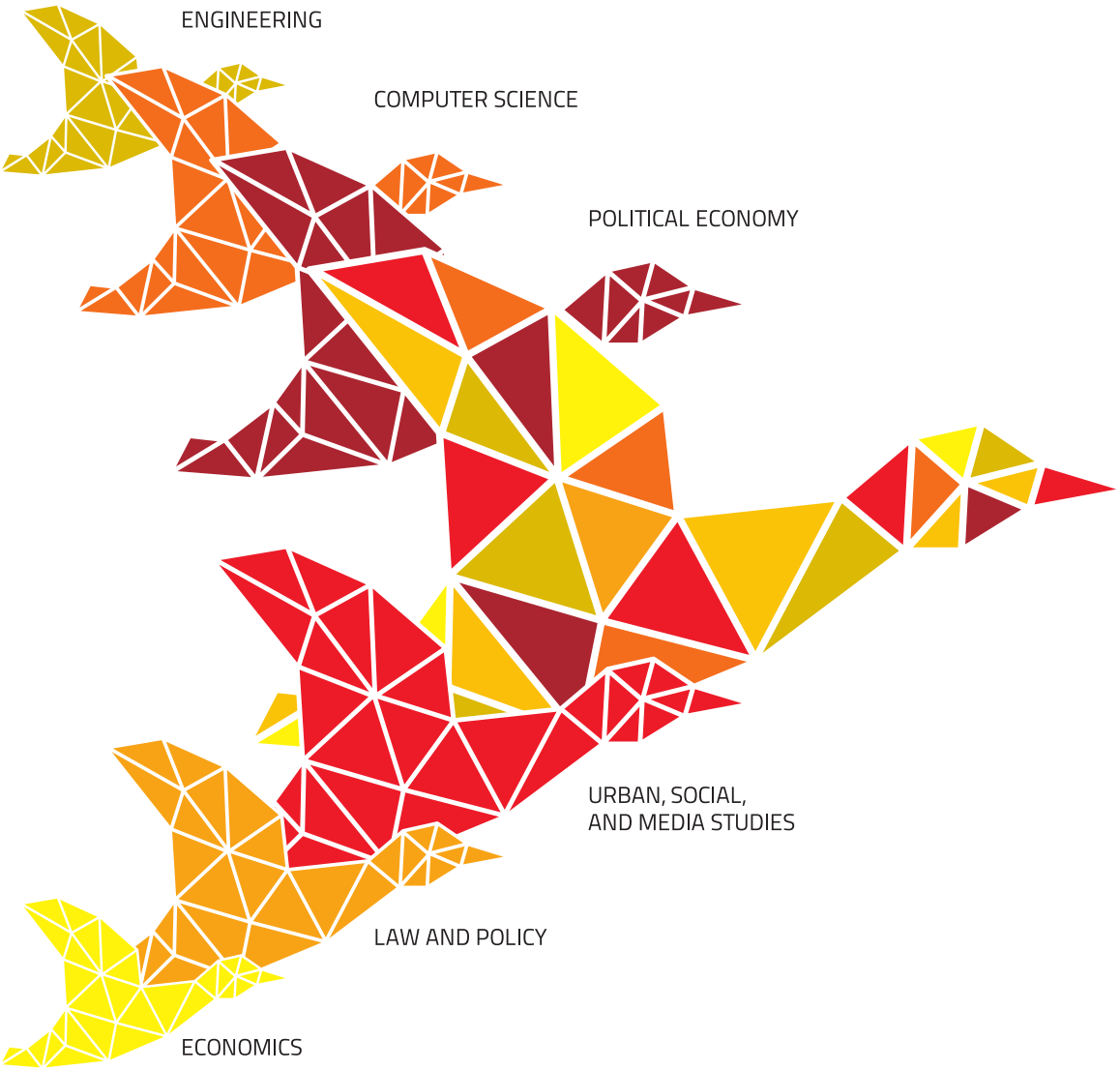

Enabling the Telecommons: Guidelines for Policy-Makers

Version 1.0

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Across Europe, Community Networks (CNs) represent a growing movement of organisations that operate local communication infrastructures, sometimes federated at the regional or national levels. These networks, most of which also provide access to the global Internet, are operated as a commons. That is, rather than being driven by for-profit motives, their key focus is on providing connectivity while striving for democratic governance, social inclusion, education, and human rights with respect to communication technologies.

