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Executive Summary



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The Internet is changing.

From the underlying infrastructure to the way users engage, the Internet is evolving in many ways. The Internet Society's 2017 report foresaw a hyperconnected Internet economy, one in which no sector of the economy or part of society would be untouched by technology. Among the other questions it posed, the report also asked if this technology-driven disruption would favour the existing Internet economy players, or usher in greater competition and entrepreneurship. In the 2019 report, the Internet Society explores the evolving Internet economy further. It examines the growing presence the Internet platforms have in the Internet economy, and what the implications might be for society, innovation, competition, and the economy, as well as the Internet's broader architecture.

In the 2019 report, the Internet Society asks whether the Internet economy is consolidating and, if it is, what the implications might be. From the dominance of Facebook in social messaging, Google in search and Amazon in online shopping, the largest Internet platforms

are capturing fundamental human interactions. This dominance, and the finances and reach that accompany it, enable the platforms to extend their influence and reach into new market spaces, from autonomous vehicles, to AI, to cloud services and beyond. This leverage is built on unprecedented network effects, vast troves of user data, business agility, and regulatory freedom that few other companies enjoy.

In this report, the Internet Society recognises the incredible convenience these platforms provide the Internet user. At the same time, the Internet Society also recognises the concerns that are being voiced about this dominance, and about the responsibility these companies have to society and economy. The 2019 report explores these issues by examining five key trends and themes that emerged from extensive engagement with the Internet Society community, and surveys and interviews with experts, thought leaders and influencers.

The first trend is what we call the evolution of "total service environments." The Internet platforms have evolved in providing a range of communications, entertainment, and

productivity and lifestyle services and tools designed to be incredibly convenient. In essence, these environments provide default one-stop shop access to the Internet. To keep users engaged and continue to grow revenues, the Internet platforms expand into new service and content areas.

At the same time, the full service environments operate at a scale that allows entrepreneurs to do things they could not otherwise, like access a far larger customer base, resources, and expertise that no small business could tap using its own limited resources or time. While platform environments unleash huge opportunities, they could also limit innovation by promoting the interests of the platforms over those of users, thereby limiting competition and user choice.

We also observe that interoperability, and standard development and deployment are increasingly becoming a function of scale. In this case, open, collaborative, and interoperable Internet is influenced by a small number of large companies, and organisational scale and market share play a significant role in the development and deployment of the open technical standards on which the Internet depends. A small number of large companies influence the nature of an open, collaborative and interoperable Internet. These large organisations can also accelerate the adoption of existing but under-deployed standards like IPv6, and push the development and testing of new standards, benefitting the Internet as a whole.

But the growing use of largely platform-driven APIs puts more of the Internet's functionality and interoperability in the hands of immensely powerful ecosystems, whose interests may not align with those of others. Finally, future innovation, services and applications may depend on the availability of a small set of proprietary platforms and services, rendering those applications less resilient, reliable, and capable of supporting further innovation.

Inevitably, the topology of the Internet is also changing. The ability of a small number of content and cloud services to invest in their own networks and deploy their servers close to the broadband network edge is amplifying the existing trend of a "flattening"

Internet, where access networks are increasingly interconnected and have less need for international transit. Access networks are evolving rapidly, driven by Internet of Things (IoT) deployments and other demands for processing on a range of user devices, including evolving technologies such as autonomous vehicles. Big cloud providers – some of which are also large Internet platform entities – are well-placed to dominate the new era of IoT and edge computing. This further drives a changed Internet topology with less international transit and more complex, private, specialised networks, and services.

One of the consequences of the consolidation and concentration we have outlined so far is what we call "deep dependencies." Default one-stop shops, interoperability, and standards development and implementation at scale, as well as the flattening of the Internet's infrastructure, are all the result of the concentration and consolidation in key areas. This creates dependencies both within layers and cross layers of the Internet. The development of new applications, services and businesses across the global economy is increasingly dependent on a small number of private platforms owned by the largest Internet companies.

While the risk of catastrophic failure may be minimal, it could create a domino effect for other parts of the global economy. As platform environments expand further, entering and often dominating more sectors and markets there is a risk of growing societal dependencies on a handful of powerful economic actors. The risk is magnified by an exceptional economic power. That a company or technology is vulnerable to disruption, evolution, and competition has been one of the Internet's defining successes — what the Internet Society calls the characteristic of "no permanent favourites." This characteristic could be challenged as dependencies continue to grow.

The fifth trend is the growing number of responses to the negative effects — either real or perceived — of concentration and consolidation. There is a growing interest and a greater will among governments to address the challenging issues affecting economy, society and governance. These issues, ranging from

fake news to anti-competitive practices, are found across the applications, services, and access domains of the Internet economy. They are found in different sectors, regions, and by different institutions. Countries have adopted different strategies in response. Some have a higher tolerance for the risk of dominance if it also delivers Internet access and services, while others have a traditionally lower tendency to regulate. At the same time, other countries, such as those in the European Union, are mobilizing concerted, cross-agency responses, which often span across competition, consumer protection, and data protection regulators. Similarly, different stakeholder groups have also focused on different issues as far as dominance is concerned.

The Internet Society recognises that the impact of consolidation and concentration on the Internet economy as well as on the open, interoperable, and global Internet are difficult to gauge. As noted already, there are benefits to operating at scale. Consolidation and concentration can also greatly benefit the user by providing platforms that offer seamless Internet experiences. At the same time, it's unclear what the impact is on innovation, entrepreneurship and, importantly, competition. It's unclear what

concentration and consolidation may mean for user choice, including choice of content, services, and provider.

The final section of the report outlines a series of questions the Internet Society, the broader community, and all stakeholders with an interest in a thriving Internet should consider. The Internet Society will incorporate these questions into its plan of action for 2019 with the goal of addressing some of them in next year's report. We look forward to the community's continued engagement and support as we have an ongoing discussion in the year ahead.

Internet Economy

The Internet economy, as understood in this report, is broadly defined as the economic activities that either support the Internet or are fundamentally dependent on the Internet's existence.

