



Focus Paper

Boosting Trade in Services in the Digitalisation Era

Potentials and Obstacles for Europe

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Executive Summary

- In the last decade, growth rates for digital services have been superior to those of services in general and those of trade in goods. Given that most European economies increasingly rely on services for their value added – in Germany it's 70 percent and in many other European economies the share is even higher – performing well in digital services trade is imperative.
- A study by the European Centre of International Political Economy (ECIPE), commissioned by the Bertelsmann Stiftung – on which this Focus Paper is based – compares current observed trade in digital services with an econometrically computed potential volume, taking into account structural characteristics of the relevant countries. On this basis a ranking is established, showing which countries over- or under-perform in trade in digital services. The set of countries covers most European Union member states and additional OECD countries.
- The ranking shows that some European countries have prepared well for trade in digital services and can prove that they are competitive on an international scale. Especially small, service-orientated economies seem to be performing above average. However, there are large disparities across EU economies and especially among the large economies of the EU, with Germany, France and Italy lagging behind. Great Britain, on the other hand, is performing much better.
- A subsequent frontier analysis reveals that the gap between the EU lead country and the OECD lead country in the adoption of digital technologies in businesses is particularly large. This is a point of major concern and needs to be addressed. In terms of infrastructure, further improvements can be made in terms of the use of broadband internet, both landline and mobile.

Digital Services Trade in Europe

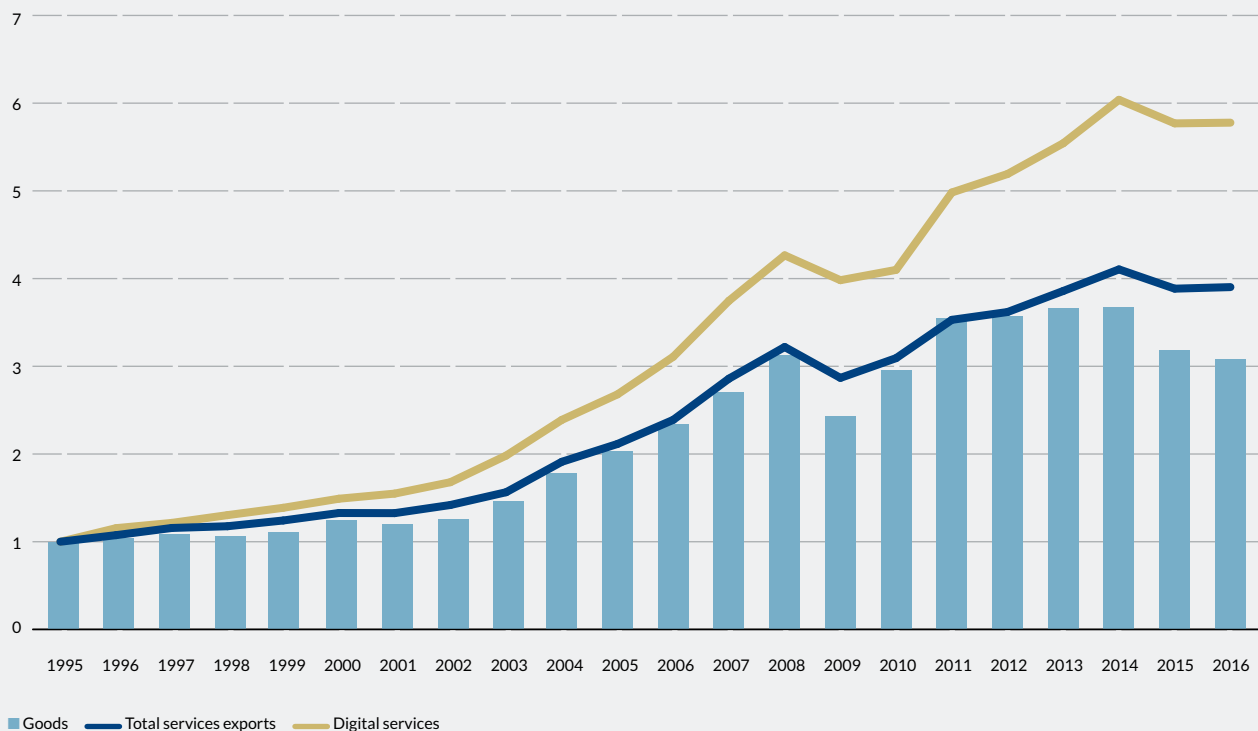
Introduction

Trade in goods has been stagnating for years – but trade in services, especially digital services, is growing at solid rates (cf. Figure 1). Presently, trade in services accounts for 23 percent of world trade and it is forecast to increase further. This is a sign of a significant structural change. For Europe, this can mean a great trade potential, since most European countries generate a large share of their value added in the services sector. Even for a country with a comparatively large manufacturing sector as Germany, the share of value added generated in the services sector is as

high as 70 percent. But harnessing the benefits of growing trade in services critically requires European economies to perform well in digital services as this is set to be one of the most important future growth markets. But are the European economies prepared for this? Are they realising their potential in this area? Or, if not, what obstacles are holding them back?

These questions are addressed by a study of the European Centre of International Political Economy (ECIPE), commissioned by the Bertelsmann Stiftung. This Focus Paper summarises the main results. The study has a particular

FIGURE 1: Rapid growth rates of trade in services and ICT services (1995 – 2016), index growth rate



focus on assessing Germany's performance in digital trade. This paper, however, mainly presents the results for European countries.