These organisations vary considerably in terms of sizes, types of network infrastructures and political cultures. Yet, despite their diversity, they are united by the common objective of building networks that meet the communication needs of humans (rather than those of objects and machines), through networks that are built and run by communities, for communities, focused on local empowerment, affordability and resiliency.

Today, they collectively provide broadband connectivity not only to tens of thousands of individual European citizens and residents in rural or urban settings, but also to organizations including small and medium sized companies, schools, healthcare centers, social projects and many more. In many cases, they have complemented or out-competed mainstream operators, by providing cheaper and faster Internet connectivity than incumbent players. Thanks to their infrastructures and through their various activities, they foster scientific and engineering experiments, help local hosting and service providers come together to mutualise investments and share costs, they support digital literacy and technological sovereignty through workshops and other educational activities.

Yet, despite these achievements, policy-makers at the national and European levels have so far mostly neglected the existence of Community Networks and specific regulatory needs. Worse, regulation is often hampering these initiatives, making the work of their participants and volunteers harder than it should be. This time is now over: Once it is adopted by EU lawmakers, the European Code of Electronic Communications (ECEC)[1] will offer new provisions requiring all policy-makers in the telecom field to take into account the special policy needs of Community Networks. The UNESCO "Internet universality indicators" released in 2018[2] also

[1] Proposal for a directive establishing the European Electronic Communications Code. COM/2016/0590 final – 2016/0288 (COD). Available at: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=comnat:COM_2016_0590_FIN

[2] *UNESCO's Internet Universality Indicators: A Framework for Assessing Internet Development* (2018). en. Tech. rep. Paris: UNESCO. URL: http://unesdoc.unesco.org/images/0026/002658/

assess country performance based on the existence of an appropriate ”legal framework for establishment of community networks. In other words, it is no longer enough to ”let CNs be”. They should be actively supported by dedicated policies.

In accordance with these recent developments at the European and international levels, this policy brief offers an overview of approaches that policy-makers, and in particular National Regulatory Authorities (NRA), should explore to foster the growth of Community Networks.

1 Inviting Community Networks to the policy table

Although CNs have often partnered with municipalities and local public authorities, national and European regulators need to pay more attention to their activities when drafting regulation. Community Networks have both the expertise and legitimacy to take an integral part in technical and legal debates over broadband policy in which traditional, commercial ISPs are over-represented. Community Networks can bring an informed view to these debates, allowing for a policy-making process more attuned to the public interest.

This is all the more important considering that article 3.3.e) of the forthcoming European Code of Electronic Communications provides that:

> “*Member States, BEREC and the EU Commission, in fulfilling their missions pursuant to the code, should take due account of the variety of conditions relating to infrastructure, competition, end-user and consumers circumstances that exist in the various geographic areas within a Member State including local infrastructure managed by individuals on a not-for-profit basis.*”

This language covers most, if not all, of CN models and suggests that regulators should actively mobilize the knowledge of Community Networks. CNs have both the expertise and legitimacy to participate in technical and legal debates over broadband policy, to make the underlying political issues more salient, and to bring an informed view of the effect of existing policies on the ground.

In sum, they bring a dissenting view that can only open up new policy paths, and stimulate a debate to ensure that telecom policy stays in tune with the public

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interest. Of course, for enabling real participation, there is a need for policy-makers to provide remote participation schemes and design consultation processes in a way that makes them available [accessible] to volunteer-based initiatives.

2 Lifting unnecessary regulatory and financial burdens

Many CNs are Internet access providers, offering access to the Internet to many users. But considering their small market size and special governance features, regulators should get rid of unnecessary regulatory burdens, such as fees or red-tape that are unnecessary or illegitimate when imposed on small and/or non-profit entities.

