Written evidence submitted by the Prof. Christian Fuchs and Dr. Maria Michalis, CAMRI (Communication and Media Research Institute) University of Westminster (RBD0014)

ABOUT US

Christian Fuchs is a Professor of Media and Communication Studies at the University of Westminster, and Director of the Communication and Media Research Institute (CAMRI) and the Westminster Institute for Advanced Studies. He has over almost twenty years conducted research about how digital media and the Internet impact society in research projects and in activities that have resulted in more than 300 academic publications.

Maria Michalis is a Reader in Commination Policy at the University of Westminster's Communication and Media Research Institute (CAMRI), a leading research centre in the UK for almost thirty years. She has been for over 20 years now researching telecommunications, Internet and television policy and regulation, with a focus on Britain and Europe. She has published widely on these issues and presented at European and international policy fora.

Both participated as researchers in the EU Horizon 2020 research project "netCommons: Network Infrastructure as Commons" that examined Internet community networks during the years 2016-2018 (http://netcommons.eu/, grant agreement number: 688768).

SUMMARY OF EVIDENCE

1. This submission responds to the following questions of the inquiry:
   What are the barriers to delivering superfast broadband and improved mobile phone coverage in rural areas at an affordable cost to consumers? Is enough being done to address the disparity in coverage and digital service provision between rural and urban areas? What is the impact of the urban-rural digital divide on rural communities?
   How well do digital public services work in rural areas where there are poor internet connections? What support or alternatives are available for those

in rural areas with poor or no connection to use digital public services and how effective is it?

2. The submission draws attention to the substantial economic, social, democratic and cultural contribution that Internet community networks and alternative Internet projects can make. It calls upon policy makers to create an enabling environment for their creation and operation, and to include them to the policy table.

3. Large monopoly firms that have tremendous power dominate the digital economy and the culture industry. Internet access and the digital economy are highly concentrated markets that tend to privilege regions that are rich in infrastructure over more rural, less populated, poorer regions. There is a geographical divide in access to the Internet that especially concerns the newest technologies (such as Next Generation Internet). Highly concentrated markets controlled by private companies reinforce geographical access divides because connecting sparsely populated regions to the newest networks is expensive and less profitable than advancing access in urban centres.

4. Internet Community Networks are an alternative to corporate Internet access monopolies. Community Networks are communication infrastructures set up by groups of people, either organized into an association or similar legal entity, or simply coordinating to achieve a common goal. Their goal is building and managing the infrastructure as a commons, respecting ethical values of a group of people (the Community), and providing communications and digital services as an alternative to large commercial state networks and online service providers.

5. In the years 2016-2018, we were as a team of researchers at the University of Westminster involved in the EU Horizon 2020 research project “netCommons: Network Infrastructure as Commons” (http://netcommons.org). The netCommons-project found out that community networks can deliver various advantages in respect to connectivity, community and social cohesion, affordability, anti-monopolistic alternatives, economic sustainability, and democracy. In the netCommons project, the University of Westminster-team conducted a survey among 1,000 Internet users about the potentials to establish an alternative Internet. The dataset has been made available as open data (see https://zenodo.org/record/1294040)

6. We found that there is dissatisfaction with the way the Internet is organized today, that many users are critical of corporate Internet monopolies, see democratic deficits, and have a profound wish for alternatives. There is interest in the establishment of an alternative Internet among users. Alternatives promise to overcome the monopolistic structures that are the underlying causes of geographical access divides and anti-democratic features of the contemporary Internet.

7. We formulate a number of policy recommendations, namely that policy makers should
   a) strengthen the voice of alternative Internet providers by inviting such projects to the policy table;
   b) strengthen civic/public-Internet partnerships;
   c) strengthen the taxation of the digital giants (such as Facebook, Google, Apple, Amazon, etc.);
   d) lift regulatory and financial burdens for non-profit Internet projects;
   e) strengthen the access of non-profit community networks to the infrastructure controlled by commercial players;
   f) expand the spectrum commons.

A. Where We Are Now: Concentrated Telecommunications Markets and the Regional Digital Divide

8. Britain, together with the USA and Japan, pioneered the liberalisation of telecommunications markets back in the 1980s. Yet, after almost 40 years of pro-competitive market restructuring and technological advances, it is clear that market solutions alone have failed to deliver (broadband) internet to rural and remote regions. Eli Noam, a renowned international economist, observes that "fiber and high-capacity wireless are raising scale economies and network effects, *leading to a more concentrated market*" (Noam 2010, p. 4). Indeed, established commercial operators have long claimed that the objective of investment in high-speed broadband infrastructures is not compatible with the original objective of competitive market restructuring and that investment and innovation in such infrastructures requires the lifting of regulatory obligations which required them to share their investment with other markets entrants (Michalis 2007, pp. 203-205; Michalis 2016).

