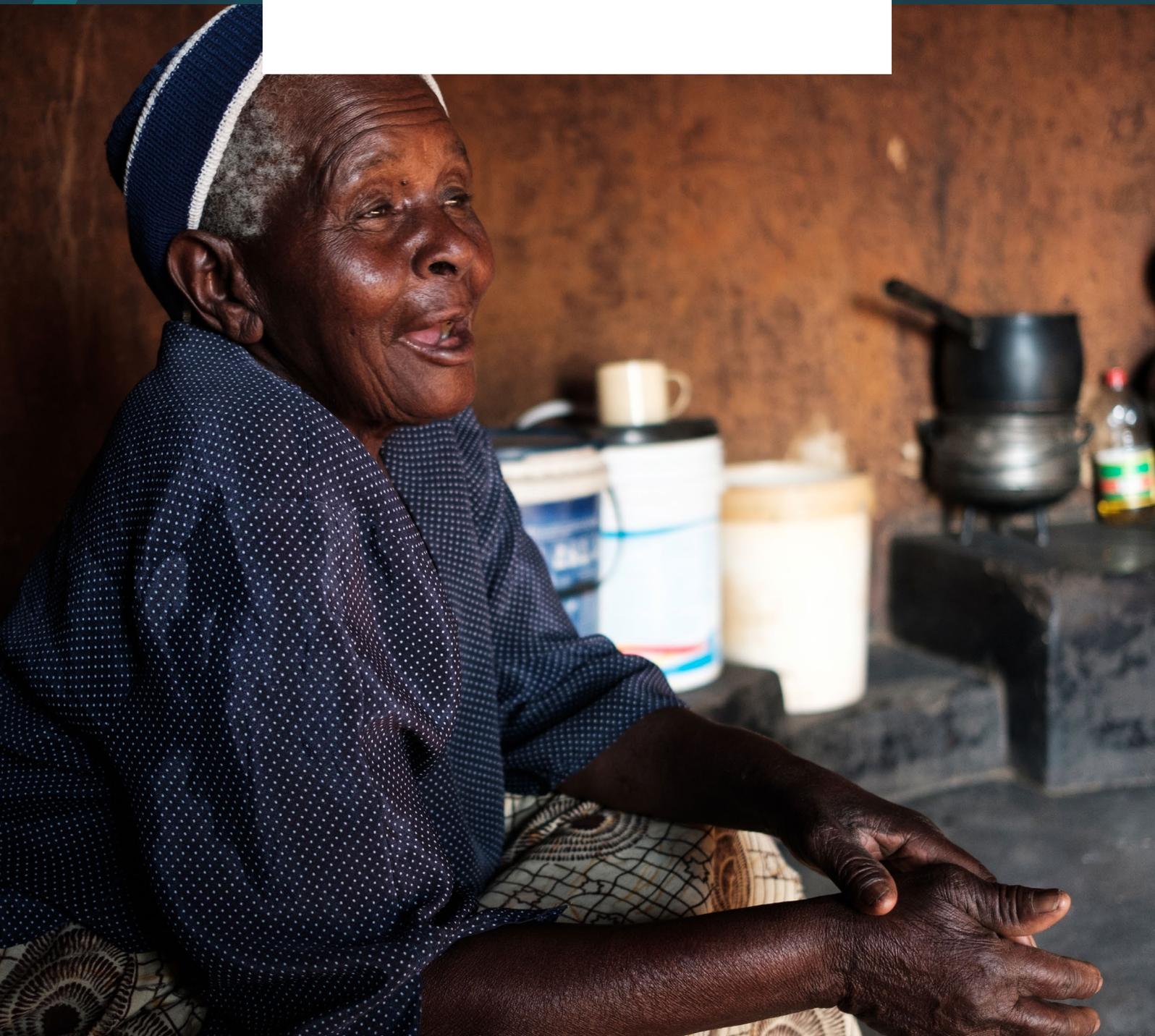# 7

Impact Analysis

How Could Consolidation Impact the Internet in the Future?

As this report has explored, trends of consolidation are visible in all parts of the Internet economy. For most users, these trends are most obviously visible in the applications domain, in which a small set of providers are dominating the provision of services such as search, social networking, and e-commerce. But even if they are perhaps less obvious to most users, trends of consolidation are also occurring in and across the other two domains: Access Provision and Service Infrastructure.

If these trends continue unabated in the coming years, what does this mean for the Internet's technical evolution and use? In this section, we will consider the impact of consolidation through the lenses that guide how we see the Internet.

The projected impact of consolidation trends on users' abilities

We believe that the Internet and its invariants empower users with certain abilities. These abilities underpin the social value that the Internet provides to people, and includes the ability to connect, speak, innovate, share, choose, and trust. Some of these are bound to be more susceptible to impact from consolidation trends if they continue unabated.

The ability to choose

Consolidation trends that continue on their current trajectory will probably most profoundly impact users' ability to choose between services. The limitation of choice will likely also indirectly affect a broader set of abilities, with different implications depending on the economic domain, specific parameters of the geographical region concerned, and the degree of competition.