Digital services are services largely delivered by making use of information and communication technology (ICT), most significantly of course the internet. Based on the Trade in Services database (TIS) of the World Bank, the authors identify those service sectors that are particularly digitally intensive. Once the 20 most digital-intensive sectors have been identified, these have been isolated and used as the basis for the report. Among these, telecommunications, IT services, publishing, travel services and business services are in the lead as the most digitally intensive sectors. The authors assess to what extent European economies possess the necessary endowments to succeed in the growth market of international digital services trade.

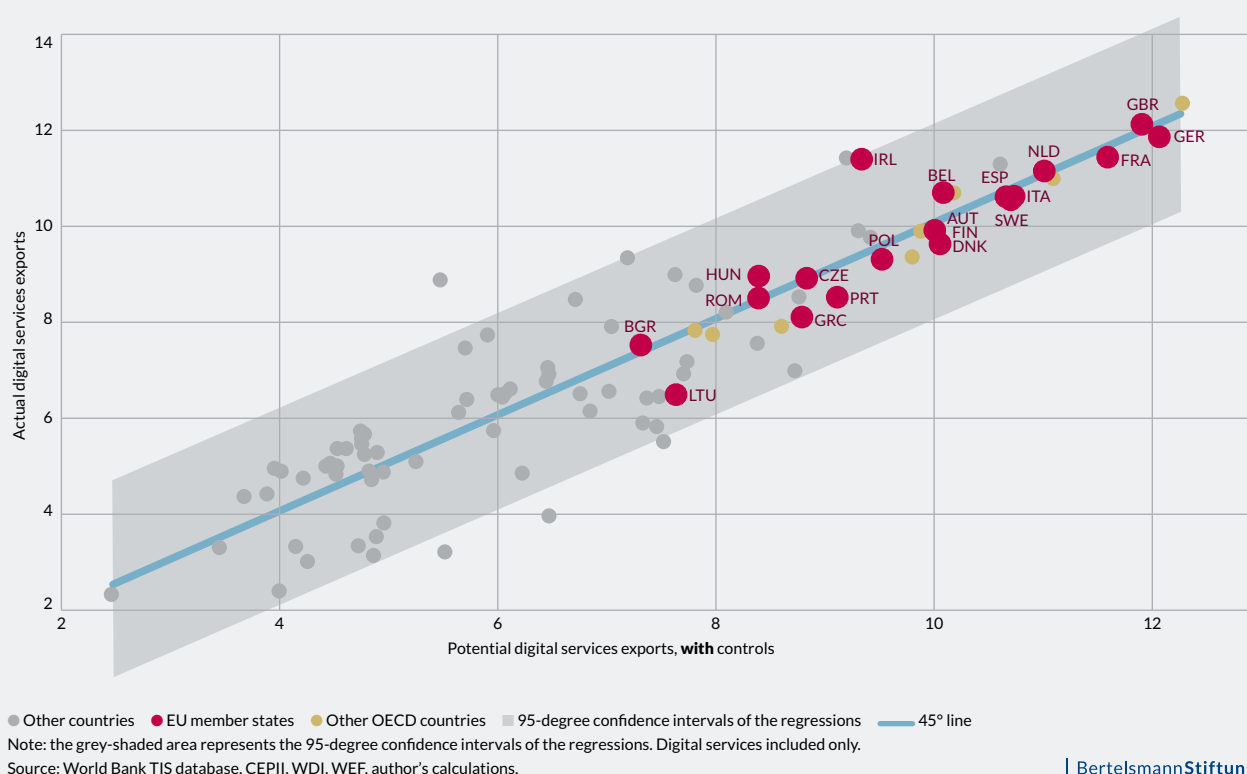
In comparison with other studies on digital services trade, the specific advantage of this ECIPE study is that it does not only assess the current positioning of European economies in international competition but it also the extent to which they realise their trading potential. Germany here does not perform very well; in a ranking based on how much of their

potential countries employ Germany only makes 19th position out of 28 countries. Other European economies are clearly out-performing it, with Ireland for example leading in most categories of digital trade assessed in this paper. In order to explain the good or bad performance of individual countries, the authors subsequently engage in a frontier analysis that shows how wide the gaps between the leading nations in the EU, the OECD and the BRICS in endowments are.

EU Countries in International Comparison

Trade in digital services depends on factors and endowments that are susceptible to rapid change and development. Therefore, it is not enough to analyse merely the current positioning of countries in comparison to their international competitors. A policy that emulates effectively the best practices in other countries and adopts them swiftly and effectively could contribute to rapid changes in international ranking. Thus, the study's authors carried out an analysis of trading potential which they contrast with today's performance. In a subsequent second step, they undertake a frontier analysis illustrating the size of the gap

FIGURE 2: Predicted digital services exports compared to existing exports for EU countries – exports to the world



in endowments relevant for trade in digital services for EU countries, the OECD, BRICS and for Germany specifically.

Analysis of Trading Potential: Making Use of Market Opportunities

In order to understand the positioning of a countries in international trade with digital-intensive services correctly, both current and potential market performance need to be taken into account. Only by contrasting the two is it possible to show how much more would be possible if adequate infrastructure were put in place and new technologies

swiftly and comprehensively adopted by firms, consumers and public administrations. An analysis of trading potential is not limited to an illustration of the status quo; it shows what gains have been seized or could be seized if appropriate policies were put into practice.

