15 January 2011

DIGITALEUROPE RESPONSE TO THE PUBLIC CONSULTATION ON RSPG DRAFT OPINION ON COGNITIVE TECHNOLOGIES

1 SCOPE AND PURPOSE OF THE DOCUMENT

DIGITALEUROPE would like to thank the Radio Spectrum Policy Group (RSPG) for giving stakeholders the opportunity to comment on their opinion on cognitive technologies.

The RPSG opinion addresses the very important aspect of implementing cognitive technologies on a European Union level. We see that cognitive technologies may offer new opportunities for the wireless industry and consumers to cope with the continuously growing mobile data traffic and services. Cognitive technologies could provide a tool to make new spectrum available on a shared access basis for mobile broadband under the individual authorisation regime, or to allow operators to use their currently licensed spectrum in a more efficient manner. Individual authorizations under the current regulatory framework continue as the primary tool to ensure spectrum efficiency and quality of service for spectrum users, and cognitive technologies complement this model. Shared access facilitated by cognitive technologies has been considered first in the context of the UHF white spaces, as noted by the RSPG, but other usages of cognitive technologies are expected to emerge later in other bands.

2 DISCUSSION

Opening up spectrum to more efficient use should be a policy priority in Europe. The internet is going mobile – increasingly consumers receive, and expect, a broadband-like full internet experience on smartphones, laptops and a variety of connected devices, rather than scaled-down versions of internet services and applications. The last few years have seen an explosion in data traffic as the mass adoption of mobile broadband has led to the cost of devices lowering and to the emergence of new services. New mobile broadband business models such as sponsored connectivity and transaction-based services have also started to emerge. Over the next decade the penetration of connected devices will continue to increase and innovative business models will flourish, resulting in exponential data growth – analysts forecast demand to increase 38 times between 2009 and 2014, reaching 1.2m terabytes per month – and the democratisation of broadband through mobile access.

Cognitive technologies may play a very important role in enabling sharing of spectrum on a more dynamic basis and providing fast-track regulatory approach to unlocking additional spectrum for use. Cognitive technologies are already being deployed to enhance the efficiency and compatibility of mobile broadband systems, especially in line with the deployment of small cells and hierarchical network structures by allowing an operator to optimise the management of its licensed spectrum. However, further implementations of cognitive systems and devices need the existence of a common regulatory framework in Europe (i.e. use of the spectrum which is unused by the incumbent, in time or geography). DIGITALEUROPE very much agrees with RPSG findings on the minimum actions for providing that framework.

RSPG correctly notes that planning requirements and the use of incumbent services in the UHF band varies between different national administrations, and this will impact on the timing and amount of white space in that band. The spectrum use rights of incumbents differ from one Member State to another and need to be respected in any overall regulatory framework. The broadcasting services in the UHF shall be protected from harmful interference from cognitive technologies use in the white spaces. The white spaces in the UHF band are only the first example of the deployment of cognitive technologies to facilitate sharing spectrum between different uses. There is a considerable potential for cognitive technologies to be a tool, under an individual authorisation regime, to enabling an efficient manner of spectrum sharing between various uses in a non-interfering basis in other bands. We may for example find that of the five bands which were identified for IMT by the ITU World Radio Conference 2007, only two are currently envisaged to be made available in Europe. So at a time when spectrum release needs to accelerate to respond to increased demand, it seems that making available candidate harmonised bands in Europe and globally, is becoming more difficult while incumbent spectrum users have legitimate expectation to continue their operations which vary in time and location. When this increase in data demand is compared to spectrum availability, this problem becomes particularly clear. One of the approaches which DIGITALEUROPE would like to encourage from CEPT and European Commission is to look into potential spectrum bands which may merit from being available through sharing for mobile broadband under individual authorisation regime through the use of cognitive technologies.