9. It is not simply concentration of power in a handful of commercial operators that is of concern but also the potential for them to shape competitive conditions downstream both in the provision of competing infrastructure provision but also beyond infrastructure provision shaping access to services, content, and information, and in doing so the potential to threaten established rights and freedoms such as privacy and freedom of expression (Cave and Shortall 2016).

10. Paradoxically then, telecommunications and Internet access markets remain stubbornly less competitive than originally envisaged and, moreover, largely controlled by the established commercial telecommunications operators. This is the case not just in Britain but in almost all countries.

11. Still, despite a relatively high degree of market concentration and overall stable market shares enjoyed by the main telecommunications providers, investment in high-speed networks has not materialised either in a timely fashion or to the desired scale. Rural areas in many European countries do not have Internet access whilst the level of service experienced in different geographical areas even within the same country varies considerably, often referred to as the "speed gap". Current Internet provision and penetration reflect and at the same time reinforce existing socio-economic inequalities.

12. Table 1 shows that the Internet access divide has to do with inequalities in respect of education, occupation, wealth and geography[1]. In respect to the latter category, there is a profound difference between urban and rural areas: The shares of individuals who have never used the Internet and who live in households without broadband access and without a computer are significantly lower in sparsely populated areas.

[1] The table was first published in: Fuchs (2017a, 2439)

Table 1: Internet and Computer Use Statistics for the European Union, 2015.

	Individuals who regularly (at least once a week) use the Internet, %	Households with Internet access, %	Households with broadband access, %	Households owning a computer, %	Individuals who have never used the Internet, %
EU-28	76 (2010 65%)	83	80	82	16
Less developed regions[a]	59 (EU-28 72%)	68 (EU-28 79%)	66 (EU-28 76%)	70 (EU-28 80%)	31 (EU-28 20%)
ICT professionals	92	-	-	-	3
Manual workers	72	-	-	-	17
Low education	55	-	-	-	36
Individuals in poorest households (lowest quartile)	48	62	59	62	31
Individuals in richest households (upper quartile)	81	97	95	97	5
Households in sparsely populated areas (< 100 inhabitants/km^2)	-	-	73	77	23

All data are from Eurostat (2016). EU-28 refers to all 28 countries in the European Union.
[a] Data for this category are for 2013.

13. There are profound differences in broadband access if one compares different UK regions (see table 2). Whereas broadband access is highest in London, it is lowest in the North East, Northern Ireland, and Wales, which means that there are geographical inequalities in broadband access.

Table 2: Regional broadband access in the UK

Region	**Percentage of households with broadband Internet access (2017)**
UK	93
North East	84
North West	93
Yorkshire and The Humber	91
East Midlands	91
West Midlands	94
East of England	94
London	96
South East	96
South West	94
Wales	90
Scotland	94
Northern Ireland	87

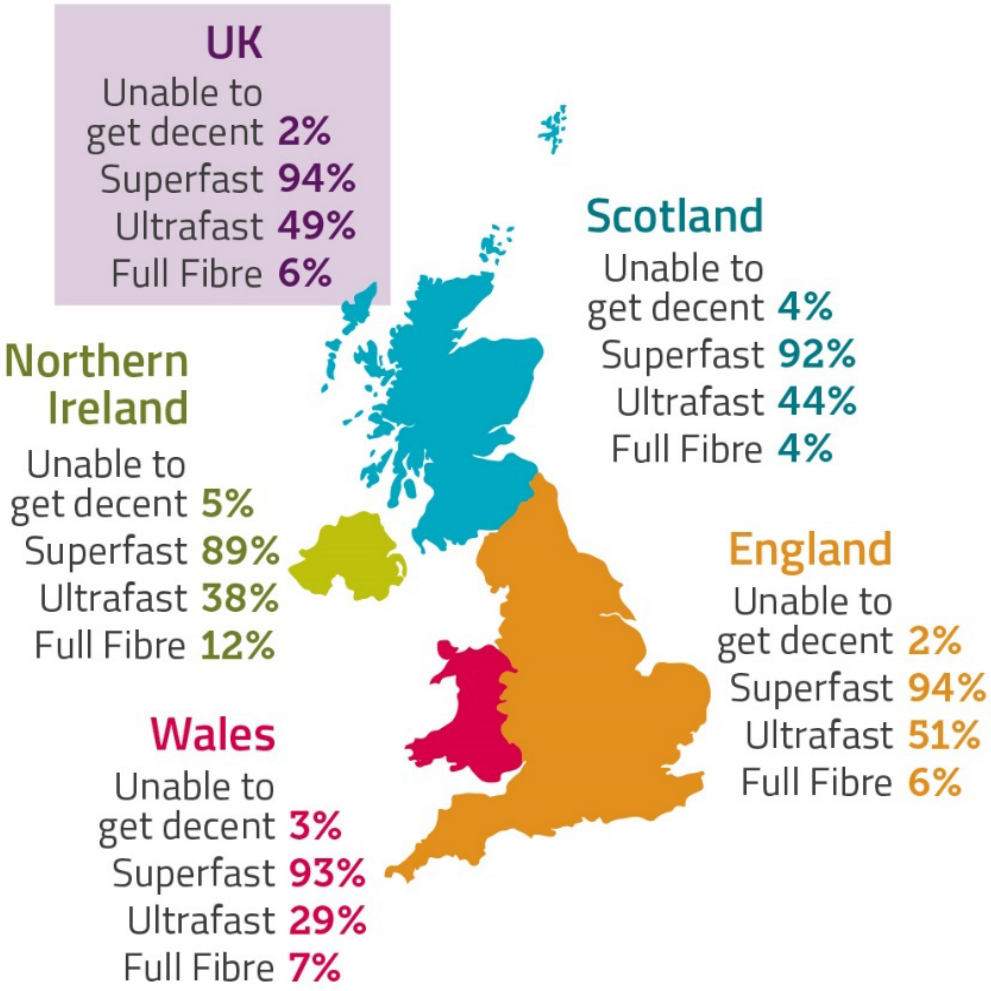
Data source: Eurostat (https://ec.europa.eu), accessed on 20 June 2019

