

MISSED CONNECTIONS: The Case for Ubiquitous Broadband Access

by Darren Karn

As part of our study of the infrastructure of democratic capitalism, we are exploring different themes associated with physical infrastructure (buildings, roads, sewers and other constructed resources that we share across a society), transactional infrastructure (the set of rules, decision-making institutions and mechanisms that allow a society to exchange goods and services and to interact effectively) and knowledge infrastructure (the set of systems and institutions—including education, media, and the Internet—that enable the creation and sharing of ideas and the reliable transfer of information). These short articles represent our early thoughts on these themes. We welcome your thoughts and reactions. Email us at assistant@martinprosperity.org.

“It seems to me that it’s through this machine that for the first time we’ll be able to have a one-to-one relationship between information source and information consumer. . . . Now, everyone can have a teacher, in the form of access to the gathered knowledge of the human species.”
Isaac Asimov, 1988

This was promise of the Internet: any and all students could learn about topics of their own choosing, at their own pace. The joy of learning through self-directed discovery, something hard to find in the traditional, one-to-many industrial school model, was finally to be accessible to the masses.

Infrastructure

With the advent of the Internet, a revolution to the very foundation of our knowledge infrastructure had begun.

Asimov's comments echoed the consensus during the early days of the internet. This new, global network of computers and databases carried the profound potential to democratise access to information and to spur the widespread creation of ideas. