Prohibiting Open WiFi is an Obstacle to Legitimate Trade

A broad coalition of industry players warns the Court of Justice of the European Union (CJEU) about the grave consequences of requiring open WiFi networks to be closed due to copyright enforcement.

Intermediaries in the European Union can be forced to assist right holders in enforcement of their rights even where they have done nothing wrong. The Information Society Directive and Enforcement Directive prescribe certain types of injunctions against intermediaries to achieve this goal. For an injunction to be issued, it is enough that the services of an intermediary are "used by a third party to infringe the intellectual property rights" of others[1].

Under the German courts' interpretation of the local implementation of the Directives [2], this has come to include an obligation for operators of wireless networks **to password-lock their open WiFi networks** contrary to their own wishes. In the recently filed preliminary reference in *McFadden* C-484/14 case, the Court of Justice of the European Union (CJEU) has been asked, among other things, if such an approach is correct. More specifically, the Court is being asked whether password-locking of open WiFi may be generally required from the citizens and businesses of Europe, in order to prevent abuse.

This briefing paper presents evidence from the wide range of industries reliant on use of open wireless technologies. It shows why password-locking of WiFi networks constitutes a significant **obstacle to legitimate trade both present and future** and thus should be rejected at the European level [Article 3(2) of the Enforcement Directive, Article 41(1) TRIPS Agreement].

We urge the Court of Justice of the European Union to inform itself about these instances before it responds to the *McFadden* reference. This briefing paper outlines only the most **important economic, social, and technical benefits of open WiFi technology and other automatically accessible networks** , which are directly threatened by the outcomes in this case. There is no doubt that many existing and expected innovations would be blocked or impeded, were password-locking to become the norm in Europe. Although we acknowledge that it is ultimately the task of the Court to consider if such enforcement practice is worth the gains it might lead to, we want to stress that the losses are so substantial, that no conceivable benefits to copyright holders - amongst whom we count ourselves - could ever outweigh them.

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1 Article 8(3) of the Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society (InfoSoc Directive); Article 11 of the Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 on the enforcement of intellectual property rights (Enforcement Directive);

2 In 2010, the German Federal Supreme Court (BGH) had to consider whether a private operator of an open wifi should assist right holders in enforcing their rights by simply password- locking it, and thus prevent possible misuse for committing infringements. It ruled (*Sommer unseres Lebens* , I ZR 121/08) that it should. Since then, the German lower courts are struggling to accept the rule (Amtsgericht Hamburg, 09.01.2015, 36a C 40/14; Amtsgericht Charlottenburg, 17. 12. 2014, 217 C 121/14;), and the even the legislator decided recently to step in (see <https://digitalegesellschaft.de/2015/01/ausschussdebatten-stoererhaftung/>).

Open Wireless: Removing Barriers to Access and Economic Opportunity

Before exploring specific innovation and use scenarios reliant on open networks, we will briefly summarise the broad social and economic argument for open wireless.

Broadband access remains far from universal. Substantial portions of the population have neither home broadband nor mobile data subscriptions, either because it is unaffordable or the necessary infrastructure does not exist in their locality. Mobile data subscriptions are expensive and offer only limited data transfer quotas before either throttling speeds or demanding additional payment. Travelers may have no access at all or only at expensive roaming rates. At a time where access to education, employment, and maintenance of social ties are all reliant on communications networks, the unequal distribution of access - sometimes referred to as the digital divide - is as urgent a problem as ever.

Parallel to this, it is obvious that economic growth is increasingly synonymous with access to communications networks: to coordinate collaboration with colleagues, access clients, carry out purchases, or conduct remote maintenance. The Internet contributes around €500 billion to Europe's economy every year[3]. Since around 10% of Internet access comes via open wireless, their prohibition would constitute an impediment to tens of billions of euros' worth of economic activity. Access is thus essential to economic participation and competitiveness, and ubiquitous lowest cost provisioning is no less important than surfacing roads in the modern economy.

These challenges have impelled hundreds of municipalities all over Europe to launch free local wireless networks providing access to the underserved in town and city centres. Such systems are built on the open wireless model, and private provision of equivalent access should be viewed in the same light: a boon to the public rather than a danger to be prevented.

Open Networks Aid Emergency Services and Disaster Robustness

During 2012 earthquake in northern Italy, local authorities requested the general public to remove passwords from their private WiFi networks in order to allow the widest possible emergency access to communications networks[4]. Similarly when in 2007, the 40-year old bridge in Minneapolis collapsed into the river, WiFi played an important role in managing the response and recovery efforts [5]. In 2012, when Hurricane Sandy wreaked havoc in New York, open

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[3] McKinsey estimates that the Internet is responsible for around 3.4% of developed countries' GDP, http://www.mckinsey.com/insights/high_tech_telecoms_internet/the_great_transformer. That currently corresponds to about €538 billion a year, https://www.wolframalpha.com/input/?i=3.4%25+of+EU+GDP+in+Euro

[4] Editorial, 'Authorities call for wifi to be open after deadly Italy quake' Famagusta Gazette (Cyprus, 29 May 2012) <http://famagusta-gazette.com/authorities-call-for-wifi-to-be-open-after-deadly-italy-quake-p15591-69.htm> accessed 27 November 2014

[5] U.S. Fire Administration, 'Technical Report Series, I-35W Bridge Collapse and Response' (2007) Minnesota, p. 45 <http://berec.europa.eu/doc/publications/consult_add_cable_netw_chapter/dt.pdf> accessed 27 November 2014

wireless networks became a crucial form of communication infrastructure [6]. These are not coincidences.

Earthquakes, social unrest [7], terrorist attacks and other disasters all test our reliance on everyday technologies. The first 72 hours following a natural disaster are critical. This window of time is when emergency responders are most able to save lives. Communication in this period is essential to facilitate the flow of information between governments, individuals, communities and humanitarian organizations [8]. A significant fraction of cellular and wireline networks fail at these crucial times[9]. Only open networks provide a practical and robust way of sharing whatever links continue to function in a disaster area.

Innovation in this segment is still in its infancy, but has already produced impressive results. Dr. Paul Gardner-Stephen from Flinders University worked for several years with New Zealand's Red Cross to develop a new communication tool for such occasions. The Serval Project [10] aims to provide infrastructure for direct connections between cellular phones through their Wi-Fi interfaces (mesh), without the need for a mobile phone operator [11]. The project allows for live voice calls whenever the mesh is able to find a route between the participants [12], thus allowing communication over unlimited distances. This can save lives in situations when cellular networks are down or non-existent.

Dr. Paul Gardner-Stephen expressed concern about a legal order that would force WiFi to be closed as a general rule. "If Wi-Fi is password protected, then it would either prevent or make it much more difficult to set up a mesh network. Mesh networks depend on the free flow of data, whereas password protecting Wi-Fi achieves the exact opposite", he said.

Ubiquitous Open Networks Enhance Competition and Equality

All wireless networks, whether open or closed, use the electromagnetic spectrum to communicate information. The spectrum is a scarce resource [13]. There is finite amount of it in any given location at any given time, and it is therefore critical that our devices and

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6 Adi Kamdar, Why We Have An Open Wireless Movement https://www.eff.org/deeplinks/2012/10/why-we-have-open-wireless-movement , EFF Deeplinks, (October 2012)

7 *See* Newley Purnell, 'FireChat Messaging App Gains Users During Hong Kong Protests' (Blogs WSJ, 2014) <http://blogs.wsj.com/digits/2014/09/29/firechat-messaging-app-gains-users-during-hong-kong-protests/> accessed 19 November 2014

8 See <http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/06/Dealing-with-Disasters_Final.pdf>

9 See Marty Lamb, 'Mobile Dependence Is Crippling Disaster Response' (Network Computing, 2014) <http://www.networkcomputing.com/wireless-infrastructure/mobile-dependence-is-crippling-disaster-response/a/d-id/1315932> accessed 1 February 2015

10 *See* <http://www.servalproject.org/>

11 Tom Simonite, 'A Crowdfunding Campaign to Set Smartphones Free From Cellular Networks' (Technology Review, 2013) <http://www.technologyreview.com/view/517106/a-crowdfunding-campaign-to-set-smartphones-free-from-cellular-networks/> accessed 1 January 2015

12 *See* <http://ieeeghtc.wordpress.com/2013/10/23/the-serval-mesh-a-platform-for-resilient-communications-in-disaster-crisis-paul-gardner-stephen-speaker/>

communications systems use it efficiently. Crucially, however, some of the most efficient uses of the electromagnetic spectrum are only easy to achieve using protocols that are short-range and open to connection by anyone, such as Open WiFi.

The policy questions and best forms of regulation to achieve efficient use of the electromagnetic spectrum are complex. Countries all over the world have elaborate regulatory regimes creating licensed and unlicensed bands in an attempt to facilitate different types of usage. Most of them, including the Member States of the European Union, use a combination of licensed and unlicensed bands. Licensed bands are used for wireless top-down networks such as 3G and unlicensed bands support decentralized technologies such as WiFi or Bluetooth. Both, licensed and unlicensed bands, have their own benefits. However, there are important policy reasons why the entire spectrum should never be only licensed[14].

If use of the unlicensed part of the spectrum will be restricted by mandatory password-locking in the name of the intellectual property enforcement, **many great benefits of the "spectrum commons" will be lost.**

Unlicensed spectrum is "an enabling resource that provides a means for dispersed innovators to create a variety of unanticipated products and services" [15]. It has shown itself to be "a similar type of building block without which such technologies as Wi-Fi and Bluetooth may have not been developed, and without which the markets for devices and apps would be severely limited"[16]. Technologies using it, including open WiFi, are often both competing and complementing licensed spectrum based technologies.

3G and WiFi, for instance, address similar needs in overlapping markets. WiFi access became an alternative to substantially slower, limited and more expensive mobile access. This motivated some carriers such as RepublicWireless to start offering subscription plans, where public WiFi is a primary channel for the phone calls, and cellular technology only serves as a back-up in its absence. If password-locking becomes the rule, access to such wireless networks would generally require entering a password, which would make automated switching of customer calls between cellular networks and WiFi impossible. The consumers would need to acquire passwords and login into dozens of WiFi networks whenever they are making their calls while walking or driving through the city.

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[13] Jerry Brito, 'The Spectrum Commons in Theory and Practice' (2007) ¶ 1 Stanford Technology Law Review 1 ("The radio spectrum is a scarce resource that has been historically allocated through command-and-control regulation.")

[14] Yochai Benkler, 'Open Wireless vs. Licensed Spectrum: Evidence From Market Adoption' (2012) 26 Harvard J.L. & Tech. 60; Paul Milgrom, Jonathan Levin and Assaf Eilat, 'The Case for Unlicensed Spectrum' (2012) SEIPR Discussion Paper 10-036, p. 19-20 <http://siepr.stanford.edu/?q=/system/files/shared/pubs/papers/pdf/10-036_Paper_Milgrom.pdf> accessed 1 January 2015;

[15] Paul Milgrom, Jonathan Levin and Assaf Eilat, 'The Case for Unlicensed Spectrum' (2012) SEIPR Discussion Paper 10-036, p. 10;

[16] Paul Milgrom, Jonathan Levin and Assaf Eilat, 'The Case for Unlicensed Spectrum' (2012) SEIPR Discussion Paper 10-036, p. 20

Low barriers to entry, no rights over the spectrum and wide diffusion of technology make unlicensed spectrum inherently very competitive [17]. Moreover, the ease of sharing Internet access over WiFi, enabled by cheap router equipment, its scalability and speed of implementation made it a viable alternative to Internet distribution in places where wire-line access would be expensive to establish[18].

This could be even more the case in future, when so called super-WiFi will be further developed and deployed. “Instead of running wires to each individual home, a single fiber optic cable could be laid in close proximity to rural settlements, with Super Wi-Fi antennas broadcasting the signal to individual homes in the area.” [19] Companies like Facebook and Google are already experimenting with balloon or drone-carried WiFi antennas, which could deliver the Internet access even to most remote or underdeveloped areas [20]. Mandatory password lock-up prohibits open variants of these innovations, and correspondingly undermines their social and economic benefits.

Open WiFi Facilitates Much More Hardware Innovation than Closed Networks

As a result of cheaper micro-controllers and mature, open embedded platforms, it has become feasible for individual inventors and small-to-medium sized firms to successfully make (and often sell) their own hardware devices. Such an architecture then decreases the cost of producing and distributing an innovation [21]. This decentralized approach is more conductive to innovation than the top-down centralized approach of mobile Internet services such as 3G[22].

It is impossible to provide a complete catalog of the kinds of new devices that are being created by smaller innovators, but they include: remotely controlled and autonomous drones [23], Lego-like

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17 William Lehra and Lee W McKnight, ‘Wireless Internet access: 3G vs. WiFi?’ (2003) 27 Telecommunications Policy 365; Deutsche Telekom, ‘Comments on the ERG Consultation Document on „Wholesale Broadband Accessvia Cable“’ (2004) Brussels <http://berec.europa.eu/doc/publications/consult_add_cable_netw_chapter/dt.pdf> accessed 27 November 2013 (“WiMax, WiFi and other wireless access technologies [..] increase actual and potential competition for broadband services for the end-customer”);

18 William Lehra and Lee W McKnight, ‘Wireless Internet access: 3G vs. WiFi?’ (2003) 27 Telecommunications Policy 356;

19 Paul Milgrom, Jonathan Levin and Assaf Eilat, ‘The Case for Unlicensed Spectrum’ (2012) SEIPR Discussion Paper 10-036, p. 20