14. According to Ofcom's latest available data, at the end of 2017, across the country 2% of premises (677,000) cannot access a "decent [fixed] broadband connection," defined as a connection with at least 10Mbit/s downstream and 1 Mbit/s upstream speeds. As the graph below shows, this varies from 5% in Northern Ireland to 2% in England (Ofcom 2018b, p. 5).

15. These percentages remain unchanged as of January 2019, which suggests that the main challenge is how the get the last 2% to access a "decent" broadband connection. Roll-out of ultrafast connections (300Mbit/s or higher download speed) stood at 53% at the beginning of the year, with access to full fibre services at just 7% (can offer 1Gbit/s speed). Of course, coverage does not equal take-up. (Ofcom 2019)

16. In the same report, Ofcom notes, in addition, the following (Ofcom 2018b, p. 1):
    - "While 94% of UK homes and businesses are in areas where superfast, or better, broadband is available, only 45% of homes are subscribing to these services.
    - 9% of UK landmass has no good 4G coverage from any operator with rural areas badly affected.
    - 23% of homes and businesses do not have good indoor 4G coverage from all operators.
    - […] [t]here are 39,000 homes and businesses that cannot access a decent fixed broadband service or get good 4G coverage".

Graph 1: Percentage of premises that cannot access decent broadband in the UK (2017)

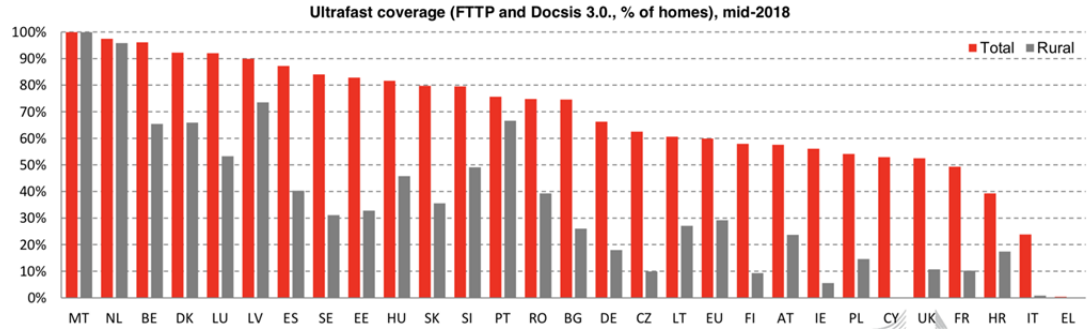


Source: Ofcom (2018b), p. 5

16. The situation in superfast broadband is different. In its study, Ofcom noted that, at the end of 2017, while the UK ranked first among EU5 (France, Germany, Italy, Spain, UK) on household availability of broadband networks, it ranked last for the availability of full-fibre FTTP networks. (Ofcom 2018b, p. 5).

17. FTTP and Docsis 3.0 (cable) are two types of ultrafast broadband that provide connectivity of at least 100 Mbps. Figure 1 visualises data on rural access to ultrafast broadband.