Figure 2 contrasts the potential trade in digital-intensive services (x-axis) with the true values of currently observed trade in digital-intensive services (y-axis). This illustration should be read as follows: A country that is making full use of its potential would be positioned exactly on the line. If the data point for a specific country is below the line, it has not employed all its trading potential. If, however, a data point is above the line, this means that a country is

TABLE 1: Over and under trading by digital services sector

Rank	Overall	Business	Merchanting	Communication	Finance	Computer	Insurance	
1	IRL	CHL	CHL	BEL	IRL	IRL	IRL	
2	HUN	BGR	IRL	CAN	BEL	NZL	BGR	
3	BEL	HUN	HUN	NLD	NZL	CHL	GBR	
4	CAN	NZL	NZL	ITA	BGR	CAN	CHL	
5	BGR	ROM	KOR	USA	ITA	BGR	TUR	
6	USA	IRL	JPN	GBR	CAN	HUN	CAN	
7	GBR	CZE	TUR	IRL	GBR	CZE	USA	
8	ROM	CAN	BEL	FRA	TUR	AUS	GRC	
9	NLD	BEL	PRT	ROM	ESP	FIN	DEU	
10	CZE	KOR	AUT	DEU	ROM	BEL	ITA	
11	CHL	LTU	FIN	SWE	HUN	ROM	BEL	
12	KOR	POL	CAN	AUT	KOR	GRC	AUT	
13	ESP	AUS	DNK	AUS	CHL	AUT	FRA	
14	JPN	PRT	ITA	BGR	USA	DNK	CZE	
15	AUT	AUT	CZE	ESP	GRC	ESP	ESP	
16	ITA	TUR	FRA	PRT	AUT	SWE	NLD	
17	FRA	NLD	GRC	TUR	PRT	ITA	SWE	
18	SWE	GRC	SWE	HUN	FRA	PRT	POL	
19	DEU	ESP	BGR	CZE	DEU	POL	KOR	
20	POL	DNK	DEU	KOR	AUS	USA	AUS	
21	FIN	SWE	ESP	GRC	LTU	NLD	JPN	
22	NZL	ITA	LTU	CHL	JPN	FRA	ROM	
23	DNK	FIN	AUS	NZL	DNK	DEU	DNK	
24	AUS	GBR	ROM	DNK	CZE	GBR	PRT	
25	PRT	FRA	POL	POL	POL	JPN	HUN	
26	GRC	USA	NLD	FIN	SWE	LTU	NZL	
27	TUR	DEU	GBR	LTU	FIN	TUR	LTU	
28	LTU	JPN	USA	JPN	NLD	KOR	FIN	

Source: World Bank TIS database, CEPII, WDI, WEF, author's calculations.

Overperforming
Underperforming

surpassing its econometrically computed trading potential. Blue data points in Figure 2 represent EU countries, OECD countries are shown in grey and the maroon data points represent other countries for which sufficient data was available. The fact that most EU countries are located at the upper right end of the spectrum is already positive news: It implies that EU countries are strongly engaged in digital services trade in international comparison.

The trading potential was computed on the basis of a gravity model. This model, which has evolved into the workhorse model for empirical trade analysis, permits one to estimate how various explanatory factors impact the costs of trade. One of these factors is digital endowments, approximated through the Network Readiness Index of the World Economic Forum. Further data is taken from the TIS database of the World Bank and cover the years 2011–2013. The methodology used by the authors follows this approach (Sáez, Taglioni, van der Marel, C, & Zavacka, 2015).

Based on this analysis of trading potential, a ranking can be established. It shows to what extent countries make use of their potential in trade with digital services. This can also be broken down into several key sectors in digital trade. The ranking is presented in Table 1.

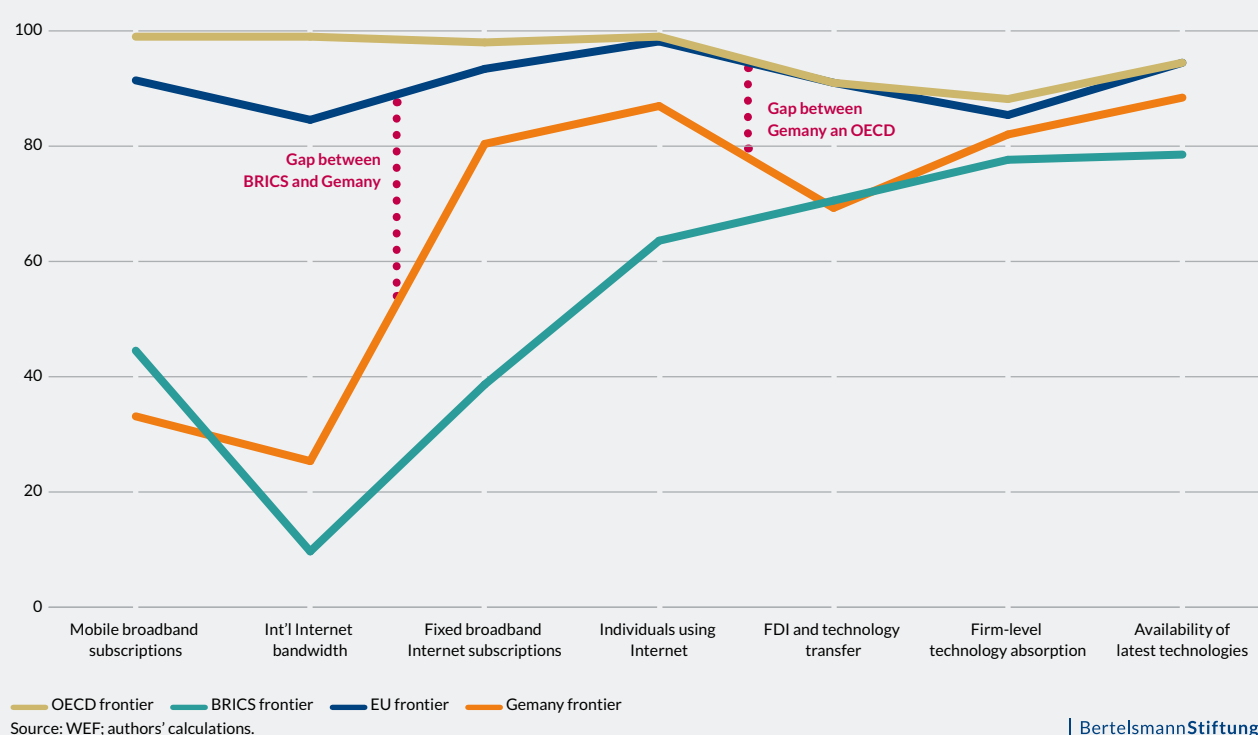
The clear winner is Ireland. It not only comes top in the overall ranking, it also leads in three of the six sectors detailed in the ranking. Belgium is also among the consistently strong performers. The ranking shows that several European countries compete on the same level as the USA and Korea. However, it remains true that among those countries performing less well than their predicted potential, almost all are EU countries, including the large economies of France, Germany and Italy. It seems to be a general trend, that small economies with a large services sector seem to be performing better. One potential reason for this observation could be that those countries are more agile in swiftly implementing new technologies that enhance their comparative advantage in this area. Also, it might be easier to provide infrastructure more swiftly in small economies than in large, decentralised countries.

