



Digital Divides

The Digital Divide of the future will no longer be only about access to connectivity but will be linked to security and the ability to leverage the Internet for a broad range of economic opportunities.

As new threat vectors emerge, a security divide will materialise between those with the knowledge and resources to protect themselves from cyber threats and those without.

Consolidation of networks and platforms within a few organisations will affect the ability of networks to grow and scale and will limit the ability for new players to emerge.

The adoption of Artificial Intelligence and the Internet of Things will transform the global economy offering opportunities for the developing world; however, without adequate infrastructure and broader economic opportunity, many nations may be left behind.

Overview

While we still have a long way to go, data shows that the digital divide as we have historically defined it — those that have access to the Internet versus those that do not — is closing. From small community networks in some of the most isolated parts of the world to large-scale infrastructure development projects, we are making progress toward connecting the 53 per cent of the globe's citizens who are not yet online.

However, new divides will emerge in the future driven by developments in technologies and networks, as well as by the lack of economic opportunity and cyber readiness. Disparities in infrastructure development, high costs of connectivity, restrictions on access, barriers to entrepreneurship, and lack of skills and resources will amplify these new divides, hampering the ability of many people to fully enjoy the economic and social benefits the Internet offers, and making some nations even more vulnerable to cyber threats.

These new divides will deepen disparities between countries — in particular, between developing and developed nations — but also within countries. As the Internet transforms every sector of the global economy, the digital divides of the future won't just be about access to the Internet, but about the gap between the economic opportunities available to some and not to others. From the ability to access and share online content to the ability to benefit from the Internet of opportunity, existing inequities between the “haves” and the “have nots” could be exacerbated as technology changes move faster and faster.



The impending security divide

Meaningful use of the Internet depends not only on access to connectivity and the ability to fully benefit from it, but also on the ability to safely use Internet technologies and services. In the future, the skills to understand online threats, and the financial resources to protect oneself from those threats, will be crucial to an individual's wellbeing. As cyber threats mount across the world and individual safety is at stake, we foresee a divide emerging between those who have the knowledge and resources to protect themselves and those who do not.

Security literacy and resources to pay for access to security and privacy protection tools will be essential. Above all, a substantial commitment from all stakeholders to address cybersecurity challenges head on will be critical. Some users, organisations and countries will be in a better economic position to protect themselves online,

while others will become more vulnerable. Countries with cybersecurity strategies, the ability to protect critical infrastructure, and the capacity to prosecute cybercrimes will have greater economic advantages than those that do not.

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Better and better trust and security issues will allow more and more benefits to the as yet unconnected. Countries with poor credit rating and with poor identify verification will continue to cost their consumers and producers higher risk premiums. This is an area that Government's can help by reducing the transaction costs of doing business over the Internet.

Civil Society. Asia





Vulnerable populations will also be at risk. Individuals and groups like the elderly or poor that are vulnerable to crime in the physical world are especially vulnerable to cybercrime. They may lack the skills to protect themselves and are more likely to be targets of fraud, scams and theft.

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The Internet will create a new social class rising above the others. Women will have more opportunities with increased virtual mobility. An area that will challenge them is online safety and privacy.

Technologist, South Asia

Developing nations struggling to get online and those that are lacking in cyber readiness will be disproportionately affected by cyber threats. As U.S. researcher Gamreklidze argued in 2014, “Cyber security is the area where both of the problems typical to developing countries, of the access to ICT and the skills necessary to use them, overlap”.¹ This knowledge and resource gap will only widen existing economic and security divides.

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But inclusion also means literacy. We know how to teach and learn the alphabet but we still don't know how to do that with the Internet.

Government, Europe

While new Internet-based technologies like the Internet of Things promises economic and social opportunity, their deployment is introducing cybersecurity challenges across all sectors of the economy. Because the ICT sector is no longer isolated, threats to the communications infrastructure are now threats to the entire economy. Developing countries that are already behind when it comes to cybersecurity readiness will find themselves struggling to keep up with the pace of changing security threats.

While our community believes that policy makers will become better at keeping up with Internet technology, they are uncertain as to whether the pace of change and innovation will surpass the ability of policymakers to keep up.²

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We talk of e-government but this can not happen if the Internet cannot be trusted.

Technologist, Africa

At the same time, new threat vectors will multiply as more and more aspects of our social and economic lives move online. The ability of governments to secure their domestic infrastructure — ranging from power plants and hospitals to communications networks — will be critically important because insecure networks put social services at risk, from police and emergency services to water treatment facilities and financial services. In essence, those on the disadvantaged side of the digital divide will become easy targets for bad actors.

Related to: [Cyber Threats](#); [The Internet & the Physical World](#)

¹ Cyber security in developing countries, a digital divide issue <http://www.tandfonline.com/doi/abs/10.1080/13216597.2014.954593>

² Future of the Internet Survey 2 - Question 28: “How well are policymakers able to keep up with the pace of change in Internet technology, use, and business?”



