



EXECUTIVE SUMMARY

DYNAMIC SPECTRUM MANAGEMENT FOR INNOVATION AND GROWTH

JOËLLE TOLEDANO

In France, digital economy represents 5% of GDP and affects 80% of the French economy. Radiofrequencies are essential to many sectors: communications, broadcasting, transportation, satellite networks, energy networks and smart grids, public or private security, defense, etc.

Everyone agrees on the growing need for spectrum. This growing need results from two phenomena. On the one hand, mobile traffic should be multiplied by 13 to 25 fold between 2011 and 2017. On the other hand, the development of new innovative services such as the Internet of Things and its multiple applications (smart cities, e-health...), could lead to a growing number of connected devices, up to 50 billion in 2020, according to estimations.

Today, there are no more available frequencies in the easily exploitable frequency bands. Moreover, it is getting more and more difficult to resort to classical methods of frequency bands liberation. Growing recourse to spectrum sharing, and in particular dynamic spectrum sharing, constitutes an important spectrum reserve. A particular sharing form, the use of unlicensed bands, open to all and free, has been intensely developed with the growth of Wifi use. This contributed to off-load mobile traffic by 68% and to make the entry barriers for innovative SMBs recede.

This report calls for the development of spectrum sharing, and specifically of dynamic spectrum sharing, for several reasons. From an economic point of view, this would lead to a more efficient use of frequencies and an easier and cheaper access to the spectrum for innovative companies. This technique constitutes a major economic growth leverage. From a technical perspective, the technologies enabling spectrum sharing seem to facilitate mid and long-term progress, and constitute essential elements for 5G networks. Finally, from a legal perspective, the French legislative framework is actually easily compatible with its development.

When it comes to dynamic spectrum sharing and access to unlicensed spectrum, the United Kingdom and the United States appear as pioneers and have been the subjects of several studies by the mission. The mission's works have also been fueled with recent papers and debates on these matters. It, additionally, analyzed and learned from the result of practices and experimentations, in particular concerning the use of television white spaces.

In order to promote dynamic spectrum sharing and foster growth and innovation, the mission formulated three levels of propositions:

- Concrete propositions that can be implemented quickly without legal modifications;
- A proposition to define a national strategy for spectrum, in cooperation with all the stakeholders and economic actors;
- Legal propositions and new rules aiming at **1/** improving the transparency of spectrum management and the way the needs of users are known and met, **2/** fostering innovation in spectrum management and experiments in dynamic spectrum sharing, **3/** improving the prevention and the resolution of interferences in the context of an increase in spectrum sharing.