Comparative Analysis:

What are the Main Obstacles?

While the overall performance of EU countries is mixed, it is important to understand where the group as a whole is lagging behind – and where the group is in a leading posi-

FIGURE 3: Closing the overall digital gap (Index rescaled from 0–100)



tion. A frontier analysis provides this data, showing the performance of the best country per group in comparison to best countries in the other groups. This allows one to see how large the gap across key indicators for the use of modern ICT is – which in turn enables one to understand where the greatest potential for improvement lies. For individual subsets of indicators, these will be presented in figures 3–9.

Figure 4 provides an overview over several more general indicators. While the EU frontier is close to the international leader, there is a significant gap in the category of internet bandwidth. Similarly, in the area of mobile broadband subscriptions the EU frontier is inferior to the OECD one. When looking at indicators for infrastructure and prices (Figure 4), the EU leader lags behind the OECD frontier in the indicator of secure internet servers – this is a meaningful indicator as secure servers are important for many areas of B2B and B2C services. The other indicator showing a gap, electricity production per capita, is probably less relevant. This may be because many EU countries import electricity or because greater energy efficiency requires lower production.

Figure 5 confirms that users in the EU have adopted new technologies comparatively well. Only for the indicators of

mobile broadband subscriptions –already part of the overview graph in Figure 3 – is there a gap to the world leader. Similarly, Figure 5 also provides an insight into endowments relevant for consumer use. The indicator of household internet access in rural areas alone reveals the best EU performer as having a significant lag to the best OECD performer.

Figures 6 and 7 deal with the business side. While Figure 6 shows that in EU leader countries, firms have endowed themselves with good digital capabilities, Figure 7 shows that they are not making full use of this potential. Insufficient companies have a formal policy to manage ICT privacy risks, a significant requirement for consumer trust in using digital services. Similarly, in the categories of internet availability within companies, receiving orders via computer networks and staff using a computer at work, there is a significant gap to the OECD. Companies need to embrace the potential of new technologies more completely, not only in the services sector but also in manufacturing where the internet of things offers new possibilities for gearing production and supply chain management.

Figure 8 provides again a more positive assessment, as the EU leader country is similar in performance to the best

FIGURE 4: Closing the digital infrastructure gap (Index rescaled from 0–100)

