schemes for biofuels.

Solutions

Significant increase in investment should come from increased use of financial instruments and other alternative sources of funding through co-financing with EIB, leveraging public with private sources of funding to support investment programmes by local promoters or generally higher-risk investments in this area. Groups of individual companies and SMEs in the industrial and agricultural sectors may also require enhanced stimulus from public authorities for the successful implementation of resource efficiency initiatives. Again, as in other sectors, targeted assistance for project preparation (e.g. JASPERS) can help to provide a pipeline of well-prepared projects.

To overcome the small project size limitation and the mismatch between asset life and available credit maturities, a “Hydrobond” investment structure was, for example, used to support the multi-annual investment programme of a group of nine small operators in the water/wastewater sector in the Veneto Region in Italy. Individually, these promoters had difficulties accessing credit of appropriately long maturities, but by pooling of investment and risk and the use of public funding for credit-enhancement, substantial long-term private funding was secured. For the future, this type of structure is being considered for other regions, and other sectors.

Such instruments provide promising templates for financing of “public goods” that have been traditionally primarily funded by grants/budget or for leveraging private funding with long maturities in sectors that have traditionally had difficulties accessing long-term private finance, including initiatives in the rural development, as well as in blue or green growth areas. Additionally, the recent Green Action Plan for SMEs has identified a list of actions in order to improve resource efficiency and turn environmental challenges into business opportunities.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
Water infrastructure **(ES / Public)** Investments in water infrastructures including wastewater treatment plants, water supply facilities (including compliance with EU directives)	4,000	2,500	• Lack of financing
PENSAAR 2020 - A new strategy for the Water Supply and Sanitation Sector **(PT / Public, Private)** Protection of environment, improvement of the quality of water bodies; improvement of the quality of services provided; optimization and efficient resources management; etc.	3,700	2,000	• Financing the national compensation of projects • Financial gap • Financial cost and correspondent impact on tariffs

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5.2 Resilience to Climate Change

Context

Europe is exposed to many climate-related hazards, and its countries, regions, cities, towns, companies, farms and ecosystems have varying levels of resilience to them. The EC Adaptation Strategy of April 2013 focuses inter alia on urban areas, highlighting the importance of the relevant territory linked with them in order to properly assess risks and vulnerability and identify efficient solutions.

Among natural disasters, floods are the largest source of GDP losses in Europe (EUR 150 billion in 2002-2013). Annual damages, estimated at EUR 5.5 billion under current conditions, could exceed EUR 23 billion by 2050. Europe remains unprepared in this area. Localised flooding from intense rainfall events and ocean surges is also on the rise, calling for investments in sustainable urban and rural drainage, as well as coastal protection.

At the other extreme, droughts have caused EUR 86 billion in damages in Europe over the last three decades. One fifth of Europe's population lives in water-stressed countries. Crops and yields are affected. Agriculture accounts for 24% of water abstractions, reaching up to 80% in some Southern regions, while energy production accounts for 44% of water abstraction in Europe. Climate change impacts on energy and resource security because of water shortages and increased water temperature.

Wind and water based soil erosion are exacerbated by climate change, decreasing agricultural and forestry production. Investments in well-planned afforestation and vegetation coverage through sustainable agriculture can tackle loss of precious topsoil, flood disaster prevention and help avoiding landslides due to heavy rainfalls.

Large-scale forest fires, especially in southern Europe pose a threat to population, infrastructure and ecologically valuable habitats. They exacerbate soil erosion and contribute to CO2 emissions. Investments in fire prevention measures, fire-fighting capacity, post-fire rehabilitation can all contribute to protecting vegetation resources.

Improved planning and increased investments in better resilience against climate variability and change are therefore crucial for maintaining sustainability and competitiveness in all sector of economic activities in Europe, as well as its energy and food security.

Investment needs and perceived barriers

Climate change requires investments to deal with both extreme events and to deal with “new averages”, including changes in average temperature, change in precipitation average and timing, etc. This will require investment to adapt the structure of our cities, our buildings, our industrial processes including the way in which we process our waste and wastewater, our distribution systems, etc., through “grey” and “green” infrastructure as well as “soft” activities, such as improved planning emergency response, landscape management and afforestation.

There are three main sets of barriers that may hamper increased investment in these areas.

First, there is lack of both financial and human resources, including funding for and capacity to carry out Climate Risk and Vulnerability assessments. These should take place ideally at the planning and options analysis stage.