In Belgium for instance, the registration fee that telecom operators must pay to the National Regulatory Authorities (NRA) is at 676€ for the first registration, plus 557€ every following year (for those whose revenues are below 1M€, which is the case for many Community Networks). Even such small fees can hinder the growth of small networks that efficiently serve tens of households. In France, Spain and Germany, it is free, which might explain why the community network movement is much more dynamic in these countries. Likewise, taxes intended for large corporate firms in the telecom sectors should not apply to smaller, non-profit operators.

Fortunately, the new European Code of Electronic Communication contains recitals to that effect. Recital 48 for instance provides that:

> "*competent authorities should duly take into account, when attaching conditions to the general authorization and applying administrative charges, situations where electronic communications networks or services are provided by individuals on a not-for-profit basis. In the case of electronic communications networks and services not provided to the public it is appropriate to impose fewer and lighter conditions, if any at all, than are justified for electronic communications networks and services provided to the public.*"

In the same spirit, recital 52 states that:

> "*to the extent that the general authorisation system extends to undertakings with very small market shares, such as community-based network*

providers, or to service providers whose business model generates very limited revenues even in case of significant market penetration in terms of volumes, Member States should assess the possibility to establish an appropriate de minimis threshold for the imposition of administrative charges."

We therefore call on policy-makers to make the most of these new provisions and systematically explore what administrative charges, procedures or conditions should be revised to accommodate the special needs and capacities of Community Networks.

3 Limiting civil and criminal liability for people sharing Internet access

Several laws seek to prevent the sharing of Internet connections among several users by making people responsible (and potentially liable) for all communication made through their Wi-Fi connection, and create legal risks for people sharing their connection.

In Germany, rights-holders have used a "secondary liability" doctrine to dissuade people from sharing their Internet connection with other users in their vicinity, thereby chilling the growth of the Community Networks movement. In France too, copyright law imposes a form of secondary liability regime, hereby creating significant legal uncertainty for people sharing their network connections with other users. In 2017, two German courts have also made controversial application of the McFadden ruling to the European Court of Justice, holding individuals who had shared their Wi-Fi connection liable for copyright infringements committed by other users.

Here again, the new European Code of Electronic Communications brings useful developments in this regard, stressing in article 55.3 that:

"*[policy-makers and telecom providers should not] restrict or prevent end-users from allowing reciprocally or more generally accessing to the networks of such providers by other end-users through radio local area networks, including on the basis of third-party initiatives which aggregate and make publicly accessible the radio local area networks of different end-users.*"

The same article also reaffirms that "in any event", the liability exemptions provided by "Article 12 of Directive 2000/31/EC shall apply"[3].

Open WiFi sharing – and it particular the model pioneered by CNs like the Germany-based Freifunk – is now acknowledged and encouraged by this new provision. It should be used to ensure that the right to share one's connection if effectively guaranteed. In the same spirit, where they exist like in Italy, telecom operators' contract clauses that forbid subscribers to share their connections with others should be prohibited.

4 Expanding the spectrum commons

It is not just Internet wireless access points that can be shared, but also the intangible infrastructure on which radio signals travel. Wi-Fi, as an unlicensed portion of the spectrum and therefore a commons open to all, is a key asset for Community Networks willing to set up affordable and flexible last-mile infrastructure.

Unfortunately, these Wi-Fi frequency bands are currently very limited. Not only are they getting increasingly subject to congestion in densely populated areas, they are also exposed to new technical standards that use the so-called ISM frequency band (like LTE-U) that hamper the reliability of Wi-Fi communications. Last but not least, existing frequency bands for Wi-Fi (5,6 Ghz and 2,4 Ghz) have physical constraints that prevent them for being used for longer radio links. In the face of such challenges, a new approach to spectrum policy is needed whereby policy-makers expand unlicensed Wi-Fi bands.