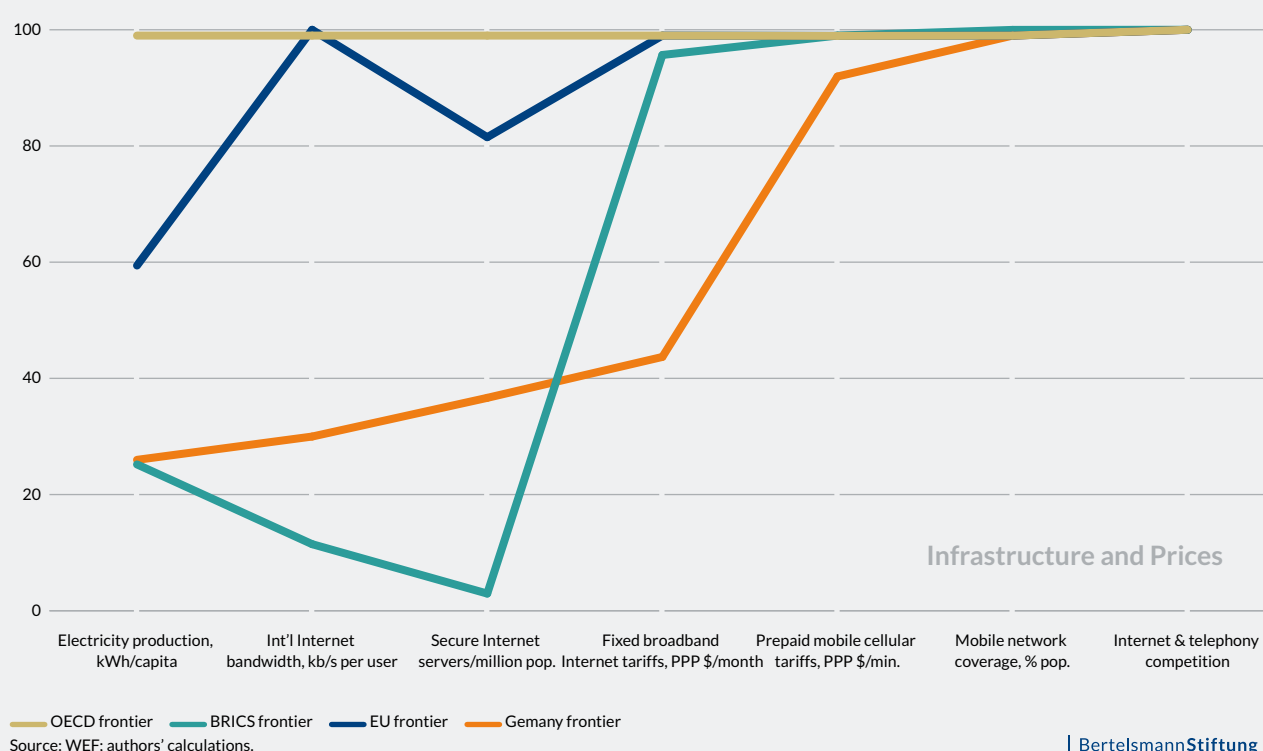
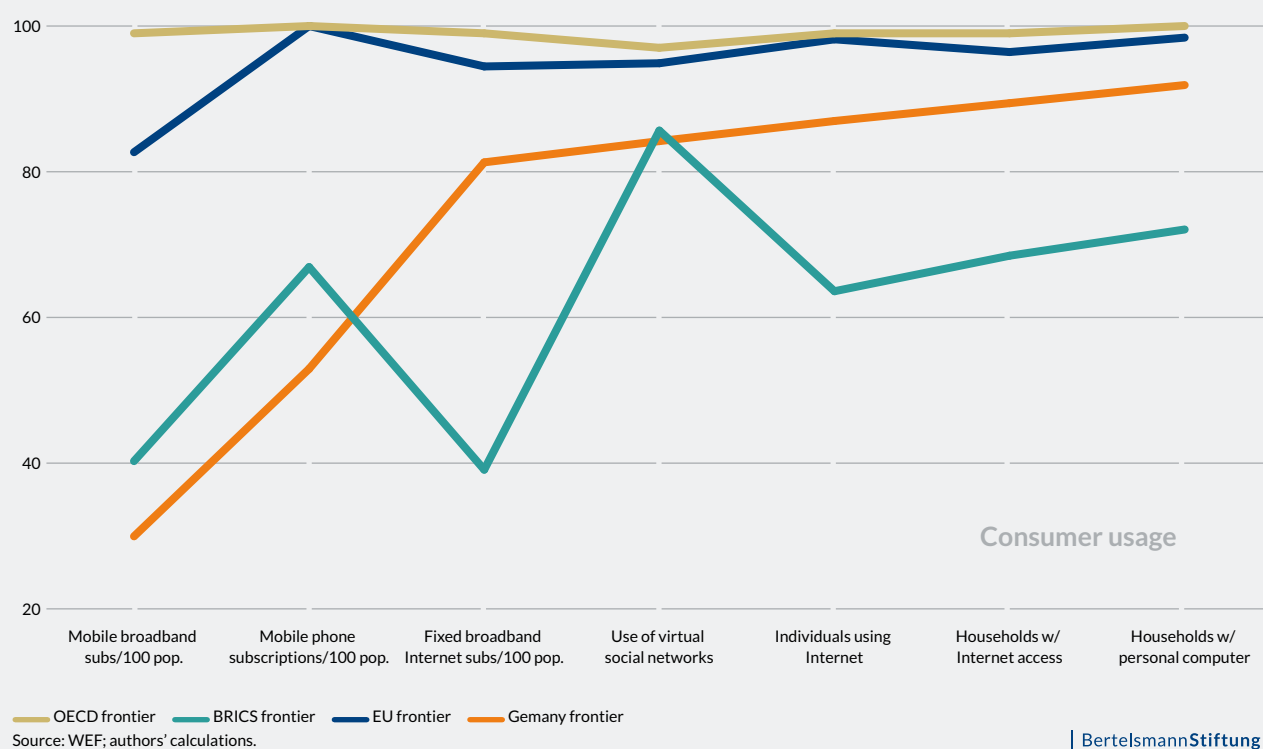
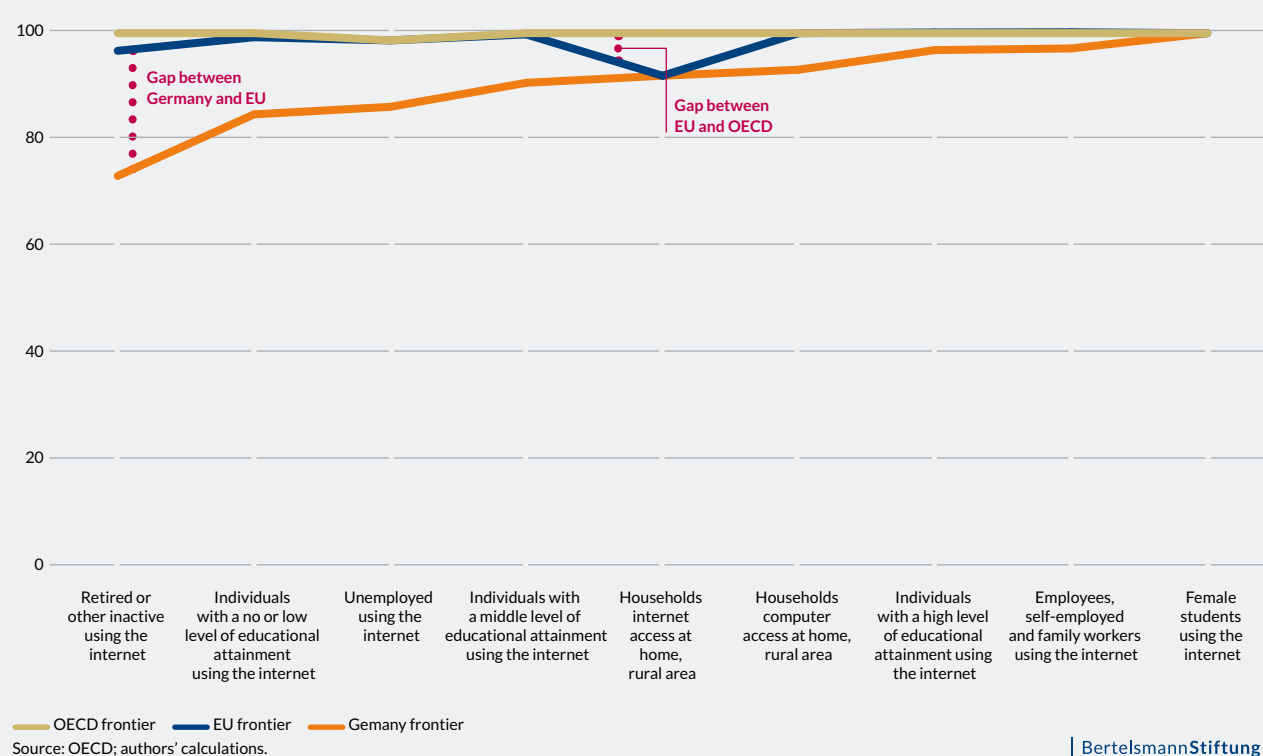


