

# Raising European Productivity Growth Through ICT

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*Raising productivity growth rates will be crucial for Europe to prosper, and a key factor in engineering such a turnaround will be supporting the widespread adoption of information and communication technologies by organizations.*

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## EXECUTIVE SUMMARY

Most commentary on Europe's economy focuses on its precarious financial system and anemic employment recovery since the Great Recession. But Europe faces a challenge of equal or even greater magnitude that has received far less attention: lagging productivity. After a long period during which Europe was closing the productivity gap with the United States, since 1995 that gap has widened steadily and shows no signs of narrowing. If Europe is going to catch back up it must follow the same path that drove U.S. productivity growth: more ubiquitous adoption—as distinct from production—of information and communication technologies (ICTs) by all organizations (for-profit, nonprofit, and government) throughout the European economy.

Increasing productivity is the key way that countries can raise their per-capita income. It should not be surprising, then, that two decades of lackluster productivity growth have left many European companies uncompetitive, European incomes stagnant, and European government finances in turmoil. Only one EU-15 country, the relatively small Ireland, managed productivity growth rates that exceeded those of the United States in the two periods since 1995. Given the demographic challenges and increasing international competition that Europe faces in the coming decades, it is crucial that Europe find a way to reverse these growth trends.

The scholarly evidence strongly suggests that increased ICT adoption, and the transformative change it can bring to organizations, is a key piece of Europe's productivity puzzle. ICT is a general purpose technology (GPT) that has wide-ranging effects throughout an entire economy, reshaping entire systems of production and distribution. Around two-thirds of U.S. total factor productivity growth between 1995 and 2004 was due to ICT, and ICT has contributed roughly one-third of growth since then. These gains are primarily due to the efficiencies of ICT capital, as well as associated complementarities and spillovers.

Compared to the United States, Europe has had far smaller productivity gains from ICT. Although the contribution of ICT varies between European countries—some countries

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have gained roughly as much from ICT as the United States while many others, including France and the Mediterranean countries, have benefited significantly less—overall Europe trails significantly behind. This variation in outcomes between countries along with variation at the industry and firm levels makes clear, however, that those countries, industries, and firms that do invest in and use ICT reap significant benefits. This is as true for Europe as it is for the United States.

Europe's lack of productivity gains from ICT initially presented a puzzle, because in many ways Europe appeared to be equally well suited to gain from new technologies. Over time, however, the reasons for Europe's lack of gains appear to have been identified. The primary proximate cause is simply the lack of investment in ICT capital: European countries have lagged significantly behind the United States in ICT investment, both as percent of total investment and as a percent of GDP, since the 1990s. And this is true not just of the ICT-producing sector itself. ICT-using sectors, primarily the service sector, that have been large drivers of growth in the United States have been relatively untouched by ICT in Europe. Productivity in European private-sector services grew only one-third as fast as it did in the United States between 1995 and 2007, because the positive effects of ICT production did not spill over into use.

There are four primary reasons for Europe's failure to invest in and gain from ICT. First, regulation within product, labor, and land markets limits possible business models, raises the cost of ICT investment, and slows down market forces that can push firms to adopt more productive practices. For example, privacy regulations reduce the effectiveness of online advertising, the "right to be forgotten" legal provision can significantly raise the cost of doing business for a wide range of data providers, and restrictions on cloud provider locations and nationality can slow access and also increase costs. Labor regulations also limit firms from using ICT to reengineer production processes.

The second reason for Europe's failure to invest in ICT is European tax policy. EU consumption taxes on ICT products are high, which lowers consumer adoption and can therefore slow business adoption of consumer-facing ICT. Corporate tax policies may play a role as well, as depreciation rates for ICT capital investments are generally less generous than in the United States.

A third reason is the limited ability of European businesses to reach more efficient economies of scale. The continued fragmentation of European markets limits the potential size of demand for European goods and services, which in turn makes it harder to achieve economies of scale from ICT investments. Moreover, Europe's much higher proportion of small firms makes it hard for firms to surmount the high fixed costs of many ICT investments. In the latter case, regulation has provided the significant bottleneck to firm growth, by favoring small firms at the expense of large ones.

A final important difference that explains why Europe has lagged behind the United States in adopting ICT is management styles. Research has shown that getting the full potential from ICT investments requires organizational redesign, and that U.S. firms are better at employing management techniques that can facilitate such transformation.

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As Europe emerges from the economic crisis there are a number of steps it can take to ensure that it takes full advantage of the productivity benefits of ICT going forward.

First, Europe needs to be vigilant about “doing no harm.” At this stage the large benefits from innovation and the use of new technologies are largely driven by market forces, but misguided digital regulation can significantly limit these benefits. Unfortunately, recent policy proposals and legislation have not been promising. The “right to be forgotten” and other privacy and data collection rules threaten to add significant costs for internet companies and hold back both ICT adoption and digital innovation in Europe. Likewise, proposals for a “European Cloud” or Europe-centric networks will inevitably add costs and slow down speeds—and may add very little in terms of security and privacy. Europe needs to find ways to address legitimate concerns around digital issues like privacy and security without harming ICT adoption.

Second, making productivity improvement the centerpiece of economic policy is crucial. While employment presents a formidable challenge in many European countries: sacrificing productivity for jobs—that is, deliberately creating or maintaining inefficiencies—is not the answer.

Third, and more specifically, Europe needs to focus on raising productivity in industries where productivity growth has been slow, such as retail and professional services, by encouraging the adoption of ICT. Europe should focus primarily on ICT-using sectors because ICT-producing sectors alone are unlikely to provide significant productivity increases to the economy without the adoption of ICT in other sectors. In addition, actions to encourage the ICT-producing sector may sometimes hurt ICT-using sectors, if protective tariffs or other actions to bias the market toward local ICT producers raise ICT prices for ICT-using industries.

Fourth, Europe can actively assist in the digital transformation of industries by creating the right conditions for ICT investment and adoption. The government can do this through its own procurement and adoption of ICT products, but it can also play a proactive role in addressing network externalities that exist in many sectors.

Fifth, tax and trade policy provide important levers that Europe can use to promote ICT investment. By minimizing taxes on ICT investments, policymakers encourage the productivity effects of ICT use. These tax incentives are particularly important because while ICT investment provides large benefits for the broader economy, the nature of these benefits makes them hard for any single firm to capture; therefore, firms tend to underinvest in ICT. Trade policy can play a role, particularly through an expanded Information Technology Agreement.

Sixth, European firms would be better able to take advantage of ICT if they could achieve larger economies of scale, particularly in ICT-using industries. Recent EU reports have shown that, due to national barriers to entry, the EU is far from a single market in many service industries. Additionally, the Transatlantic Trade and Investment Partnership (TTIP) would better facilitate access to U.S. markets.

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Finally, Europe should reduce preferences for small businesses. The high percentage of small firms in Europe, and in Mediterranean countries in particular, holds back productivity. Certain types of small firms are important, such as “gazelle” firms that start small and grow quickly, but many other types of small firms are simply inefficient organizations that have been protected from competition.

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