Executive summary
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EUROPEAN INVESTMENT BANK INVESTMENT REPORT
2020/2021

Building a smart and green Europe in the COVID-19 era
Investment report 2020/2021: Building a smart and green Europe in the COVID-19 era
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About the Report
The EIB annual report on Investment and Investment Finance is a product of the EIB Economics Department, providing a comprehensive overview of the developments and drivers of investment and its finance in the European Union. It combines an analysis and understanding of key market trends and developments with a more in-depth thematic focus, which this year is devoted to European progress towards a smart and green future in a post-COVID-19 world. The report draws extensively on the results of the annual EIB Investment Survey (EIBIS) and the EIB Municipality Survey. It complements internal EIB analysis with contributions from leading experts in the field.

About the Economics Department of the EIB
The mission of the EIB Economics Department is to provide economic analyses and studies to support the Bank in its operations and in the definition of its positioning, strategy and policy. The Department, a team of 40 economists, is headed by Debora Revoltella, Director of Economics.

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Published by the European Investment Bank.
Editors: Christopher Shaw, Kevin Barron and Janel Siemplenski Lefort
Layout: Marlène Hignoul and EIB GraphicTeam
Printed on FSC Paper: Munken Polar, bouffant 1.13, FSC® Mix blanc.

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Acknowledgements
Adriano Amati, Blanca Garrido Rivera, Nicola Heusel and Zsolt Nagy provided research assistance. Comments and suggestions from Cristina Niculescu and Diego Tonelli are gratefully acknowledged.
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Download the complete report:
www.eib.org/investment-report-2020
www.doi.org/10.2867/904099

Available as:

Post-pandemic: Stagnation or transformation?

**Europe faces a choice.** The recovery from the coronavirus pandemic provides a unique opportunity for transformation – the innovative retooling needed to thrive in the new, more digital world created by the pandemic, while also limiting climate change and preparing for its impact. It is an opportunity to set Europe firmly on a path to carbon neutrality by 2050 and shore up its global leadership in smart-green technology. It is an opportunity to repair the damage wrought by the pandemic and to strengthen social cohesion.

**Yet there is also a serious risk.** The uncertainties and financial strains created by the pandemic could keep the EU economy from embarking on the necessary transformation. The dangers are numerous: massive public spending is too untargeted; Europe falls behind the new wave of digitalisation; it fails to make the transition fast enough; and it loses the advantages of its leadership in green technology. Failing to live up to these challenges means more than just a longer recovery. It means that Europe’s sustainability, competitiveness and prosperity might be impaired for decades to come.

**This report is about the investment needed to achieve the smart and green transformation of the European economy.** It is about progress so far – the fallout from the pandemic and what is needed to get back on track. It examines the state of investment and investment finance for climate change mitigation and for the adoption of digital technologies. It looks at how Europe is positioned at the critical intersection of green and digital innovation, the role of investment by municipalities, and the risks and opportunities of the twin digital and green transition for social cohesion. Throughout, the report examines the latest impact of the coronavirus pandemic and the urgent policy response needed.

**Investing for the climate transition**

In 2019, **European investment in climate change mitigation increased gradually.** In the EU27, this investment grew 2.7% from a year earlier to EUR 175 billion. The strongest growth was recorded in renewable energy generation, while investments in energy efficiency appeared to stagnate.

**European investment in climate change mitigation is well behind that of China, but ahead of the United States – although the contexts are very different.** China invested 2.7% of gross domestic product (GDP) in climate change projects, ahead of 1.3% in the European Union and 0.8% in the United States. However, the European Union has already gone much further in reducing emissions per unit of GDP. In a sense, Europe has already picked much of the “low-hanging fruit,” and its efforts increasingly have to focus on harder-to-reduce emissions.

**The gap between Europe’s climate objectives and realised climate investment is growing.** Since 2016, climate change mitigation investment has declined marginally as a percentage of GDP and overall investment, a trend that is likely to continue in 2021. According to the European Commission’s latest impact assessment, investments in the continent’s energy system would need to rise from an average of 1.3% of GDP per year over the last decade, to 2.8% of GDP over the next decade if the European Union is to meet its goal of cutting greenhouse gas emissions by 55% by 2030. Adding investments in transport brings the total over the next decade up to 3.7% of GDP per year. European investment in climate change mitigation is still insufficient.

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1 A term used by European Commission, the twin transition refers to the EU goals of carbon neutrality and digital leadership.
In the coming decade, the focus has to shift from investment by energy producers to investment by energy consumers, including firms, households and municipal authorities. Of the additional investments needed in the next decade, 65% to 75% are expected to focus on improving building insulation, upgrading industrial processes, purchasing more efficient equipment and investing in new transport technologies.

The European Investment Bank Investment Survey (EIBIS) provides a window into climate-related investment by European firms:

- 23% of European firms say that climate change and related weather events have already had a major impact on their business, vs. 14% in the United States. Another 35% of European firms report climate change effects to be minor.

- Just over half of EU firms do not think the transition to a net-zero emission economy will affect their operations over the next five years, and of those that do, the majority see the transition as an opportunity. The firms that expect the transition to have an impact say it could stimulate demand and improve their reputation. Firms are more likely to see the effect on their supply chain as negative, however, and energy-intensive firms expect more negative effects overall.

- 45% of EU firms have invested in climate change mitigation or adaptation measures (vs. 32% in the United States), but fewer plan to do so in the next three years. The investment figure varies from 50% in Western and Northern Europe to 32% in Central and Eastern Europe. A slightly lower 40% of European firms are planning to invest in climate measures in the next three years. A majority of European firms, 75%, say uncertainty about regulation and taxation is impeding climate-related investment.

- The proportion of EU firms reporting investment in energy-efficiency measures increased to 47%, up almost 10 percentage points over 2019. The average share of investment devoted to energy efficiency rose from 10% to 12%, with large firms and manufacturing firms more likely to invest.

While more than half of municipalities have increased climate change mitigation investments over the past three years, two-thirds still consider the level of investment to be inadequate. The EIB Municipality Survey 2020 reveals that 56% of municipalities increased climate investment, but 66% consider their climate investment over the last three years to be inadequate. For investment in climate change adaptation, 44% increased investment and 70% consider investment to still be inadequate. This suggests that climate adaptation investment could be a more pressing issue in the future.

Investing for digital transformation

Europe’s future prosperity depends on leading the next wave of industrial transformation: digitalisation. The digital revolution has already transformed industries, production processes and ways of living and working, but many of these shifts are only just beginning. As with previous technology waves, taking an early lead can be critical for lasting competitiveness. Yet with the global innovation and technology landscape changing rapidly, Europe risks becoming entrenched in its position as a follower on digitalisation.

So far, the impact of digitalisation has been largely benign. Technological waves, like the first industrial revolution, have driven massive changes in the nature of work, its location and the skills people need. Digitalisation has already caused a shift towards high-skilled occupations, with these jobs tending to cluster in favoured urban areas, particularly capital city regions. EIBIS data present interesting evidence. Firms that have adopted digital technologies are more productive, more innovative and more likely to export. They are creating more employment than non-digital firms and also pay higher wages on average. Digitalisation has provided a strong stabilising effect during the COVID-19 crisis.

But a painful process of re-adjustment awaits firms and regions that lag behind. A trend towards economic and geographical polarisation is emerging, contrasting the digital leadership of some firms
and regions with the slow progress of others. Job growth in recent years has been driven by higher-skilled positions. In the near future, the accelerated loss of low and medium-skilled jobs through automation could create a massive need for re-skilling.

The adoption of digital technologies by EU firms is growing, but it has not yet closed the gap with the United States. By 2020, 37% of European firms had still not adopted any new digital technologies, compared with 27% in the United States. Encouragingly, the proportion of digital firms in the European Union grew by nearly 5 percentage points over the 2019 level, but the United States saw a comparable increase. The gap with the United States is particularly marked in the construction and service sectors, and in the adoption of technologies associated with the internet of things.

Firm size and market fragmentation appear to be holding back digital adoption in Europe. High fixed costs and financing obstacles for intangible assets often make it easier for large firms to invest in digital technologies. Adoption rates for micro and small firms are notably lagging on both sides of the Atlantic. The comparatively small average size of European firms – itself a partial reflection of the continued fragmentation of European markets along national lines, including for digital services – is likely contributing to the continent’s low digital adoption rates.

Municipal investment in digital infrastructure is advancing, but disparities could result in further polarisation. Over the last three years, 70% of European municipalities increased investment in digital infrastructure. Looking forward, municipalities state that digital remains a top priority, alongside social and climate-related investments. But there are strong regional disparities in the perceived adequacy of municipal infrastructure investment. A lack of digital infrastructure is seen as a major obstacle for investment by 16% of EU firms, vs. only 5% in the United States. There is also some evidence that digital adoption by firms is higher in municipalities that have better digital capacities and infrastructure.

Europe is losing ground within a rapidly changing global innovation landscape. While still at the forefront of technology, the European Union is investing less in research and development (R&D) as a percentage of GDP than other major economies, and China is emerging as a major player. Europe’s weakness lies in its lower business R&D spending. European companies are among global R&D leaders in various traditional industries, but are less present in fast-growing digital sectors such as software and computer services, where Chinese firms are starting to challenge the United States. The European Union also does not appear to be generating many new innovation leaders, especially in the digital sector, potentially jeopardising its long-term competitiveness.

The green-digital nexus: How is Europe positioned?

Digital technologies will be critical to the climate transition, and innovation at the intersection of digitalisation and decarbonisation will be paramount. Examples of enabling digital technologies include smart urban mobility and smart grids, precision agriculture, sustainable supply chains and environmental monitoring. The growth of teleworking during the pandemic illustrates how economic processes and products can increasingly be dematerialised. Innovation that uses digital technologies to achieve greener processes is of particular strategic importance for both future sustainability and competitiveness.

Europe is a global leader in green innovation, and even more so in innovation that is both green and digital – despite the United States’ leadership in most digital domains. According to the most recent data, Europe registered 50% more patents in green technologies than the United States, with Japan and China further behind. Moreover, Europe registered 76% more patents that combined both green and digital technologies than the United States, and four times more than China. Likewise, while the top global companies for digital innovation are largely American – with potential challengers from China – the top innovators for green technologies and technologies that combine green and digital elements tend to be European companies, with Japan in second place.
European firms lead the United States for green investment and digital adoption by green firms. Compared to the United States, European firms are less likely to have adopted digital technologies, but are more likely to invest in measures for mitigating or adapting to climate change. The share of firms that make green investments and are also digital adopters is also marginally higher in Europe (32% vs. 28% for the United States).

At the intersection of green and digital technologies, leading early in innovation may create a winner-takes-all effect. The development of green technology still offers great opportunities. Firms that have innovated in this sphere see the climate transition as leading to more dynamic markets, with more competitors entering, but not necessarily with a loss of competitive advantage for themselves. In addition, green-digital innovators are more likely to enjoy a wider, more global playing field. Such potentially large markets for green and digital innovations offer enormous possible rewards, perhaps leading to winner-takes-all dynamics for Europe.

However, Europe’s leadership in green-digital innovation could easily be lost. When looking at how much patents are cited by other innovators, Europe’s green-digital patent portfolio has a higher impact than all other regions. However, this impact per patent is still higher in the United States. Europe’s relative weakness in general digital innovation and its dependence on digital innovations from elsewhere could potentially undermine its position. Nevertheless, one of the key strengths of Europe lies in the transport sector. There, Europe leads not only in green and green-digital innovation, but also in digital innovation overall.

How has COVID-19 changed the economic landscape?

When the pandemic struck, investment had been strong in most of Europe, but had abruptly begun to slow. In 2019, aggregate investment in the European Union grew around 3% from a year earlier, outpacing growth in real GDP. The rate of investment at the end of 2019 was above its long-term average in all areas of Europe except Southern Europe. However, intensifying international trade disputes and weakening global trade started to weigh on that growth. On the cusp of the coronavirus outbreak, concerns were mounting about the stalling of trade-oriented economies – notably Germany’s.

The outbreak of the pandemic in Europe in mid-March had immediate and dramatic consequences for investment:

- **Investment contracted precipitously, along with other economic activities, as a direct result of lockdown restrictions.** This effect was mostly felt in the second quarter of 2020, when investment fell 19% compared with a year earlier, as most restrictions were lifted by the summer.

- **Economic sentiment deteriorated strongly, with firms adopting a pessimistic outlook for the year ahead.** Firms’ perceptions of the economic climate had already turned negative in 2019. Those sentiments took a further dive with the arrival of the pandemic. Overall expectations of sector-specific business prospects and the availability of internal and external finance also turned negative.

- **Uncertainty about the future rose to become a major deterrent to investment.** Uncertainty indicators spiked at the beginning of the pandemic. Although Europe’s determined economic policy response succeeded in calming short-term fears, a high degree of uncertainty about the future course of the pandemic and the resulting economic crisis has remained. Unsurprisingly, uncertainty now stands out as the most serious barrier to investment, being mentioned by 81% of EIBIS respondents.

- **EU firms revised down short-term investment plans, adopting a wait-and-see attitude.** Some 45% of firms expect to reduce investment in the coming year, while only 6% expect to increase it, a dramatic reversal of the relative optimism seen in recent years. Of those firms that decided to invest less because of the pandemic, half said they were postponing investment and another 40% said they were changing or re-scaling their plans.
• **Climate change investment will not be spared.** 43% of firms that plan climate-related investment in the next three years say the pandemic will negatively affect their investment plans. In general, utility-scale projects (such as windfarms) are expected to remain resilient in the short-term, but smaller scale investments in renewable energy and energy efficiency, which are linked to spending by households and firms, are expected to fall.