The involvement of multiple entities makes it difficult to channel funding to an integrated strategy unless an entity (Ministry, river basin commission, other) takes responsibility for coordination if not for borrowing. The financing of this investment is also often a low priority, until an emergency hits – with the risk of rushed reconstruction activities not following a well-prepared risk management strategy. Finally, long-term commitment is needed for successful investments into rehabilitation and resilience of ecosystems, but only short term financing is often available for these activities, which are often perceived as risky.

Sufficient human resources capacity (staff number, qualifications and expertise) play a key role in all stages of adaptation planning and implementation.

Second, institutions and market structure can suppress investment. Responsibilities for relevant actions are scattered across many institutions often across different sectors, so that priorities can be often disputed. Some relevant entities often exist alongside traditional administrative structures, with no clear links with allocations of public funds and no revenues/borrowing capacity. Institutional weakness and lack of coordination, especially during emergencies, are also significant. This institutional fragmentation is often accompanied by lack of political commitment.

Third, climate scenarios and risk assessments and regional and local level often lack the degree of accuracy that decision makers are used to. There is therefore both a knowledge gap and difficulties dealing with decision making under uncertainty.

Finally, there is often a tendency to focus on grey infrastructure as opposed to integrated planning and green solutions. This requires the availability of new instruments for the funding of the latter, which can often prove less expensive and more sustainable.

Solutions

As floods, droughts and forest fires represent the highest cause of GDP losses in Europe, they clearly represent a priority for investment. Increasing climate resilience of our territories and economies will require the acceleration of a vast range of actions: improved planning at river basin, other rural or urban levels; improved data, modelling and institutional coordination for disaster prevention and emergency response; increased use of insurance by home- and business-owners; increased investment by households and businesses; and increased investment by public entities in charge of larger scale risk management strategies, including multi-country, trans-boundary flood risk management initiatives.

Looking ahead, very large opportunities for investment in the management risks associated to natural disasters exist in many EU countries (e.g. emergency response and/or management of flood and hydrogeological risk in some countries e.g. Germany, Ireland, Italy, Poland). Very large investment is possible only if (i) a well-defined, long-term strategy exists, (ii) a central entity is willing to borrow and manage the flow of funds, (iii) competent implementing agencies and coordination mechanisms exist.

In addition to river flooding, climate change is affecting urban flooding due to localised intense rainfall events and/or sea-level rise, which are increasingly frequent and severe for which our existing drainage systems and flood prevention mechanisms are largely unprepared. Large investment in sustainable urban drainage requires increased financing of investment programmes of water/wastewater utilities.

Coastal erosion exacerbated by climate change also deserves attention. Large investments in integrated projects based on local strategies/master plans, for example the rehabilitation of landscapes, are required to ensure resilience to climate impacts.

As concerns droughts, when efficiency measures discussed in the previous section are not sufficient, relevant investment includes the creation of interconnection between existing water sources or the development of new sources (e.g. UK Thames Water Climate Action project).

Loss of agricultural land and/or strong decline in land qualities and usage due to climate change impacts, among which flooding and droughts play significant role, should not be ignored either. The value-added and the economic potential of local agricultural economies need to be secured through more integrated approaches towards risk management, food safety, rehabilitation of natural capital and forest and therefore economic sustainability. Similar to the cases explained above, again, innovative finance instruments are needed to support these areas of investments.

Illustrative example of project(s)

Project (Country / Promoter type)	Total investment cost (EURm)	Investment in 2015-17 (EURm)	Barriers to implementation (Solution)
Flood and coastal risk programmes **(UK / Public)** River flood, sewer flood and coastal flood protection measures in the UK	2,500	900	• Significant challenges, particularly to coastal communities, as a result of climate change. Mostly public funding, but looking for private sector contributions in projects that benefit businesses through partnership funding
Investments to reduce flood risk **(SI / Public)** Investments in hydro-technical and ecosystem measures on all river-basins and sub-basins to reduce flood risk	1,030	150	• Budget constraints preventing short and long term investments needs

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ANNEX 2 - Project lists from Member States and the Commission

DISCLAIMER:

A mention of the EIB or the European Commission in any of the project lists provided by the Member States and/or the Commission does not necessarily imply there has been any previous contact with the EIB or the European Commission on the project in question, nor that it will become a project receiving financing from the EIB or the European Commission in the future. All projects submitted to the EIB for funding will be subject to normal due diligence in line with existing EIB procedures and guidelines and/ or the European Union legislation should they be considered for finance. Co-financing by ESI Funds or other EU programmes of any project is subject to the respect of all applicable European Union and national rules.

