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Bez.: EU Survey „Next Generation Internet“

Dear ladies and sirs,

I welcome the opportunity by The Net Futures Directorate to express my opinion on research priorities with respect to the further development of the Internet.

Status of the Internet in 2016

Little needs to be said about the significance of the Internet for every aspect of personal life and society.

- **Broadband access** is the prerequisite for participation in the Internet age. Having recently looked into the state of broadband in Germany, I found it by all indicators (wired and wireless access, fiber, open WLAN nodes, LTE price-performance ratio) to be embarrassing for the country with the fourth highest GDP. While some European countries are doing better on these indicators, some of the structural issues have their roots in European policies.
E.g. dedicating the Digital Dividend to mobile carriers without leaving at least some of the spectrum unlicensed has done little to bring broadband to rural areas: LTE is unsuited for receiving e.g. the online-only Young Offer by German Public Service Media ARD and ZDF slated to start in October 2017 for which every household pays a broadcast fee. At the same time, this spectrum policy blocks the development of WLAN-over-TV-frequencies which is much better suited for bringing broadband to unserved citizens (VG, [Stellungnahme](#) 01.02.2016).
- **Net Neutrality** is the prerequisite for keeping the Internet open for innovation and fair for both senders and receivers.
- **Open, patent- and licence-free standards** have been the prerequisite for the Internet. Their openness has been defended by organisations like IETF and W3C against numerous attempts at enclosure.
- **Router lock-down** is another imminent threat emerging from EU regulation, i.e. the Directive on radio equipment ([2014/53/EU](#)) that in its Art. 3.3.i. has created great legal uncertainty and concern in the Internet community (cp. [joint statement](#) against a similar regulation by the FCC).

Recommendation: Digital networking is an area of policy making prone to capture by incumbents. Here more than in other areas, independent research is crucial for understanding and monitoring network dynamics, for informing the public and guiding policy makers in providing for an Internet that serves in realizing the human right to Internet access ([Kettemann 2015](#)) and that is not primarily optimized for value extraction. Close cooperation with IETF, W3C, IGF and other Internet organisations is paramount.

View towards 2025 & Priorities for Research

Not being a futurologist, I draw on what we have learned about the Internet so far and on the issues immediately at hand.

Security

After the Snowden disclosures, end-to-end encryption infrastructures encompassing every device have become paramount. The academic and entrepreneurial communities are responding, but much more support, particularly through public research funding is needed.

Free Software, Open Standards

I welcome that the Directorate is not only asking for functionalities and building blocks of the future Internet but expressly for “the conditions to make them open.” The protocols of the Internet, much of its software, operating systems, programming environments etc. are free. The conditions for making them so are no secret.

That despite the openness of the Internet protocols, key elements of the Internet are dominated by commercial proprietary solutions should not lead disregarding freedom and openness. On the contrary, the EU needs more of them to nurture innovation, including requiring open access publication of publicly funded research and becoming itself an exemplary user and promoter of Free Software.

Distributed and Federated Infrastructures

Another lesson to be learned from the origins of the Internet onwards is the power of distributed networks. Peer-to-Peer networking, ad hoc mesh networks including the free wireless networks movement, commons-based peer production (Yochai Benkler) are proven solutions against centralised monopolistic structures.

Search Diversity

Generalized search engines are the gateway to the Internet. More than 90 percent market share by Google across Europe is an issue that needs to be addressed not only in anti-trust procedures but in developing alternative infrastructures. The [Open Web Index](#) is an initiative to address this need.

Independent Media Use Research

All large-scale, long-term media research is done in the service of advertising. We are, if not entirely blind, then at least looking at Internet dynamics through strongly tinted glasses. Therefore, independent research is a *conditio sine qua non* for all sustainable Internet development in the public interest.