FIGURE 5: Closing the digital consumer gap (Index rescaled from 0 – 100)



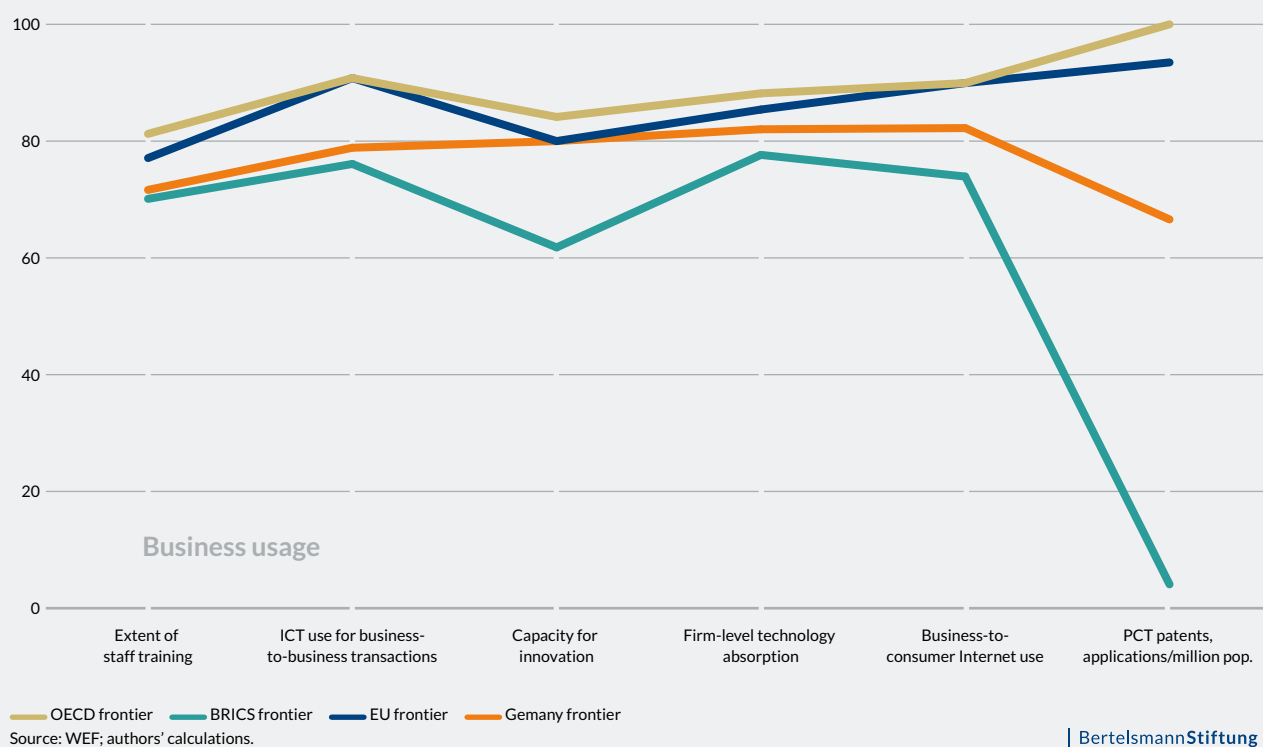
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FIGURE 6: Closing the digital consumer absorbing gap (Index rescaled from 0 – 100)