ANNEX 3

QUESTION 1 TO 4

Question 1

More generally, given the recent evolution of investment activity in your country, and given the structure of the economy, please identify the sectors with the *biggest investment needs going forward*. Please quantify these investment needs to the extent possible, and explain how the needs have been estimated.

To clarify what is meant by "sectors" in this context, please see the Annex for the categorisation of investment. This categorisation seeks to capture investment in those areas that are the most crucial ones for boosting the productivity, competitiveness and, ultimately, sustainable growth and employment of the EU economy, and for securing that the growth is balanced and equitable. Ideally, the categories shown in the Annex would be used in response to this question; however, others can be flagged as well if critical to your country.

Question 2

Please identify the main *barriers* that prevent investment activity from recovering in those sectors where it is currently depressed. Please identify also the barriers that stand in the way of investment in those sectors where the needs going forward are biggest. Such barriers can be, e.g., lack of enabling government (infrastructure) investment; lack of confidence and risk-taking in the private sector; lack of investment financing; regulatory barriers; etc.

Question 3

Do you have a long-term investment plan? If yes,

a. What categories of investments are covered? Do these fall under the investment sectors mentioned in Annex?
b. Does it include a long-term project pipeline?

Is there a communication of the public projects available for investment to the private sector? Please describe.

Question 4

Please identify *a list of key investment projects* in your country that are economically viable and whose implementation could start before 2018, but that cannot easily be realised now. Please indicate the following:

(a) total investment cost of each project;
(b) investment expected during 2015-17 and overall timeline;
(c) the current status of project preparation and whether it is already included in any national investment plans; and,
(d) the main barriers that currently stand in the way of implementing these projects (e.g., lack of public and/or private financing, regulatory barriers, slow project preparation, etc.)

ANSWERS FROM MEMBER STATES TO QUESTIONS 1- 3.

QUESTIONNAIRE TO MEMBER STATE REPR

ANNEX 4: Terms of Reference and list of TF members

EC – EIB – MS Special Task Force

Developing Investment Project Pipeline in the EU

Terms of Reference

Background:

The drop in public and private investment in the European Union has become a clear source of concern in the aftermath of the financial crisis. Decisive action is required to both create the right economic, financial and regulatory environment for private investment, and to optimise the use of national and EU public resources. The Commission President-elect Jean-Claude Juncker has announced that launching an ambitious package for jobs, growth and investment will be the first priority of the new Commission.

During the informal ECOFIN meeting on September 13 in Milan, numerous measures to raise investment in the European Union were discussed. It was outlined to the Finance Ministers that the European Commission and the European Investment Bank stand ready to support this process. As one of the first steps, the creation of a Task Force in which the Member States, Commission and EIB jointly identify viable investments of European significance that are currently not being realised due to economic, regulatory or other reasons was proposed.

Objective:

The work of the Task Force will focus on research and innovation, digital economy as well as energy and transport infrastructure, social infrastructure, and environment including activities of SMEs and Mid-caps in line with the announced Political Guidelines of the new Commission.

The Task Force will provide an overview of the main investment trends and needs in these sectors; analyse the main barriers and bottlenecks to investment; propose practical solutions to overcome those barriers and bottlenecks; identify strategic investments with EU added value that could be undertaken in the short run; and make recommendations for developing a credible and transparent pipeline for the medium to long term.

The Task Force will have the following outputs:

1. An overview of the main investment trends and an assessment of the investment needs in key sectors;

2. An analysis of the main barriers and bottlenecks (financial and non-financial) to investment and project development;

3. An action plan for creating an enabling environment (e.g. removing regulatory bottlenecks, capacity building, standardisation, project structuring etc.) and promoting a credible and transparent project pipeline;

4. A compilation of strategic investments, private, public and public/private partnerships, with EU added value that could be undertaken in the short run.

The work of the Task Force will contribute to the jobs, growth and investment package that will be presented within three months of the mandate of the new Commission.

Participants:

The Special Task Force is jointly co-chaired by the EIB (Mr Christopher Hurst, Director General Projects) and the European Commission (Mr Maarten Verwey, Deputy Director General at the Directorate-General for Economic and Financial Affairs).

Member States will nominate one representative each.

Deliverables and Timetable:

The Commission and the EIB will report to the ECOFIN Council of 14th October with progress on the work of the Task Force.

The Task Force will prepare a final report in view of the ECOFIN meeting of 9th December and the European Council of 18th-19th December.