If current consolidation trends continue, a scenario could arise in which 1, or possibly 2 proprietary platforms dominate parts of the Internet economy. All other innovations and services would evolve around these platforms. The network effects, which help enable platform dominance, could lead to a small number of dominant actors in almost any service area. Combined with ownership of a strategic infrastructure and vast amounts of data for improving the quality of service, it could become increasingly difficult for new actors to challenge the large incumbents in any of the core platform services they currently provide. Similarly, given that the same resources could be used for deploying new platforms or services, today's dominant players are at a great advantage to capture new markets that may emerge.

The current trends of consolidation at the application layer, in particular, tend to follow traditional patterns of consolidation in other parts

of the economy. This includes, for instance, the acquisition of smaller competitors to grow market shares, and attempts to capture a greater part of the value chain by nudging customers towards a "store-brand" have a lot of precedents in other parts of the economy. But our question for the future is: to what extent will such strategies be available for today's dominant players, given that regulators are increasingly scrutinizing how the platforms leverage and exploit their dominance in one area to favour services in another?

Underpinning this question is a need for further analysis and a more nuanced understanding of the nature or abuse of dominance in a certain market, and how to define relevant markets for competition law purposes. Such definitions, which relate to the evolution of competition or antitrust law, must consider factors like the multisided nature of platforms, the proprietary conditions for interoperability, and the cost of personal data as a consumer price.

The ability to innovate

Large Internet companies are increasingly the go-to platforms for innovation and have become useful in lowering the threshold for new innovators to engage in the Internet economy. For example, social login functions offered by some social media platforms enable new developers to outsource the need for developing complex systems for managing not only membership and login credentials, but also the security and legal requirements related to these. Similarly, large cloud service providers like AWS, Microsoft, and Google are increasingly offering a full suite of services, from DNS hosting to CDNs. This move enables new business to scale and take advantage of a service infrastructure that might have previously been reserved to a small set of businesses.

These evolutions can significantly strengthen users' ability to innovate by developing and deploying new services and applications. But the trends towards an increased dependency on well-known proprietary platforms for interoperation also imply a shift towards a qualitatively different environment than one defined by permissionless innovation, even where open standards support the interoperation. We must ask: To what extent will new innovations concentrate around a few large players, and will they depend on some central functionalities?

While the World Wide Web emulates the properties of the Internet itself and provides an open platform for innovation on which anyone can offer an unrestricted service, many web-based applications do not. These platforms are often essentially monopolistic and tend to be proprietary, closed, and can restrict or constrain the provision and availability of new services and applications. They also reinforce an opportunity divide between developed and developing countries. Mobile app stores[1] do this by imposing geographical restrictions.

The ability to connect and trust

While scale in the provision of a particular service can be beneficial from the view of affordability, availability, and security, it also creates dependencies that have wide-ranging consequences. The Internet's fundamental property of having no permanent favourites is premised on the notion that the Internet does not discriminate between technologies, companies, and regions, but that their continued success depends on their continued relevance and utility. Simply put, the Internet is where [g]ood ideas are overtaken by better ideas.[2]

But the concentration of developments around one or a small number of platforms could expose users and companies to vulnerabilities in the shared software and infrastructure. The degree of concentration in one or more platforms or services, and the substitutability between them, is a strong determinant of the security and trust implications that will arise from unchecked consolidation.

1   Kende, M. (2015). Discussion Paper: The Mobile App Divide. Internet Society. Available at: https://www.internetsociety.org/resources/doc/2015/discussion-paper-the-mobile-app-divide/.

2   Internet Society (2012, February). Internet Invariants: What Really Matters. Available at: https://www.internetsociety.org/internet-invariants-what-really-matters/.

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the Internet in the Future?

Related to these overall concerns about future dependency on a limited number of providers is the question of whether some of the large Internet companies could be too big to fail. This is understood as the potential consequences of one company's failure being so severe that they are said to create systemic risk. If current consolidation trends continue unabated, the Internet economy, and by extension the broader economy, may have critical dependencies tied to the services of a few large players. Further analysis into such risks would need to account for the substitutability of a particular service or functionality, and how they relate to the broader economy.

On the other hand, trends of concentration in the provision of many services described in this report are often accompanied by many benefits. DNS hosting or CDNs are services that will continue to benefit from economies of scale, and as long as competition persists among the large providers, it will make services like advanced DDoS mitigation more affordable and readily available to a broader range of users and content providers. In the absence of a complete market dominance, or practices leading to single points of failure (e.g., failing to use multiple DNS hosting providers), these trends could have positive effects on security and the Internet's resilience.

The ability to share (and collaborate)

The Internet is less about specific technologies and more about collaboration. From open standards and mutual agreements between networks to exchange data, to policy development and governance, sharing and collaboration are at the core of what differentiates the Internet from other networks. It is not a nice-to-have, nor is it a given, but a property of the Internet itself. This is why consolidation issues are so closely tied to ability of a few people to make decisions that impact everyone. Whether a decision is about technical protocols for interoperation, or policies striving to empower and protect users, it will require collaboration to ensure an "open, globally-connected, secure, and trustworthy Internet for everyone" in the future.