

## The Digital Economy and Growth Weight, Impact and the Stakes Involved of a Strategic Sector

**The present document highlights the positive impact of the digital sector on the economy, both in France and elsewhere in the world.** It is a follow-up to a first working document<sup>1</sup> developed within the framework of the research program “Telecommunications and Macroeconomics” which described the different elements involved in the telecommunications ecosystem (manufacturers of network elements and terminals, network operators, Internet intermediation service providers, Web content producers) and noted that revenues and investment needs did not fall in the same category of players.

### The digital economy at the heart of the G8 debates in May 2011

At the request of France, **the question of the Internet and the digital ecosystem has been included in the agenda of the G8 meeting** on May 26 and 27, 2011 in Deauville. It is the first time that the subject will be formally debated at such a high level. The G8 will be introduced by an e-G8 Forum which, on May 24 and 25, 2011, will unite world leaders and experts in the digital ecosystem to discuss the economic impact of the Internet as well as the changes in the traditional sectors under the effect of digital technologies.

The question of the impact of digital economy sectors on growth and productivity has already given rise to a large number of debates and publications. **At the beginning of the decade 2000, the emergence of a “new economy” was hailed** whose dynamics of non-inflationary and durable growth rested on the diffusion of these technologies within the productive system. **Where are we ten years later?**

### Digitization plays an essential role in growth

The progress made in the memorization, treatment and transmission of digital data has allowed the sectors of computerization, telecommunications and audiovisual to converge. Suppliers of equipment and services for information and communication technologies now constitute **a real “digital economy sector.”**

The rapid diffusion of these digital technologies has contributed to the growth in American productivity since 1995. This finding is more moderated for the decade 2000. **If the sector of the world digital economy has continued to develop thanks to new uses and new innovations, the macroeconomic dynamic has been less sustained.** The gap between the United States and Europe, and notably France, has continued, not only concerning global growth but also for the importance of digital sectors in the economy.

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<sup>1</sup> Working Document No. 16, January 2010. « Les operateurs de réseaux dans l'économie numérique, lignes de force, enjeux et dynamiques », available at [www.coe-rexecode.fr](http://www.coe-rexecode.fr)

## Europe is lagging behind in its utilization of digitization

Can the more moderate dynamism in European economies over the last ten years be explained by a weaker capacity to adopt and use digital technologies? This is, in part, the conclusion of the European Commission, whose digital strategy for Europe is considered an important element in the European strategy for employment and growth of “Europe 2020.” In spite of the declared European ambitions in the matter of digitization, it must be noted that, over the last decade, **the manufacturing industry of digital materials and equipment has shrunk in a large part of Europe and particularly in France where it is in danger of disappearing.**

## Coe-Rexecode proceeds with an evaluation of the digital economy and its effects on global growth

What are the consequences of this contraction on our economies? How has the digital sector evolved in major countries and what impact have these evolutions had on their growth? Coe-Rexecode answers these questions by quantitatively measuring both the weight of these sectors of the digital economy in the GDP and the contribution of the digital economy to the economic growth in France, the United States and several other major countries.

The Coe-Rexecode study also anticipates the potential profits in future digital investments. **The French digital economy today finds itself confronted with the challenge of investing in network infrastructures** which will allow the transition towards high speed broadband (optic fiber for stationary Internet, LTE for mobile Internet). The deployment of optic fiber will, just by itself, necessitate an investment of between 20 and 30 billion euro over the next fifteen years. **The conditions for allowing such investments are, however, for the moment, far from being met.**

## Telecommunication operators have to finance heavy investments... but they are not the ones getting back most of the yield

It is up to telecommunications operators in France (France Telecom, SFR, Bouygues Telecom, etc.) to finance the development of future infrastructures for high speed broadband networks, critical factors for growth and major productivity. To commit themselves to these expensive, long-term programs, they must be assured of a sufficient return on investment. Today, for operators who maintain and develop this strategic asset of the digital ecosystem, financial remuneration for the use of the networks by certain players in the sector is too low to be motivating. The revenues from the use of networks by intermediaries (search engines like Google, social networks like Facebook and Twitter or suppliers of applications like Amazon, eBay, etc.) do not, for the most part, end up in their pockets. **The revenues and future investment needs are not located on the same layers in the digital ecosystem.** This conflict carries negative consequences for economic growth.