Figure 1: Ultrafast broadband access in rural areas (EU)

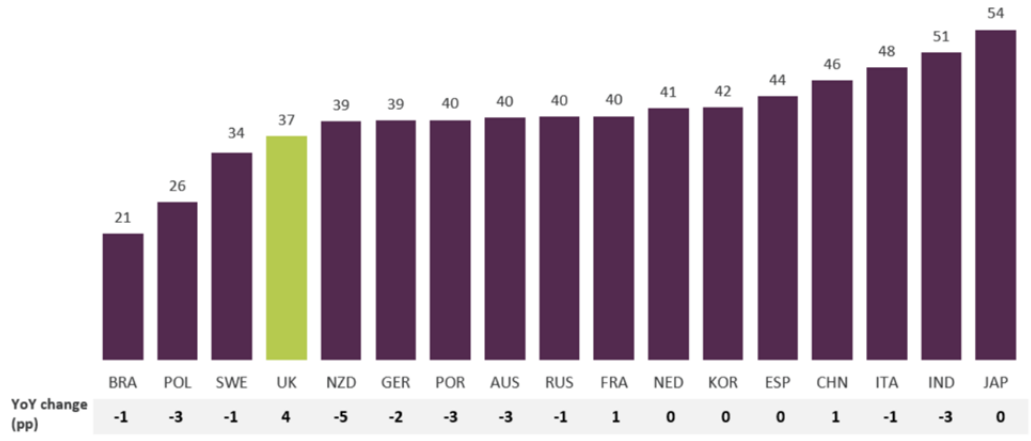


Source: European Commission (2019), p. 8

18. With the exception of Malta and the Netherlands, there is a large urban/rural-differential in access to ultrafast broadband Internet in all European countries. In the UK as a whole, around 50 percent of all homes and only 10 percent of rural homes have access to ultrafast broadband.

19. Internet access and telecommunications are highly concentrated markets. At the end 2016, the incumbent (BT) controlled 37 percent of fixed broadband lines in the UK (figure 2). The incumbent's market share is large in most countries, which indicates that Internet access is a relatively highly concentrated market. "The share of fixed broadband lines operated by BT, the incumbent provider in the UK, increased by four percentage points to 37% in 2016, largely due to BT completing its acquisition of EE early in the year" (Ofcom 2018a, p. 70).

Figure 2: Incumbent share of fixed broadband lines, in percent, at the end of 2016



Source: IHS Markit / operator data / Ofcom

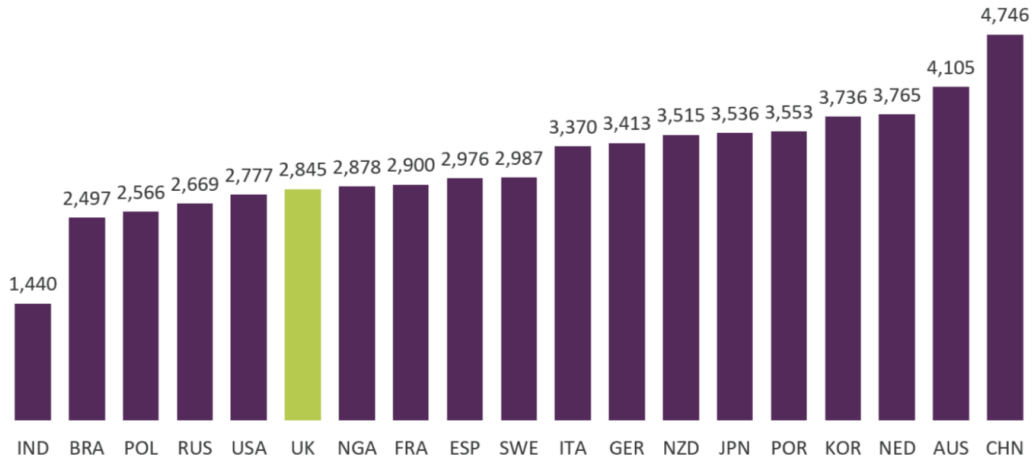
Source: Ofcom (2018a), p. 71

20. The Herfindahl-Hirschman Index (HHI) is a measure of market concentration. It is calculated as follows:

$$HHI_j = \sum_{i=1}^{f} S_{ij}^2 ,$$

where *f* = number of firms participating in an industry, and
S_{ij} = each firm *i*'s market share in the industry *j*.
HHI < 1,000 indicates low market concentration.
1,000 < *HHI* < 1,800 indicates moderate market concentration.
HHI > 1,800 indicates high market concentration. (Noam 2009)

Figure 3: Herfindahl-Hirschman Index of the mobile communication market for specific countries



Source: IHS Markit

Data source: Ofcom (2018), p. 78

21. Figure 3 shows the HHI for the mobile communication market for a selected number of countries. It indicates that the mobile market is a highly concentrated market.

Table 3: The world's largest information corporations in 2019

Rank	Corporation	Economic Branch	Headquarter	Revenues 2018	Profits 2018
6	Apple	Hardware	USA	US$261.7 bn	US$59.4 bn
12	AT&T	Telecommunications	USA	US$170.8 bn	US$19.4 bn
13	Samsung Electronics	Hardware	South Korea	US$221.5 bn	US$39.9 bn
16	Microsoft	Software	USA	US$118.2 bn	US$33.5 bn
17	Alphabet/Google	Internet services	USA	US$137 bn	US$30.7 bn
20	Verizon	Telecommunications	USA	US$130.9 bn	US$15.5 bn
27	China Mobile	Telecommunications	Hong Kong	US$111.8 bn	US$18.9 bn
28	Amazon	Internet services	USA	US$232.9 bn	US$10.1 bn
33	Comcast	Media content and networks	USA	US$94.5 bn	US$11.7 bn
36	Softbank	Telecommunications	Japan	US$86.2 bn	US$13.9 bn
44	Intel	Semiconductors	USA	US$70.8 bn	US$21.1 bn
51	Nippon	Telecommunications	Japan	US$107.5 bn	US$8.7 bn
59	Alibaba	Internet services	China	US$51.9 bn	US$10.3 bn
60	IBM	Software, hardware	USA	US$78.7 bn	US$8.6 bn
63	Facebook	Internet services	USA	US$55.8 bn	US$22.1 bn
70	Walt Disney	Media content and networks	USA	US$59.4 bn	US$11 bn
73	Sony	Hardware	Japan	US$76.9 bn	US$7.3 bn
74	Cisco	Hardware	USA	US$50.8 bn	US$12.9 bn
74	Tencent	Internet services	China	US$47.2 bn	US$11.9 bn
92	Oracle	Software	USA	US$39.6 bn	US$10.8 bn
			Total:	US$ 2,204.1 bn	US$ 376.7 bn

Data source: Forbes 2000 List of the World's Largest 2,000 Companies for the year 2019, https://www.forbes.com/global2000/list/, accessed on 17 May 2019

22. Table 3 shows all information companies that were in 2019 among the world's 100 largest transnational corporations. 20 percent or a total of 20 of the 100 largest capitalist businesses operated in the communication/culture/digital industry. 13 of them had their headquarters in the USA, 7 in Asian countries. It is notable that none of these companies were located in Africa, Latin America, or Europe, which shows that the information economy is characterised by uneven geographical development. Five of the twenty companies operate in telecommunications, five are Internet service companies, four sell hardware, two software, one is focused on semiconductors, and one on both hardware and software.

23. In 2018, the combined GDP of the world's 38 least developed countries was US$1,008.6 billion (US$ 1 trillion) (UNDP 2018). In comparison, the total economic activity of the world's 20 largest information corporations measured as their combined revenues was in the same year US$2,204.1 billion (US$2,2 trillion; see table 3). The annual revenues of the world's twenty largest corporations in the culture/digital industry are 2.2 times larger than the combined GDP of the world's poorest 20 countries. This circumstance shows the tremendous economic size and power of transnational information corporations.

24. According to the latest data available in 2019, 783 million people, around 10 percent of the world's population, lived below the international poverty line of US$1.90[2]. This means that a ten percent of the world's population live on a total of less than US$543 billion per year, whereas the world's largest information corporations make more than four times that amount per year in revenues. In 2018, 26.5% of the world population in employment lived on less than US$3.10 (PPP) (UNDP 2018). The United Nations considers them as working poor. According to ILO estimates, in the year 2018 there were 3.3 billion employed person in the world[3]. The absolute number of poor employees was around 875 million. Together, these workers earned less than US$990 billion per year, whereas the total revenues of just 20 of the world's largest corporations – the largest information corporations – were 2.2 times as large as the total sum of these poverty wages.

25. In summary: Large monopoly firms that have tremendous power dominate the digital economy and the culture industry. Internet access and the digital economy are highly concentrated markets that tend to privilege regions that are rich in infrastructure over more rural, less populated, poorer regions. There is a geographical divide in access to the Internet that especially concerns the newest technologies (such as Next Generation Internet). Highly concentrated markets controlled by private companies reinforce geographical access divides because connecting sparsely populated regions to the newest networks is expensive and less profitable than

[2] https://www.un.org/en/sections/issues-depth/poverty/, accessed on 18 May 2019.
[3] Data source: ILO Statistics, https://www.ilo.org/ilostat, accessed on 18 May 2019.

advancing access in urban centres.

B. Internet Community Networks

26. Internet community networks are built and run by the people, for the people. They have been around since the 1990s. In some sense, these networks can be seen as an extension of the community media initiatives around the world, whose contribution the British policy framework recognises (e.g. community radio).

27. “Community Networks are communication infrastructures set up by groups of people, either organized into an association or similar legal entity, or simply coordinating to achieve a common goal. The goal is building and managing the infrastructure as a commons, respecting ethical values of a group of people (the Community), and providing communications and digital services as an alternative to large commercial state networks and online service providers” (netCommons 2019, p. 12).

28. In the years 2016-2018, we were as a team of researchers at the University of Westminster involved in the EU Horizon 2020 research project “netCommons: Network Infrastructure as Commons” (http://www.netcommons.eu). netCommons studied community networks and visions of and perspectives for an alternative Internet.

29. Internet community networks are gaining growing recognition worldwide and in European and international policy circles (e.g. Unesco 2019, indicator C6).

30. Originally, Internet community networks relied on wireless technologies (such as Freifunk in Germany), but increasingly many are providing fibre-to-the home (FTTP) solutions, a solution that commercial infrastructure providers have yet to offer on a widespread basis even in big urban centres, including London. Notable examples of community networks include B4RN in Lancashire, Sarantaporo.gr in Greece, and Guifi.net in Catalonia. All three are examples of how community networks have been used to advance connectivity in rural areas that face disadvantages and digital divides in the context of monopolistic communications structures (for the stories of several community networks, see netCommons 2019, pp. 16-21).

31. Although no two community networks are the same, a fundamental common feature they all share is their “alternative” character. “Alternative” here refers to the fact that community networks are typically different from the conventional commercial Internet connectivity model in various aspects, notably in terms of topology, architecture, ownership, business model, economic development and social inclusion (Forlano et al. 2011, p. 2; Saldana et al. 2015, pp. 3-4).

32. Conventional commercial networks and community networks are complementary, not substitutes. Sustainability will gain from the multi-dimensional diversity of community networks in relation to conventional commercial networks.

C. Benefits of Community Networks

33. The netCommons-project found out that community networks can deliver various advantages at different levels (Fuchs 2017c, netCommons 2016):
    - **Connectivity:** Community networks can contribute to expanding broadband connectivity often in commercially unattractive areas but also enhance competition in already connected areas.
    - **Social benefits beyond economic profit:** Connectivity brings with it significant economic and social benefits. Internet community networks are guided by societal, not commercial needs. The associated economic and social benefits can be more pronounced in the case of community networks.
    - **Community and social cohesion:** Community networks are bottom-up initiatives and the cooperation among citizens that is required by definition can strengthen community bonding and enhance social cohesion. Community networks have the potential to be open public networks for learning, training, community engagement, togetherness and communication.
    - **Affordability:** In case that community networks are operated not for-profit, then arguably they can offer more affordable connectivity thereby expanding the reach of the socio-economic benefits that connectivity brings.
    - **Anti-monopolistic alternatives:** Non-profit community networks can challenge the power of corporate monopolies. They can be foundations of an alternative organisation of the Internet.
    - **Economic sustainability:** Community networks contribute significantly to the sustainability of sparsely populated areas as in many cases they contribute to keeping the younger generation in the area whilst often they attract new economic activity. Unlike typical commercial solutions characterized by extractive value, in the case of community networks most of the value generated stays in the community (generative value) and this contributes significantly to its sustainability (Capra and Mattei 2015).
    - **Democracy:** Another benefit is the potential of community networks to better respect fundamental rights through, for instance, open access and better data management practices. Community networks have the potential to be inclusive, allow open participation, to be democratic and to enhance privacy and the protection from corporate and state surveillance.

D. The netCommons Alternative Internet-Survey

34. The question of what alternatives are possible when the market fails as in the case of rural areas with low connectivity is one that reaches beyond the