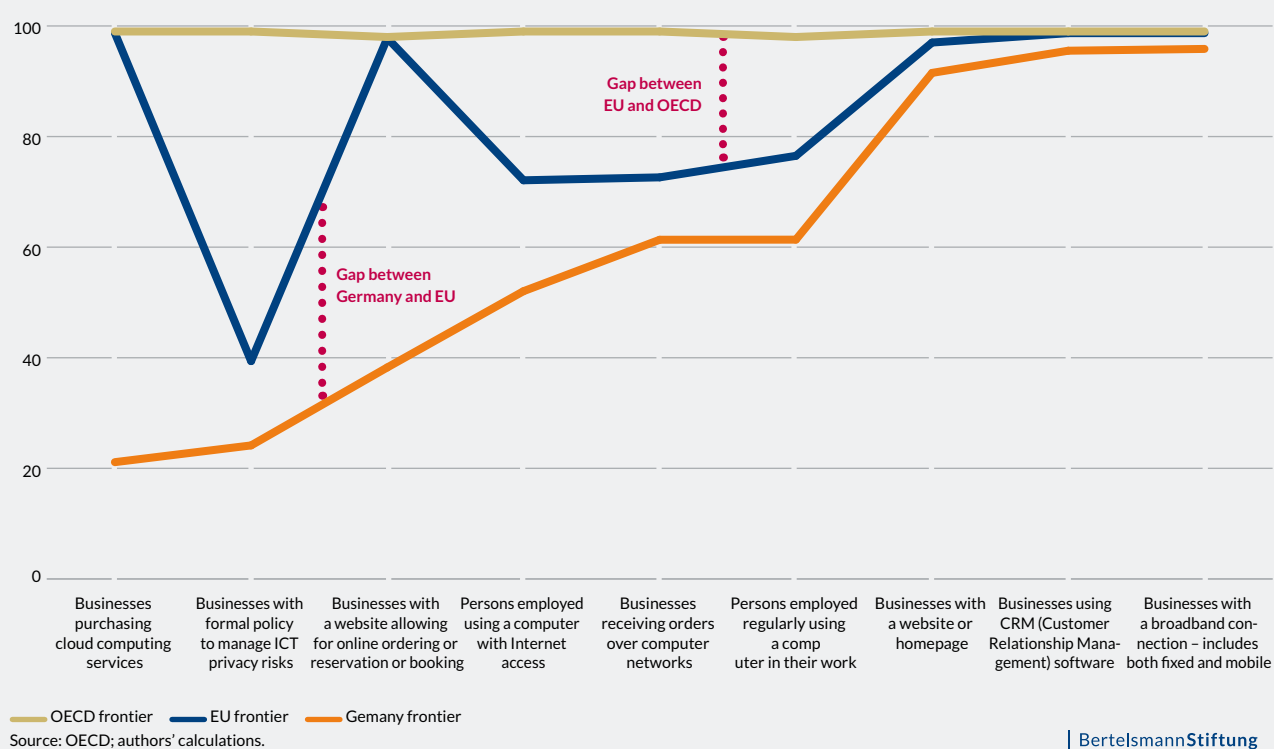
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FIGURE 7: Closing the digital business abilities gap (Index rescaled from 0 – 100)



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FIGURE 8: Closing the digital business absorbing gap (Index rescaled from 0 – 100)



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FIGURE 9: Closing the digital impact gap (Index rescaled from 0 – 100)