The new digital economy — providing opportunities or deepening divides

The future digital economy promises tremendous change at a pace difficult to fully grasp. Deployments of Artificial Intelligence, for example, will transform economies in ways we are only beginning to imagine. The key to success in this fast-paced environment will be adaptability. Countries, businesses and even workers must be agile and have the capacity to learn quickly in order to thrive in the Internet economy of the future. In a global economy characterised by rapid change, the digital divide will evolve and possibly deepen based on the ability to simply keep up with technology.

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E-Commerce will continue to blossom and have a greater share of the global economy with governments putting more emphasis on infrastructure and technological facilities to expedite the transformation from an offline to an online economy. Countries not well equipped to deal with this may be left lagging in terms of economic progress.

Civil Society, Europe



Those regions of the world that are already struggling with basic Internet access will be left further behind in the global economy of the future. As technology accelerates, some wonder if a permanent underclass will emerge. We may also see divides emerge between those communities, businesses and economies that can absorb change and those who cannot. Indeed, if all communities and countries do not have the resources and/or capacity to plan for and adapt to this economic transformation, the existing economic divide will only be more pronounced.

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Providing connectivity to marginalized populations does not necessarily open the world in these impoverished areas. Connectivity and social networks are instruments that, many times, replicate poverty. The problem is not having a strategy behind providing connectivity.

Internet Society Chapter, Latin America

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We may be seeing increased pressure from industries not ready for the Internet revolution that may result in short term protective regulations that will hinder Internet development and benefits.

Technologist, Africa

Despite the fact that they could benefit the most from IoT³, developing nations in particular may be left behind they lack both the connectivity infrastructure as well as the policy frameworks to leverage the wave of innovation. As Michael Wolf wrote in Forbes in 2015, “While there will be no doubt be some big winners in all the various IoT markets . . . the reality is that like any big tech category the majority of the spoils often go to a very few”.

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[There is] A broadening gap between the golden billion and the rest of the humankind in terms of access to and benefits from all the pluses of the ICT and Internet development.

Technologist, Asia

While we are making progress toward closing the digital divide, gaps between the connected and unconnected will persist. Many countries currently rely on mobile phones for affordable access. Without investments in core infrastructure to support the growth in connected devices, citizens will be unable to benefit fully from the digital economy. IoT and other new technologies require access to bandwidth; investments in infrastructure, such as reliable power supply and data centres, are critical to ensure that these services are reliable. As one participant from Guatemala noted, “IoT will place a greater load on already taxed bandwidth. Higher bandwidth technologies must be developed and deployed”.

³ <https://arc.applause.com/2015/12/02/internet-of-things-growth-developing-countries/>



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In the coming years, the deployment of fibre optics especially national backbones will cover between 70–80% of respective countries in the Africa region.

Technologist, Africa

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The “digital divide” will be characterised by the level of access to electricity.

Academia, Africa

Clearly, the future digital economy offers opportunities for emerging markets well beyond the ICT sector itself — the Internet of Things is driving innovations in clean water, disaster preparedness and relief, healthcare delivery and disease prevention. While some worry that market consolidation will deter entrepreneurship, we believe that the spirit of creativity is still thriving. The Internet, based on open standards and permissionless innovation, democratises entrepreneurship and the new innovations are surfacing outside the traditional geographic clusters like Silicon Valley. As two South African entrepreneurs observed: “Firstly, technology innovation is going to give us the data we so desperately need to understand how to solve the problems we face, and, secondly, will drive the cost-to-serve down to a point where we can address the problems effectively at the required scale”.

Our community is optimistic about bridging the future digital divide. In fact, all stakeholder groups and regions feel that the gap between regions in their ability to benefit from and participate in the Internet will decrease in the future.⁴

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There is so much money in the wireless delivery market (low earth satellites, Google loon, FB, etc) that it seems like something will click and we’ll finally solve the access issue.

Government, North America.

The ability of new players to emerge could be limited if the trend toward the consolidation of networks under the control of a few large, global players continues. Large Internet platforms are deepening their market positions, dominating Internet infrastructure, services and applications. Smaller networks will simply be unable to compete with large, global companies that are able to offer services cheaper and make investments into the development of new products and infrastructure development.

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In developing countries from Latin America and Africa, we have more consumers than producers, so we need to have a more balanced field in order to have everyone enjoying the economic benefits of the network.

Technologist, Latin America.

Our Caribbean Islands and Northern Africa communities predicted a low level of content creation from their region in the future.⁵

If we do not act now to ensure *all* parts of society are ready, able and prepared to harness the power of technology to better their lives, the digital divide will only contribute to deepening socioeconomic divisions.

Related to: [Artificial Intelligence](#); [The Internet Economy](#); [The Internet & the Physical World](#)

⁴ Future of the Internet Survey 2 - Question 12: “How large is the gap in the ability of individuals in different regions of the world to meaningfully benefit from and participate in the Internet?”

⁵ Future of the Internet Survey 2 - Question 16: “To what extent do users and companies in [RESPONDENT’S REGION] develop Internet content and services compared to consuming existing content and services?”