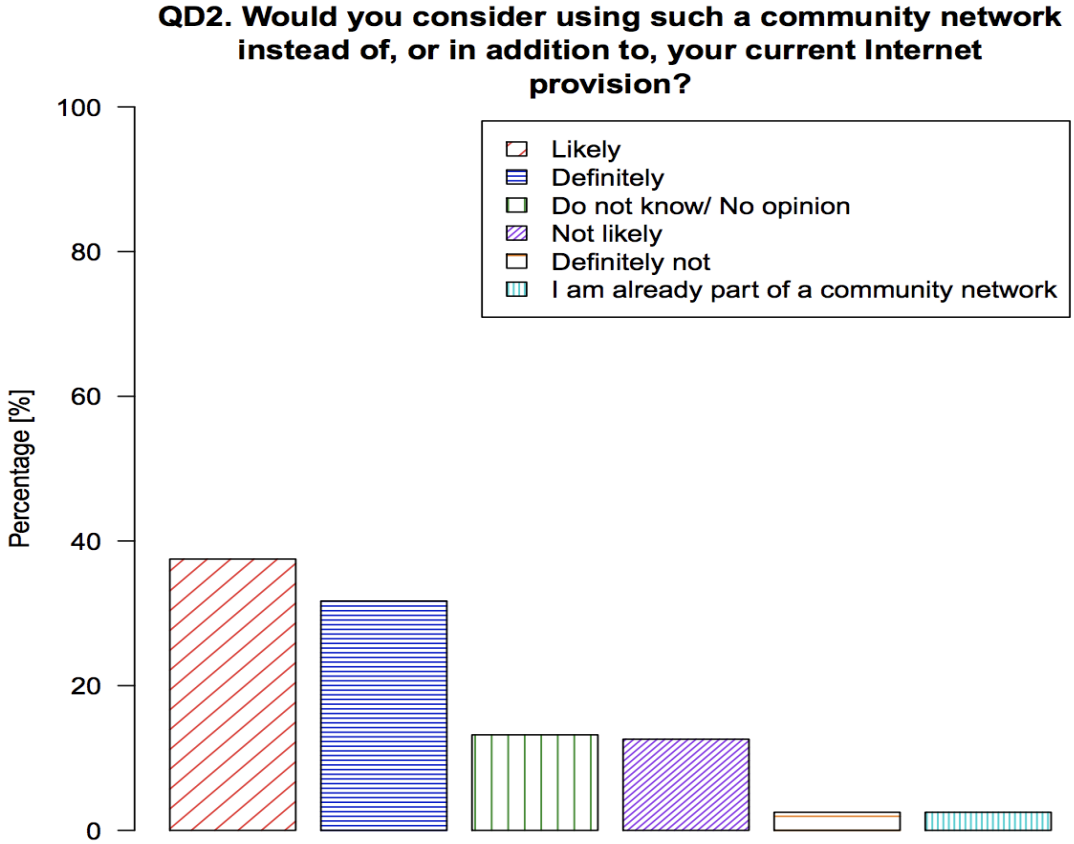
question of urban/rural-differentials. Internet monopolies cannot be found at the level of the technological infrastructure, but also at the levels of platforms and content provision. Google, Facebook, Microsoft, Amazon, and Apple are typical examples of digital monopoly corporations in realms such as online search, social media, operating systems, online shopping and hardware (see Fuchs 2017b). The Cambridge Analytica Scandal has shown that digital surveillance poses profound threats to democracy and the public sphere.

35. Community networks and community Internet projects are one form of the alternative Internet. Public service Internet platforms provided by public service media are another form of the alternative Internet (Fuchs 2018). There is a large potential in the partnership of civic projects such as Internet community networks, public service media, and other public services. Such public/civic partnerships have been characterised as Public Open Space(s) (see https://publicopen.space, https://publicspaces.net, https://public-open-space.eu/).

36. In the netCommons project, the University of Westminster-team conducted a survey among 1,000 Internet users about the potentials to establish an alternative Internet. The dataset has been made available as open data (see https://zenodo.org/record/1294040).

37. We found that there is dissatisfaction with the way the Internet is organized today, that many users are critical of corporate Internet monopolies, see democratic deficits and have a profound wish for alternatives (netCommons 2018). The Internet users participating in the survey tended to be critical of digital monopolies, privacy violations and surveillance, and the control and manipulation of online information and visibility. They tended to see alternative networks and platforms as ways to challenge monopolies, surveillance, lack of democratic governance, etc. There is a desire for and an interest in alternatives at the levels of infrastructure, platforms, and governance.

Figure 4: The interest in community networks (netCommons survey)



Source: https://www.netcommons.eu/?q=survey-question/450

38. More than 70 percent of the respondents said that they would definitely or likely use a community network, which shows that there is a large interest in the provision of non-profit forms of Internet access (figure 4).

39. The netCommons project and survey also showed that alternatives are not just feasible in respect to Internet access, but also in respect to platforms/software and content:
    - 46% of the respondents said they already use or would use privacy-friendly alternative platforms;
    - 43% say changing to alternatives depends on the behaviour of their friends;
    - 41% already use or would use advertising-free alternative platforms;
    - 45% say changing to such alternatives depends on the behaviour of their friends.

40. There is a profound interest in the establishment of an alternative Internet among users. Alternatives promise to overcome the monopolistic structures that are the underlying causes of geographical access divides and anti-democratic features of the contemporary Internet.