Other types of frequencies should also be made available either on an unlicensed (preferred scenario), or on an affordable and flexible authorization schemes. Such frequency bands for instance include so-called TV white spaces in lower frequencies (which allow for cheap and resilient long-distance links, for instance in rural areas), as well as the 12Ghz and the 60Ghz bands (for which radio equip-

[3] Article 12.1 of the directive on the information society establishes the so-called "mere conduit" principle: "Where an information society service is provided that consists of the transmission in a communication network of information provided by a recipient of the service, or the provision of access to a communication network, Member States shall ensure that the service provider is not liable for the information transmitted, on condition that the provider: (a) does not initiate the transmission; (b) does not select the receiver of the transmission; and (c) does not select or modify the information contained in the transmission."

ment is affordable and which can help us build high-bandwidth point-to-point radio links). Once made accessible to Community Networks, they can help roll-out and expand cheap and resilient wireless infrastructures.

Shared and unlicensed access to the radio spectrum embodies the core principle of general authorization mechanism enshrined since 2002 at the EU level. In 2012, the European Radio Spectrum Policy Programme further called on policy-makers to assess the "need for and feasibility of extending the allocations of unlicensed spectrum" in the Wi-Fi bands[4]. That same year, a EU Commission study also called for a new 100 MHz of license-exempt bands as well as for higher power output limits in rural areas to reduce the cost of broadband Internet access deployment[5]. But unfortunately, no concrete action has since been implemented.

In the upcoming European Code of Electronic Communications, new provisions also encourage shared and unlicensed use of spectrum (see article 4.4, 45.2, 46.1). Policy-makers must understand the need and urgency of implementing a reform of spectrum policy favouring unlicensed and shared access to this vital resource, and more generally innovative licensing schemes that could benefit Community Networks[6]. For instance, in 2015, the Mexican NRA amended its frequency plan to set aside part of the 800 MHz band for "social purpose" licensing. To qualify for a social-use license, applicants must demonstrate that the spectrum would be used to service communities of 2,500 people or less, or communities located in a designated indigenous region or so-called "priority zone." Community Networks like Rhizomatica have relied on this social purpose licensing to develop networks in areas not served by traditional telecom providers.

[4] See recital 25 of the decision 243/2012/EU of 14 March 2012 establishing a multiannual radio spectrum policy programme.

[5] Simon Forge et al. (2012). *Perspectives on the value of shared spectrum access*. Support for the preparation of an impact assessment to accompany the Commission's Ini tiative on the Shared Use of Spectrum, SMART 2011/0017. SCF Associates Ltd.

[6] *Unleashing Community Networks: Innovative Licensing Approaches* (2018). Tech. rep. ISOC. URL: https://www.internetsociety.org/resources/2018/unleashing-community-networks-innovative-licensing-approaches/ (visited on 12/04/2017).

5 Updating open-access rules on private and public telecom infrastructures

As our societies transition to last-mile fiber-optic networks, there is a risk that Community Networks will be left behind. To promote competition, diversity, resilience and local empowerment in telecom markets, regulators should urgently update open access rules that once were the cornerstone of European telecom policy to make them fit for Fiber-to-the-Home (FTTH) networks. To do so, different strategies can be identified depending on whether existing infrastructure is privately owned or public.

In France, the first publicly available ISP was a non-profit organization called French Data Network (FDN). Created in 1992, FDN it still in operation today. But like many alternative landine ISPs, FDN does not have enough funding to deploy its own cables. It has to rent those of larger players.

Two kinds of access can be rented: either passive or active access. Passive access means that a provider actually rents access to the physical cables of another operator, installs its own equipment in key part of the network and manages every technical aspect of the access provided to users. Renting passive access is expensive and suited to providers who are able to reach out to large number of users in a given area, or to companies with very specific needs. The alternative is active access (also called "bitstream"), which amounts to simply renting part of a network already managed by another operator. It does not require to install equipment and is much cheaper. Even though it does not give as much technical control as passive access, it still allows ISPs such as FDN to provide the tailored services that its members and subscribers are looking for.

The problem is that whereas active access is now readily available in most ADSL markets, it is still a far-fetched dream for fiber networks. In France, only the four largest telecom firms are able to invest in fiber optic last-mile networks. Worse, these telecom companies are often alone in a specific area, which leads to a monopolistic situation from the perspective of end-users. The root cause is that there is currently no bitstream offers allowing smaller operators or Community Networks (CNs) to use the infrastructure rolled-out by these dominant players to provide their services to end-users.