A first meeting of the Task Force is envisaged for week 42 in Luxembourg (13.10); subsequent meeting(s) are foreseen week 45 and week 48.

EC – EIB – MS Special Task Force Participants

Chair

First name	Name	Institution
Christopher	Hurst	EIB
Maarten	Verwey	DG ECFIN

Task Force Members

Karin	Vorauer-Mischer	Austria
Gauthier	Bourlard	Belgium
Mladenka	Krasteva	Bulgaria
Atanas	Slavtchev Katzartchev	Bulgaria
Nataša	Filipović	Croatia
Ivana	Nagy	Croatia
Jakša	Puljiz	Croatia
Kyriacos	Kakouris	Cyprus
Michal	Částek	Czech Republic
Barbora	Zvěřinová	Czech Republic
Hans	Høj	Denmark
Henry	Kattago	Estonia
Märt	Loite	Estonia
Markus	Sovala	Finland
Thierry	Francq	France
Sven	Eide	Germany
Martin	Heipertz	Germany
Achilleas	Tzimas	Greece
László	Turóczy	Hungary
Nico	Petris	Ireland
Adolfo	di Carluccio	Italy
Līga	Kļaviņa	Latvia
Migle	Tuskiene	Lithuania
Raoul	Wirtz	Luxembourg
Alfred	Mifsud	Malta
Victor	Cramer	Netherlands
Joost	Nuijten	Netherlands
Jan Willem	van den Wall Bake	Netherlands
Patryk	Łoszewski	Poland
Artur	Radziwiłł	Poland
Pedro	Carreiro	Portugal
Manuel	Rodrigues	Portugal
Carmen	Ghita	Romania
Attila	Gyorgy	Romania
Stefan	Adamec	Slovakia
Metod	Dragonja	Slovenia
Martin	Zdovc	Slovenia
José Maria	Fernández Rodríguez	Spain
Ignacio Vicente	González	Spain
Carl	Asplund	Sweden
Geoff	Baldwin	United Kingdom

Sanu	de Lima	United Kingdom

Private Sector Invitees

Marcus	Beyrer	Business Europe
James	Watson	Business Europe
Christine	Le Forestier	European Construction Industry Federation
Ulrich	Paetzold	European Construction Industry Federation
Ronald	Janssen	European Trade Union Confederation
Martin	Myant	European Trade Union Confederation
Bernadette	Segol	European Trade Union Confederation
Mark	Hemmerling	European Banking Federation
Michael	Collins	European Private Equity & Venture Capital Assoc.
Gerhard	Huemer	European Assoc. of Craft, Small & Medium sized enterprises
Olav	Jones	Insurance Europe

Observers

Antongiulio	Marin	DG CLIMA
Anna	Krzyzanowska	DG CONNECT
Filipo	Munisteri	DG CONNECT
Paolo	Battaglia	DG EAC
Giorgio	Chiarion Casoni	DG ECFIN
Joanna	Metaxopoulou	DG ECFIN
Vassil	Georgiev	DG ECFIN
Aleksander	Lamot	DG ECFIN
Emmanuelle	Maincent	DG ECFIN
Alessandro	Carano	DG ECFIN
Stefan	De Keersmaecker	DG EMPL
Stefaan	Vergote	DG ENER
Marshall	Hsia	DG ENTR
Konstantin	Pashev	DG ENTR
Stratis	Kastrissianakis	DG ENTR
Michelle	Kosmidis	DG MARKT
Matteo	Cominetta	DG MARKT
Maria	Martisiute	DG MOVE
Rudolf	Niessler	DG REGIO
Witold	Willak	DG REGIO
Brendan	Smyth	DG REGIO
Rudolf	Strohmeier	DG RTD
Till	Kaesbach	Secretariat General
Arvind	Wadhera	Secretariat General
Marig	Le Goff	Council of the European Union
Mario	Aymerich	EIB

Mirko	Becker	EIB
Alessio	Conforti	EIB
Olivier	Debande	EIB
Roxana	Freestone	EIB
Anita	Fürstenberg	EIB
Constance	Kann	EIB
Luca	Lazzaroli	EIB
Gunnar	Muent	EIB
Julia	Nienhaus	EIB
Alfredo	Panarella	EIB
Francesco	Pettenati	EIB
Debora	Revoltella	EIB
Werner	Schmidt	EIB
Jan	Sliva	EIB
Maj	Theander	EIB
François	Trévoux	EIB
Timo	Välilä	EIB