41. The netCommons-survey respondents identified various dimensions of an alternative Internet:
    - more plural digital markets,

- a people-controlled Internet,
- non-commercial/non-profit digital resources at the level of infrastructure, platforms, and content);
- democratic Internet governance;
- privacy-enhancing/privacy-friendliness;
- decentralised networks;
- public service Internet platforms;
- regulation (taxation, anti-trust legislation, privacy protection).

42. Here are some typical answers to the open questions posed in the netCommons survey that express the general desire for an alternative Internet:
    - “A non-profit large scale social media platform might be a useful alternative to Facebook and could be provided in a less intrusive and exploitative fashion” (#384);
    - “it could be great to create a social/local platform owned by the municipality (a sort of public utility) that unifies the function of Airb&b, Uber, Amazon and so on” (#193);
    - “The internet is a central part of contemporary life and should be a public utility.” (#496);
    - “I'd prefer it was something more along the lines of a platform cooperative-based system or a non-profit” (#699);
    - “I would love to use a community or city provided network. […] I think this model could really succeed if local and federal governments were more interested in investing in it” (#189).

43. Respondents in the netCommons survey identified a potential of community networks to overcome the rural/urban digital divide. One respondent said: “I live in the countryside where I have only one fixed line internet service provider - and this one operates the last mile through telephone copper wires = I have no high-speed fixed-line internet available. Currently I can get faster and cheaper internet connection using mobile 4G network, which has its own limitations (slower speed when it rains, possiblility of congestion etc.) An ideal situation would be a local or regional co-operative which would build and run a high-speed fibre network: I would be willing invest in that” (#475).

44. Respondents have in this context stressed that not private/public-partnerships, but civic/public partnerships between local community networks and municipalities/public institutions are needed in order to overcome the digital divide and that b) local networks should provide access to the global Internet and global communication possibilities. One participant argued: “I live in a rural part of the US that has poor internet service because advertisers and big companies have no interest in such populations. It's hard to see how my region could mount internet service without considerable state and federal funding and support” (#209). Another respondent said: “The community network would need access to national/international networks for this to work for me and my rural community” (#1448).

E. Policy Recommendations

45. Internet community initiatives typically come as an after-thought in policy circles, if at all. To the extent that they are discussed, community networks are perceived as a minor factor of the overall broadband connectivity and destined to fill-in gaps of provision in remote and other non-commercially attractive areas.

46. Based on the insights generated in the netCommons project, we make the following policy recommendations. We recommend the policy makers take measures in order to:

    a. **strengthen the voice of alternative Internet providers by inviting such projects to the policy table:**
    The voices of alternative Internet platforms and alternative network providers are often ignored in policy consultations. Policy makers need to invite Internet community networks and alternative Internet projects to the policy table and include them in discussions.

    b. **strengthen public/civic-Internet partnerships:**
    Alternative, non-profit Internet projects (alternative infrastructure projects, alternative platforms, alternative content projects) are often marginal, unknown, and lack resources. In order to strengthen alternative Internet providers, policy makers should support, enable and encourage partnerships of alternative Internet projects with municipalities, public organisations, public service media, and the non-profit third sector. Public/civic partnerships can help to mobilise the resources needed for scaling up and strengthening the economic sustainability of alternative Internet projects. Community and other alternative networks should not be seen as pure infrastructure projects, but should be integrated with the development of local, non-profit digital services and local commons and public projects.

    c. **strengthen the taxation of the digital giants:**
    Community networks and alternative, non-profit Internet projects have the potential to overcome geographical and other digital divides and to strengthen social and community cohesion, democracy, privacy, and the economic sustainability of local communities. For achieving this goal, community Internet projects and public service Internet projects need to grow and digital monopolies need to be challenged. One way of bringing about change is the introduction of a digital services tax for very large digital companies (such as Facebook, Google, Apple, Amazon, etc.). The revenue yielded from a digital services tax should be repurposed for the support of alternative, non-profit Internet projects.

d. **lift regulatory and financial burdens for non-profit Internet projects:**
Any regulatory obligations and fees paid by alternative Internet providers need to be proportionate to the usually small scale and non-profit character of Internet community networks.

e. **strengthen the access of non-profit community networks to the infrastructure controlled by commercial players:**
Internet community network need access to infrastructural elements of commercial market players and rights of way. The policy framework needs to accommodate that in line with the not-for-profit character of Internet community networks.

f. **expand the spectrum commons:**
Access to sufficient unlicensed spectrum and TV white spaces are key enablers of Internet community networks. The proportion of the spectrum shared as a common or made available for use by non-profit community networks should be steadily increased.

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