**The pandemic also raised firms’ expectations about the need to digitalise and innovate to adapt to the future.** The belief in the need to digitalise holds even as firms curtail investment and optimism declines.

• **Half of European firms foresee an increase in the use of digital technologies** in the future as a specific result of the pandemic. The proportion is even higher among firms that have already adopted digital technologies.

• **More than one-third of firms expect the pandemic to impact their supply chains or the products and services they offer,** underlining the need for adaptation and innovation.

• **Some 20% of firms foresee a permanent reduction in employment,** suggesting that a significant number of firms are pessimistic about their ability to “bounce back” once the pandemic recedes.

**The impact of the crisis on firms’ financial situations bodes ill for investment, the recovery and Europe’s structural green and digital transformation in the medium term.** The policy response to the COVID-19 crisis has so far succeeded in maintaining firms’ access to short-term credit. Nonetheless, the massive demand shock has cut firm revenues dramatically, particularly during phases of strict lockdown. Small and medium-sized enterprises (SMEs) have been particularly hard hit. A conservative estimate puts the loss of firms’ net revenue at nearly 13% of GDP in the first phase of the crisis. Firms could cover an estimated 3 percentage points of this shortfall with the buffers of cash and other liquid assets they built up before the pandemic. To cover the rest, however, they will have to reduce investment or increase borrowing. EIBIS data show that firms have consistently used internal resources to finance around 60% of investment. If they maintain this pattern, investment would have to drop by some 6.4% of GDP, equivalent to a 48.5% fall in corporate investment relative to 2019, with corporate debt rising by an estimated 3.2% of GDP. An alternative scenario, in which corporate borrowing is doubled, still sees firm investment fall by a quarter. Modelling based on historical responses of corporate investment to demand shocks, and the size of the COVID-19 shock, also suggests that a reduction in investment within this range is to be expected.

**The crisis-driven expansion of government debt could pose a medium-term threat to much needed public investment.** Across the European Union, public debt is forecast to reach 95% of GDP by the end of 2021, an increase of 15 percentage points since the start of the pandemic. With the fiscal rules of the European Union’s Stability and Growth Pact temporarily suspended and interest rates expected to remain very low, constraints on public spending are still limited. Nonetheless, as the global financial crisis demonstrated, times of strong fiscal stimulus have very often been followed by periods of sharp fiscal correction that tend to impact public investment disproportionately.

**Post-pandemic, Europe’s digital and green transformation will be even more pressing, yet the investment needed to drive that transformation is at risk.** Europe faces a critical decade for the success of the climate transition and for maintaining its ability to compete technologically. The pandemic has even intensified pressure for digitalisation and for innovation to adapt supply chains and product portfolios to the “new normal” that will prevail. Yet, the pandemic has also created severe obstacles to the investment surge that is needed for recovery and transformation. These obstacles include uncertainty and the legacy of the pandemic lockdowns on firms’ ability to finance future investment. Decisive, forward-looking intervention will be needed.
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Action for a green, smart and cohesive Europe

Long-term vision is needed to lead Europe out of the crisis. The pandemic represents an almost unprecedented shock to European and world economies. A massive short-term emergency response was needed. In Europe, policymakers have done well to limit the immediate economic ramifications of the shock, partly by ensuring short-term liquidity is available to help businesses to survive. Going forward, however, Europe needs to enact a long-term vision on the green and digital transformation. The pandemic and its effects are an opportunity to address the long-term challenges that Europe faces. Not doing so would be counterproductive, potentially undermining the immediate economic recovery.

Overcoming policy uncertainty is essential to unlocking investment, particularly for the climate transition. The recovery of corporate investment will depend, in part, upon a concerted policy response that instils confidence in European businesses about the trajectory of the recovery and the constancy of policy support. Firms see uncertainty about regulation and taxation as the greatest obstacle to climate-related investment. An ambitious yet predictable carbon-pricing (or taxation) regime would do much to provide businesses with the reliable information they need to invest. The surge in R&D in renewable energy during the global financial crisis – driven in part by the EU Climate and Energy Package – demonstrates how concerted policy could spur innovation while also acting counter-cyclically to help the economy recover.

Greening and digitalisation present opportunities to create new jobs – even in the short-term. One fear is that the digitalisation and climate transitions will destroy jobs, just when Europe is trying to recover. The transitions will drive a shift in the kind of skills demanded and lead to the reduction of some kinds of employment – more routine jobs via automation and jobs in carbon-intensive industries. Yet the transitions will also create jobs, and the overall impact on employment could be positive. In the shorter term, the urgent need for a surge of investment in building renovations, the adoption of digital technologies and infrastructure improvements, including at the municipal level, could provide the kind of counter-cyclical employment boost the economy needs.

