



Summary

The movement that got under way in the first decade of the 21st century with the rise of the Internet and the advent of Web 2.0, featuring social networks and smartphones, has continued with the development of the Internet of things and Big Data. The next wave of Internet growth will spring from the convergence of persons,

processes, data, and objects — the “Internet of Everything”.

Connected things are still often perceived as products for personal wellbeing and leisure, but they include a myriad of potential technologies, uses, and services. The multiplication of sensors entails the “digitization of reality”, and the exponential growth in the quantity of data generated is expanding the size of Big Data. The Internet of things is thus helping to double the size of the digital universe every two years, and could grow it to 44,000 billion gigaoctets in 2020 — ten times its bulk in 2013.

A major economic potential that challenges the digital transformation of firms

An unpublished economic estimate carried out by A. T. Kearney for the Montaigne Institute points out that the Internet of things linked to Big Data represents a potential for value creation estimated at 74 billion euros in 2020 (that is, 3.6% of France’s GDP), rising to 138 billion euros in 2025 (7% of GDP). To this potential, which flows from three drivers of value creation (boosted productivity, increased buying power, and monetized time savings) should be added the development of a new market for the purchase of interconnectivity hardware, a market estimated at 15 to 23 billion euros in 2020 and 2025 respectively.

The digital revolution is spreading itself everywhere, but certain sectors feel the impact more strongly than others. They include housing (with increased productivity, gains in buying power, the development in home automation), transportation (systems to assist drivers, coordination of numerous vehicles), and health care (improvement in prevention policies, the care of chronic illnesses).

One by one, each of these sectors of our economy will be overtaken by the digital wave, and some firms will face extinction if they fail to evolve. So businesses must inevitably plan how to position themselves on this new terrain, they must seek out fresh sources of competitive advantage, and then they must transform themselves in order to seize the opportunities that await them.

How to regulate data exploitation while letting the data-based economy develop?

The multiplication of sensors in the public and private space makes it possible to capture data that permit analysis of the activities, behavior, and lifestyles of individuals. The invisibility of all these sensors, however, and the partial secrecy surrounding the treatment of the data acquired, are both very harmful to trust among economic actors — the true bedrock of the digital economy.

Several practical remedies are available, including Application Programming Interfaces (APIs). These link users to applications and ensure the interoperability of different programs and platforms; they can be employed to track how the data acquired are being utilized.

More generally, the spread of Big Data and connected things raises compelling questions about privacy protection. The need to be transparent about data poses a challenge to political and regulatory authorities. They are charged with guaranteeing the rights of individuals, but also with stimulating the emergence of innovative firms whose business plans are built around the exploitation of data. To coordinate data usage, competitiveness, and technology, the public authorities could promote a supple legislative framework that would meet the current need for security and transparency among actors.

Four sets of proposals to make France a leader in the digital revolution

It is therefore indispensable that, as the utilization of Big Data and connected things advances, thought be given to the impact on society, and on the manner in which individuals, the State, and firms, agree collectively to drive our societies forward. In this arena France enjoys many assets, including a network of creative startups and large-scale industry leaders, as well as internationally acknowledged know-how in the areas of science and technology.

Big Data and the Internet of things lie at the heart of a new digital era, in which public authorities, firms, and individuals must confidently grasp the complete range of economic and social opportunities on offer. France, within the European framework, is in a position to play a leading role, provided that private actors and public authorities pursue a course of action that is deliberate, balanced, and coordinated.

The Montaigne Institute's Proposals

First Set: To extend data excellence and digital excellence throughout the economic fiber of France.

Proposal no. 1: To create a "Digital Business Act" in France

- Making government purchasing a force for promoting the emergence of an ecosystem favorable to the Internet of things.
- Entrusting the Prime Minister's department with sole responsibility for State action in the service of technological innovation.
- Promoting the idea of a single multiservice platform for each industrial sector.

Proposal no. 2: To incentivize firms to speed up their digital transformation and fortify their data culture

- Encouraging the creation of Chief Digital Officers (CDOs) in all firms above a certain size.
- Encouraging firms to build privacy protection into technological tools right from the design stage ("privacy by design").
- Setting up innovative IT platforms that can be shared by firms of very small to medium size, relying on industrial sectors, competitiveness hubs, and professional associations.

Proposal no. 3: To foster competitiveness hubs that will drive the creation of ecosystems and projects for cross-sector industrial platforms adapted to the "Internet of Everything"

Set 2: To foster trust by strengthening security.

Proposal no. 4: To offer citizens Application Programming Interfaces that are technologically secure and supported by a stable and shared legal regime

- Specifying and establishing a legal "bedrock of trust" for all APIs Europe-wide, over and above whatever particular agreements may exist between third parties.
- Developing an "EU connect" brand on which public and private users can rely, to certify those APIs that do meet these standards.

Proposal no. 5: To favor the creation of a "platform State" and to simplify the State's administrative procedures

- In the medium to long term, bringing all the data of the different State administrations together in a unified database.
- Continuing to develop the role of the CNIL ("Commission nationale de l'informatique et des libertés", the French data protection authority), while strengthening legal security for firms.

Proposal no. 6: To free up the utilization of connected things and Big Data in the healthcare sector

- Urging the CNAMTS ("Caisse nationale de l'assurance maladie des travailleurs salariés", the public establishment in charge of the implementation of the guidelines, principles and objectives of the health insurance system) to open up its data to outside actors, conditional upon the signing of a simple research protocol.

- Utilizing France Connect (a project for assigning a unique identifying number to the various government administrations) in order to promote a national health identifier.

- Testing an arrangement comparable to the US "blue button", in order to allow French citizens to access, and to share, their health data.

Proposal no. 7: To guarantee the right to the portability of personal data within a harmonized European framework

- The right to portability would be a new enforceable right to have one's data transmitted from one treatment system to another, overriding any objection from system administrators.

Proposal no. 8: To make France a leader in technologies for certifying and protecting data

Set 3: To support strong digital governance at home, and the influence of France abroad.

Proposal no. 9: To reinforce the policy of making France influential in bodies working toward international standardization

- Placing the present interministerial delegate for standardization directly under the authority of the Prime Minister.
- Urging the SGMAP ("Secrétariat général pour la modernisation de l'action publique", the public organization in charge of the modernisation policy) to speak up for the needs of firms with respect to standardization.
- Sending a message that leadership in the area of standardization makes France both distinctive and attractive.

Proposal no. 10: To make the Franco-German partnership the motor of European digital soft power

Proposal no. 11: To name a Commissioner within the Prime Minister's department charged with elaborating and keeping up to date a strategic plan for the radio frequency spectrum, with the involvement of the French Parliament

Set 4: To respond to the demand for competent professionals to work in Big Data and the Internet of things.

Proposal no. 12: To supply training in the Internet of things for students, wage earners and civil servants

- Organizing a nationwide mentoring program to stimulate the interest of students in the fields of science and technology.
- Supplying more instruction in the digital transformation to workers who are receiving mid-career training.
- Making instruction in technology, infrastructure, and the uses of digitization obligatory in the institutions where public service managers are trained.

Proposal no. 13: To strengthen the research and innovation partnership between the business world and the academic world