Despite fears that it would reinforce monopolistic trends when it was first proposed, the Code of Electronic Communications was amended to safeguard regula-

tory room for manoeuver. NRA will still be able to engage in asymmetric regulation (i.e. more stringent regulation of dominant market players). Most crucially for alternative providers like CNs, who do not have the financial power to join the so-called "co-investment agreements" (whereby large telecom companies come together as a cartel to deploy a joint FTTH network in a given area), "NRA should also safeguard the rights of access seekers who do not participate in a given co-investment." Recital 165 also makes clear that access to NRA will retain the ability to impose active access obligations on network owners, when "access to passive [network] elements would be economically inefficient or physically impracticable." Policy-makers should therefore use their powers to ensure that active access offers are available for Community Networks across local markets, especially when they review (and attach conditions to) co-investment agreements adopted by large telecom providers.

Another pressing issue is that of public networks. Like the radio spectrum, networks built with taxpayers money should be treated as a commons and, as such, remain free from corporate capture. Today, their management and exploitation is often delegated by public authorities to large network operators. These entities usually adopt aggressive and untransparent pricing schemes designed for incumbent players that make it extremely costly for small access providers to interconnect with these networks. It is unacceptable that citizen initiatives designed to serve the needs of populations whose connectivity needs are badly served by traditional telecom providers be kept away from public networks. Access to these networks for non-profit entities like Community Networks as well as small businesses should be guaranteed, at a reasonable and proportionate cost. To do so, policy-makers should also mandate that all public networks come with active access offers and pricing schemes that makes it possible for small players, in particular Community Networks, to offer services on these networks.

6 Protecting free software and user freedom in radio equipment

In 2014, the European Union adopted Directive 2014/53 on radio equipment.[7] Although the Directive pursues sound policy goals, it might actually impair the development of community networks. Indeed, community networks usually need to

[7] Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.

replace the software included by the manufacturer in radio hardware with free and open source software especially designed to suit their needs, a collective process that improves security and encourages the recycling of hardware, among other benefits. Article 3.3(i) of the said Directive creates legal pressure for manufacturers of radio devices to ensure the compliance of the software loaded on these devices with the European regulatory framework. As a result, there is a strong incentive for manufacturers to lock down their devices and prevent third-party modifications of the hardware.

Policy-makers should provide a general exception for all free software installed on radio devices by end-users and operators (the latter being liable if their software lead to violations of the regulatory framework), so that users' rights are safeguarded. An alternative approach would be to exempt all WiFi routers from Article 3.3(i). Further, they should require router manufacturers to open their devices for installation of third-party, open source software. As an example of this, the FCC explicitly refers to free and open source software when stating that third-party software should not be prohibited. Manufacturers should also be required to enable the free and open source development communities with sufficient information of possible consequences that firmware changes may have.

7 Exploring other measures supporting the development of Community Networks

Beyond the most urgent measures listed above, there is a wide range of policies that can foster the growth of Community Networks. They could for instance explore how Universal Service funds could be used to bring targeted support to Community Networks as a way of tapping into their experience in building cheap and resilient networks serving the needs of underserved populations.

There is a great deal that can be done to boost transparency, for instance by providing clear guidance on regulatory requirements and exemptions applicable to CNs, by compiling up-to-date databases on already existing infrastructure (passive/active offers available, licensing regime, spectrum availability etc.) or on programmed civil engineering work so as to reduce the cost of fiber deployment. By opening to the world of Community Networks, policy-makers, and NRA in particular, will be able to think of many creative measures to better fulfill their tasks and duties, and eventually better serve the public interest.

Community Networks have long faced a hostile regulatory framework. But since their various models have achieved considerable results, they are nevertheless an increasingly popular way for serving the connectivity needs of people and are starting to get the recognition they deserve. Much still needs to be done to lift the obstacles that hinders their development and allow Community Networks to unleash all their potential. Building on new European and international policy orientations, now is the time for policy-makers to work with these initiatives to ensure the sustainable development of telecom infrastructures.

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