Policy actions need to address regional disparities and promote social cohesion. Across Europe, differences in progress on digitalisation and climate-related investment are huge, with firms and municipalities in Western and Northern Europe often very advanced, and many cohesion regions at risk of being left behind. At the same time, job losses through automation and decarbonisation will not be felt equally across regions, with the risks of this twin transition tending to concentrate in Central and Eastern Europe. Policies that actively foster social cohesion are needed, such as measures to promote employment, facilitate the reallocation of workers, advance decent work and offer local opportunities for displaced workers. On the positive side, the most at-risk regions also tend to present some of the greatest needs and opportunities for investment for energy-efficiency improvements to buildings, other forms of decarbonisation and digitalisation. These are areas where Invest EU and the Just Transition Fund can play an important role.

Inclusion and cohesion will depend on active support for re-training and the propagation of digital skills. The digital and green transitions will drive the changing demand for skills. The limited availability of skilled staff remains the second most important barrier to investment (reported by 73% of European firms) in the EIBIS survey. With 42% of the EU population lacking basic digital skills, reforming adult learning programmes and broader participation are needed to deal with the risks of a growing gap in workers’ skills and further polarisation of the labour market. Online learning creates new opportunities, but it must be coupled with investment in quality education to address inequalities and provide a foundation for life-long learning.

Public investment is needed and should be sustained, despite the financial wound left by the pandemic. Public investment was on a mild upswing before the pandemic, but still below 20-year average levels. This upswing helped infrastructure investment to rebound slightly after years of contraction. Most European municipalities have increased infrastructure investment over the last three years and plan further rises, as they think the current level of investment is still inadequate. Public investment has a vital role to play in
the green and digital transitions, complementing and facilitating private investment, but that spending could be jeopardised by the rise in public indebtedness caused by the pandemic. This time should be different, however. Ultra-low interest rates allow for very cheap public borrowing and have made debt cheaper to service, yet so far the savings generated have mainly supported current expenditure, not investment. Government investment is near a 25-year low, following years of fiscal consolidation. Years of underinvestment have caused a build-up in infrastructure investment needs. Above all, the challenges of decarbonisation and digitalisation require a boost to public investment that cannot be delayed without massive damage to Europe’s long-term sustainability and competitiveness.

Support for corporate finance will need to shift from short-term measures to funding that encourages investment and innovation, including more equity or equity-type finance. At the onset of the crisis, the key priority was to immediately help cash-strapped firms. With the summer reopening of Europe’s economies, support shifted to ensuring the proper flow of credit by providing funding and guarantee products for banks. This support has remained essential during the second infection wave. In the post-crisis environment, however, more equity-type products like venture debt will be needed. Equity finance is better adapted to absorbing losses and supporting risk-taking activities, including innovation. Continued support for the Capital Markets Union 2.0 project is crucial.

To spur climate investment, greater transparency is needed on the impact and risks of climate change. The climate transition will require the mobilisation of private finance on a massive scale. Initial interest in the private sector is promising, but limited. Funds focusing on environmental, social and corporate governance investment are in demand and some new markets, such as green bonds, are developing. However, growth remains slow and the premium paid for green investments remains tiny. Uncertainty surrounding true environmental risks and their impact on financial assets is preventing investors from being more discerning. Enhanced information, along with the development of simple and transparent standards, such as the EU Taxonomy for sustainable activities, should help spur investor demand. At the same time, banks have a major role to play in Europe’s largely bank-based financial system. Central banks and national supervisors are pushing banks to better price climate risks into their loans, while also encouraging the investors to delve more deeply into the risk. Enhanced disclosure guidelines and the increased awareness of climate stress have led to a wider spread in borrowing costs between green and brown loans and bonds, which will increasingly support the greening of the economy.

A coordinated EU response could catalyse the transformation. Investment in one region or EU member has significant spillover effects for neighbouring regions and countries. With resources available from the municipal to the European level, coordination is essential to maximise the synergies of such investment. The coordinating role of European policy can help to reduce policy uncertainty and instil a vision of a digital, net-zero carbon future. EU support is needed to create the conditions for more equity-based finance for businesses and to provide clarity on carbon prices, green financial products and the climate-related risks that banks are exposed to. EU support, such as the Just Transition Fund, is also needed to address the wide divergence in regional progress on the digital and climate transitions, and the regional inequalities that these transitions could exacerbate.
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