## Structure of the study and principal conclusions

Over the last decade, the direct effects of the accumulation of digital capital and its indirect consequences on global productivity of cost factors have represented about **half of the growth noted in the United States and a little less than a quarter of growth in France**. The macroeconomic consequences of an additional delay in France in the deployment of its future networks would be detrimental to its growth.

### 1. The weight of the digital economy in the global economy

- Continental Europe is clearly behind in relation to the United States and the United Kingdom (2007 or 2008, depending on the country)

<i>In percentage</i>	France	U.S.	United Kingdom	Germany
Share of digital economy in the GDP (cost factors)	4.7	7.3	6.7	4.7
Share of digital sector employment in total employment	2.8	4.0	3.6	2.4
Share of digital equipment in total company investment	16.1	26	23.8	14.1

Sources : Insee, BEA, Eurostat, Coe-Rexecode calculations

- Only Germany is rather competitive in preserving its material and digital equipment industries against Chinese companies

<i>Digital material exports Share of World Market</i>	France	U.S.	United Kingdom	Japan	Germany	China
In 2000	3.8	12.4	7.0	9.3	5.5	6.9
In 2008	1.8	5.5	2.3	6.0	5.6	31.7

Source : CHELEM international commerce data base of CEPII, Coe-Rexecode calculations

- Europe is not innovative enough to create intermediary service activities which have emerged, essentially, in the United States.

- Of the 10 major worldwide companies in terms of budget and research, only two - Siemens and Nokia – are European ;
- Of the 10 software producer companies, 9 are American and only one – SAP – is European;
- Of the 10 principal Internet service companies, 6 are American.

### 2. The contribution of digital capital to GDP growth

Using a methodology of identification and a measurement of sources in the growth and breakdown of the added value, Coe-Rexecode has calculated the global impact of the digital economy on growth, the sum of the direct effect (accumulation of digital capital in the economy)

and the indirect effect (gains in productivity thanks to the use of digitization). **The digital economy contributes much more to growth in the United States than to growth in Europe.**

	France (1980-2008)	U.S. (1980-2008)	United Kingdom (1980-2007)	Japan (1980-2006)	Germany (1991-2007)
Total Annual Digital Contribution to Growth (in growth points)	0.52	1.08	0.71	0.81	0.50
Average Annual Economic Growth rate over the period (in %)	2.01	2.91	2.62	2.53	1.55
Digital Contribution to Growth in Percentage of Average Annual Growth Rate (in %)	26	37	27	32	32

The differences in the digital economy contribution to growth between the United States and Europe calls for **a response in the way of an industrial policy and the definition of a real digital economy development strategy for Europe and for France.**

**3. Two priorities: implement a policy of competitiveness and allow the rapid development of high speed broadband infrastructures.**

Elements of an economic and industrial policy already exist which promote the development of the digital economy on a European and a national scale. A general policy of competitiveness which applies to the digital economy sector like the rest of industry is, however, necessary. Becoming competitive once again would bring about a reindustrialization process in Europe and, notably, in France where market shares have been victim to one of the strongest declines. **Applied to the production of digital material, this process would generate gains in productivity beneficial to the entire economy in terms of employment and activity.** In addition, a digital support policy would stimulate the uses and investment of those players responsible for network infrastructures.

The development of high speed broadband infrastructures is a framework for the future of the digital economy and for the economy as a whole. **An annual investment of 2 billion euro in the deployment of optical fiber would lead to an increase in potential French growth of at least 0.2 points per year.** This supplemental growth, representing around 4 billion euro per year, shows that the cost-benefit analysis of these investments is largely positive. So that the French economy can benefit rapidly, it is desirable that conditions for the attainment of these investments be met as quickly as possible.

**Press Contact : Anne-Charlotte Vuccino, 01 80 48 14 80/ 06 13 46 54 55  
acvuccino@footprintconsultants.fr**