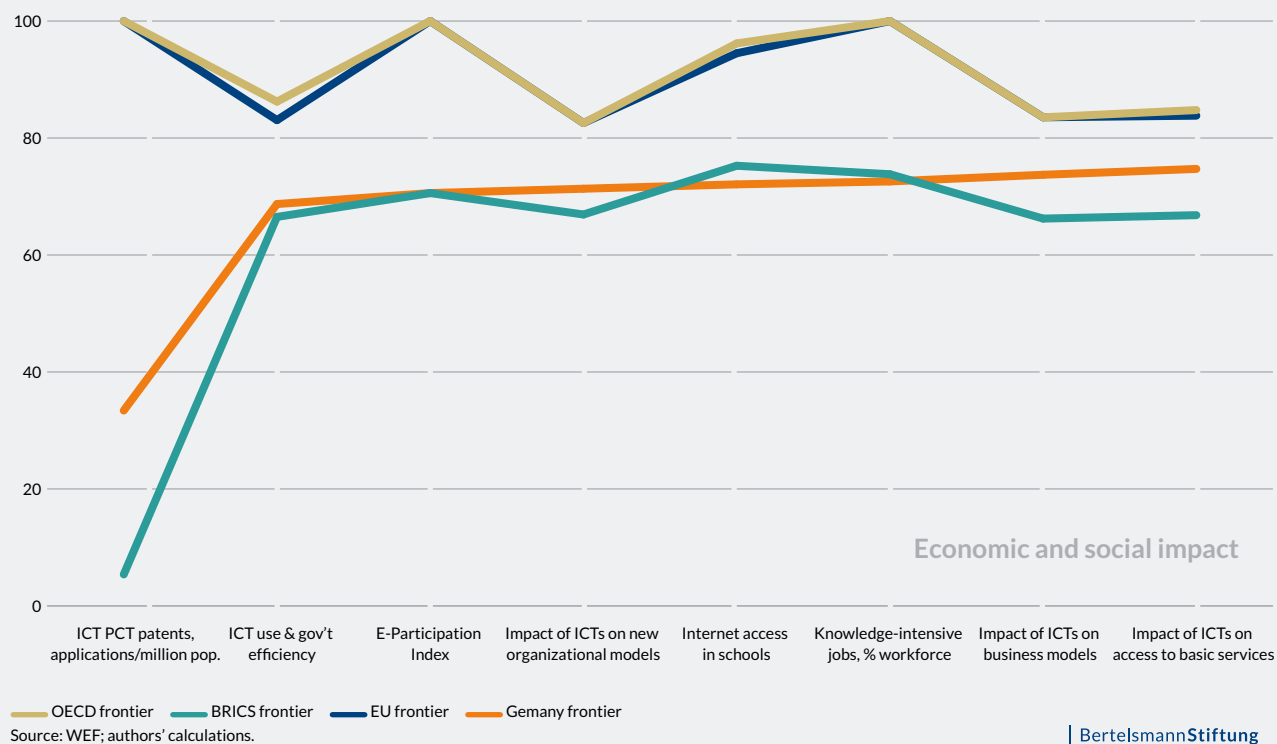
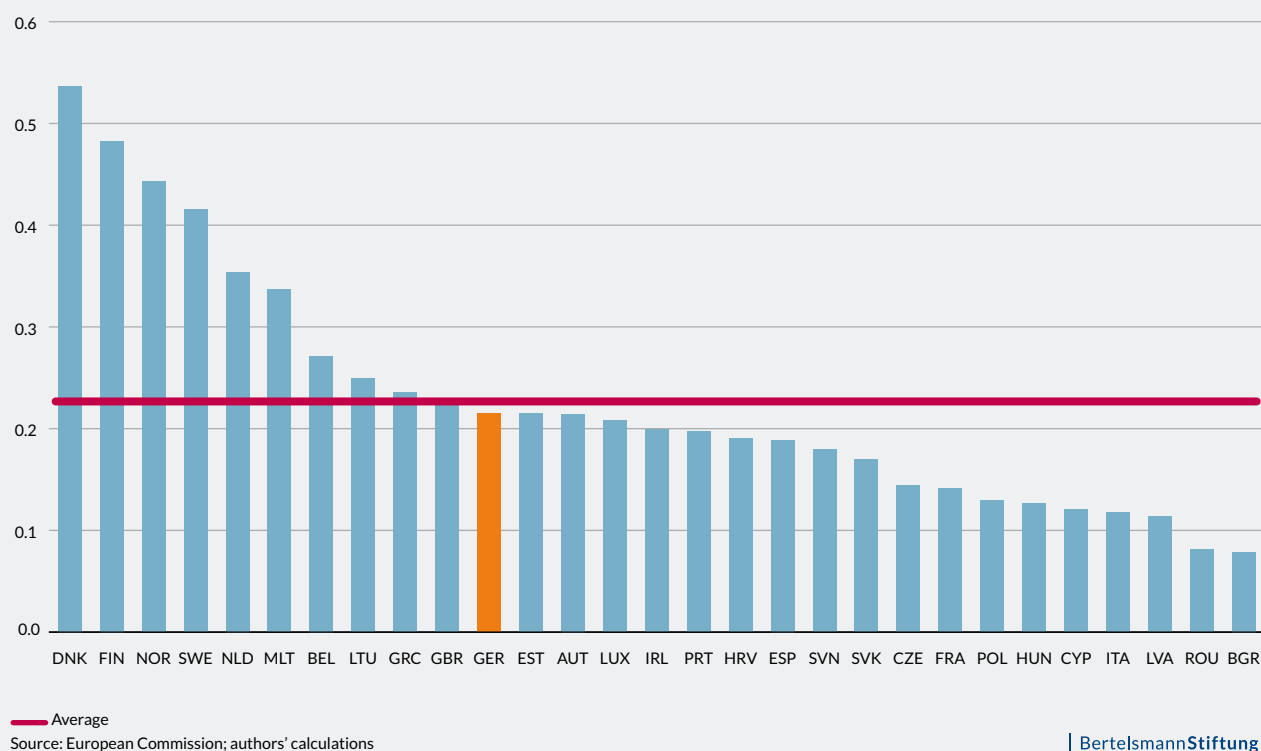


FIGURE 10: Enterprises with high levels of digital intensity (Index)



OECD countries in a range of general economic and social indicators, such as internet availability in schools, etc.

The frontier analysis shows that the EU lead country is generally doing well in the areas of infrastructure provision, consumer absorption of new technologies and general economic and social indicators. The greatest need is for businesses to embrace ICT more fully. This point is further reinforced by Figure 10 that shows that too few firms use digital technologies with high intensity in the EU. This is particularly true for the EU's large economies and for those that were particularly affected by economic stagnation in the aftermath of the financial crisis.

It is also important to bear in mind that the frontier analysis only ever shows the leader countries for any given indicator. This invariably masks the disparities that exist within the European Union as well as in any other group of countries. To boost overall performance, it would thus be a promising strategy to foster the general adoption of best practices throughout the EU.

The adoption and employment of digital technologies by businesses needs to be much improved. This is of paramount importance because the productivity and competitiveness of the digital services industry also impacts the competitiveness of other industries that rely on these services. Better performance can here be achieved by providing suitable incentives and removing obstacles. Next to infrastructure improvements, this includes an appropriate and up-to-date regulatory environment, including legal norms and product regulation, fostering competition and better access to finance (especially for small and medium companies).

Conclusion

The ECIPE study shows that some countries in the EU have adapted well to the technological challenges in the digital services market. However, this is not true for all countries of the Union; the disparities can be large and especially Europe's largest economies are lagging behind. To reap the potential of this critical and growing market, many countries need to up their performance substantially.

As far as best practices in Europe are concerned, the areas in which the gap of the EU leader to the OECD leader are largest are the availability of broadband internet, both landline and mobile. More important than mere infrastructure is, however, the adoption of new technologies in busi-

nesses as this is where the gap is at its widest. Here, it is important that relevant policies for removing obstacles and adopting incentives are put in place. This means fostering competition, updating the regulatory environment and providing better access to finance, especially for small and medium companies. It would also be a good approach to copy – where possible – best practices of EU member countries in others so as to address disparities and exploit proven solutions to the challenges of the digital transformation.

An internationally competitive digital services sector is of huge importance to the EU economy as a whole. If this sector has high productivity levels, this will help other sectors improve their productivity as well. A competitive and sustainable services sector is vital to ensuring that Europe's skills- and knowledge-based economy can continue to rely on high value-added from the services sector in future.

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