

# Introduction

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We cannot imagine living in a world without standards, where the positions of the brake and accelerator pedals would depend on the automaker, where a toaster would not have the same plug as a coffee-maker! Standards help boost the uses of consumer goods by making interactions easier. They might also be a way to control uses — a point well understood by the manufacturers of printers or razors.

A balance is necessary to preserve an open, neutral system with room for the market to develop but without creating dominant positions. This holds even more in telecommunications: since the Chappe semaphore system or the Morse code, two parties have to agree on a code in order to be able to exchange information.<sup>1</sup>

The quest for this balance can be conducted in a specific market or country or on the whole planet. Even though information and communications technology (ICT) no longer acknowledges borders, worldwide standards may have local applications. In the 1980s, recommendation X.25 for the building of the first computer networks and Minitel allowed enough freedom for several profiles. At the time, French and German terminals were not compatible, and this industry was national. These standards have been brushed aside, replaced with the Internet and local networks which, by uniformizing protocols, allow travelers to connect via Wi-Fi from anywhere on the planet. The result: mass production and considerably lower prices (owing to a reduction of risks) since manufacturers' offers are technologically compatible.

The Internet has thoroughly altered the making of standards and regulations. Apart from international standards organizations, the new standards for the digital realm have often come out of groups formed by manufacturers or even academics: consortiums, platforms, forums, etc. Creativity and imagination have taken over. We must admit, however, that, in this realm where (apparently) the “winner takes all”, standardization is toiling to support a balance in market growth.

The quest for a balance is gaining pertinence with the coming of the Internet of things (IoT), which can be understood as an accelerated intrusion of ICT in the physical world: smart cities, driverless cars, home automation, energy management.... These fields of activity have their own standards and sometimes their own communication protocols. Are we heading toward market concentration? Will European players manage to survive?

This issue of our journal dwells on “rules” in the sense of the standards and regulations used in industry, the economy and services. We would like to inform readers and lead them to think about standards in the digital realm. What are the economic, political and social stakes in the production and adoption of standards? Rules in the broad sense are brought under consideration, regardless of their authors (forums, standardization organizations, trade groups, contracting firms, academic research), status and legal grounds (international treaties, legislation, private conventions, the

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<sup>1</sup>This article has been translated from French by Noal Mellott (Omaha Beach, France).

decisions made by courts of law or by arbitrators, documents in the public domain, etc.). What is at stake in the rule-making process? What is the impact of adopting standards or of their failure?

Bear in mind that various levels of rules are entangled. In France, the word *norme* refers to legal standards and regulations whereas English uses separate words to make this distinction. Among these rules are:

- international or regional regulatory arrangements, voluntary as to their application. They are often used by the European Union or in trade agreements (WTO, the Technical Barriers to Trade agreement, TBT).
- international standards (ISO, IEC, ITU) based on a consensus among countries reached through their national institutes of standardization.
- regional standards based on a consensus: CEN, CENELEC and ETSI in Europe, which can have with a broader scope (ISO-IEC-CEN); and IEEE, W3C, ICANN, etc. in the United States.
- national regulations based on a consensus (few in number).
- the standards and guidelines published by forums and consortiums (of which there are many in the digital realm). They are often protected by intellectual property rights but offer sharing (licensing) arrangements.
- the proprietary standards or codes of conduct of firms.