Even though cognitive technologies increase the feasibility of dynamic spectrum access, harmonised spectrum on a technology neutral basis remains essential and can boost economies of scale and lower the cost of technology, equipment and devices. Harmonized spectrum also enables standards competition, which in turn has considerable benefits in terms of innovation. The addition of components to enable each new frequency and mode creates a small but significant cost. Due to the highly competitive nature of the device manufacturing market, manufacturers would only incur that cost if the additional frequency opens up a large additional market. The availability of devices that are able to operate across Europe is a key requirement for enabling the development of pan-European services and as a result makes a significant contribution to the functioning of the EU Single market. Finally, the economies of scale created by the release of harmonized spectrum will attract innovation to regions that pioneer use of that spectrum, since the addressable market is larger and provides a focus for investment.

The process of harmonising, allocating and assigning spectrum across Europe has become more tortuous over time, as identifying the appropriate spectrum and clearing it from its incumbent users has become more sensitive, lengthy and costly. The concept of cognitive technologies is underpinned by the idea that effective sharing can take place whilst guaranteeing incumbent users certain operating conditions, in particular the ability to operate on a non-interfering basis. Thus, the combination of cognitive technology and harmonized but under-used spectrum in Europe raises new possibilities of finding access to those bands while the incumbent user maintains its spectrum assignment over time in line with the National Table of Frequency Allocation.

The RSPG report on cognitive technologies addressed vertical sharing under individual authorizations, and the framework there was based on an assumption of trading and leasing of spectrum use rights. Individual authorizations do ensure access to spectrum with predictable Quality of Service, and provide the best approach of sharing for many spectrum use scenarios. This is particularly beneficial when spectrum demand becomes larger than supply, and more rigorous capacity management schemes than those available with general authorizations are needed. In vertical sharing such spectrum use rights can be granted on a temporary or long term basis; measured in seconds, days, months or years. However, the method of assigning spectrum use authorizations to different parties may merit further elaboration beyond merely considering it as trading and leasing.

Cognitive technology in bands under general authorisations is widely considered to benefit from the use of geolocation databases, and the same concept can be extended to other spectrum bands under individual authorisations. Databases improve the dynamic availability of spectrum for new use while protecting the rights of the incumbent spectrum users. DIGITALEUROPE fully agree with the RPSG finding that the level of harmonisation may be different for other sharing situations (than UHF band) that use a database to enable sharing with cognitive device. Particularly in the context of existing harmonized spectrum bands which are globally under-used at EU level, rather than leave the setting up of a suitable authorization regime for individual administrations, we see benefits in finding a harmonized approach at the EU level. Such an authorization scheme may have aspects that were not yet addressed in the RPSG report on cognitive technologies and it may merit further study by the RSPG.

3   CONCLUSIONS

DIGITALEUROPE would like to make the following recommendations:

- We invite RPSG to request CEPT to look into potential spectrum bands that could be made available across Europe for mobile broadband while using cognitive technologies as a tool to enable access the spectrum on a shared basis with the incumbent users, on a time and/or geographical basis.

- We invite RSPG to explore the development of a Community-level approach on an authorisation regime that would make harmonised spectrum available for mobile broadband with predictable quality of service while ensuring continuous and interference free sharing with the incumbent spectrum users through the use of cognitive technologies.

- We note that timely identification of harmonized spectrum in which the authorised shared usage could be enabled through cognitive technologies is very important.We note that, in some cases, cognitive techniques can be employed to enhance the efficiency of radiocommunications systems without requiring additional authorization, for instance by applying CRS techniques within mobile broadband spectrum licensed to an operator to increase performance and capacity of the legacy Radio Access Technologies, especially in conjunction with the introduction of small cells and hierarchical network structures, provided that the protection of other networks is fully preserved.

ABOUT DIGITALEUROPE

DIGITALEUROPE is the pre-eminent advocacy group of the European digital economy acting on behalf of the information technology, consumer electronics and telecommunications sectors. We are dedicated to improving the business environment, and to promoting industry's contribution to economic growth and social progress in the European Union.

DIGITALEUROPE ensures industry participation in the development and implementation of EU policies. DIGITALEUROPE's members include 63 leading corporations and 40 national trade associations from all the Member States of EU; altogether 10,000 companies with 2 million employees and €1,000 billion in revenues. You can learn more about our activities via http://www.digitaleurope.org

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