20 Tim Walker, ‘Widening the net: Facebook drones to cover world in wi-fi’ (Independent, 2014) <http://www.independent.co.uk/news/world/americas/widening-the-net-facebook-drones-to-cover-world-in-wifi-9222334.html> accessed 1 February 2015; Casey Chan, ‘Google Wants to Use Balloons to Cover the World in Wi-Fi’ (Gizmodo, 2014) <http://gizmodo.com/google-wants-to-use-balloons-to-cover-the-world-in-wi-f-513537918> accessed 1 February 2015

21 Barbara van Schewick, Internet Architecture and Innovation (2012) MIT Press, chapter 4.

22 William Lehra and Lee W McKnight, ‘Wireless Internet access: 3G vs. WiFi?’ (2003) 27 Telecommunications Policy 359;

23 It is common for drones to support WiFi but not other communications protocols; see eg <http://ardrone2.parrot.com/> (specs list “Wi-Fi b g n”) and the possibilities for drone and WiFi innovation are extensive <http://wiki.dji.com/en/index.php/Phantom_2_Vision-

electronic construction kits [24], automatic photo-uploading from a camera's memory card [25], tools for keeping track of feeding pets [26], etc. In general, "extension of WiFi from the office environment to wide-area coverage opens new vistas for WiFi technology and will likely be a key driver of its future growth"[27].

Circumstantial evidence shows that more innovation occurs by relying on decentralized open WiFi than centralized GSM technology. Unlicensed portions of the spectrum are an effective catalyst for innovation because it "is an enabling resource that, like other enabling resources and technologies, encourages innovation by many parties. Licensing or ownership that limits access to such resources discourages innovation by giving too much power to the licensee or owner"[28].

Password-locking of WiFi removes some of the benefits of decentralized character of open WiFi. For instance future delivery drones navigating aerial space will not be able to benefit from free connectivity nearby, but will need to be supported by a centralized technology such as 3G. Also any wireless communication among the drones in the air in order to prevent mutual collisions will be made more difficult, since closed WiFi obstructs the free flow of data.

Similar problems can happen with on-ground technologies conceived for accident avoidance. General Motors, for instance, is working on Wi-Fi-equipped cars to detect pedestrians and cyclists[29]. "This new wireless capability could warn drivers about pedestrians who might be stepping into the roadway from behind a parked vehicle, or bicyclists who are riding in the car's blind spot," says Nady Boules from General Motors. The system thus can help to reduce the number of accidents.

Conclusion

Most of the signatories of this brief hold various intellectual property rights too. And they occasionally also enforce them. Despite this, we believe that some enforcement techniques can do more bad than good to society. Enforcement that effectively outlaws use of open WiFi or use of other open wireless technologies is one of them. It will cause significant obstacles to legitimate trade, lead to less competition, obstruct the emergence of new innovative

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Preparing_the_Range_Extender> and <http://www.wired.com/2014/04/drones-mobile-hotspots/>

[24] Mike Isaac, 'Hardware Hacking at TED: From Snap-Together Circuit Kits to Roach-Based Neuroscience' (Wired, 2012) <http://www.wired.com/2012/03/ted-2012-hardware-littlebits-makerbot/all/> accessed 1 February 2015

[25] *See* <http://www.eyefi.com/>

[26] *See* <http://gopetpal.com/>; <http://perimetertechnologies.com/products/wifi-fence>; <https://www.kickstarter.com/projects/1453211280/cleverpet-a-console-that-teaches-and-feeds-your-do>; <https://www.dropcam.com/pet-monitor>; <https://petcube.com/>;

[27] Paul S. Henry and Hui Luo, WiFi: 'What's next?' [2002] IEEE Telecommunications Magazine 66-72

[28] Paul Milgrom, Jonathan Levin and Assaf Eilat, 'The Case for Unlicensed Spectrum' (2012) SEIPR Discussion Paper 10-036, p. 28

[29] See <http://www.gizmag.com/gm-wifi-direct/23478/>

technologies and foreclose socially beneficial uses. No potential benefits to right holders are worth this.

Our 21st century needs 21st century infrastructure. Closing open WiFi is a step back, and not a leap forward. Intellectual property enforcement should spur economic progress and not lead to devaluation of the society. We hope that the Court of Justice of the European Union will consider this when giving its answers in *McFadden*.

Signatories

Signatories of this open letter are companies, organizations and individuals whose future work, innovative activities or other contributions to the society depend on a possibility to keep the WiFi of their own or of others open.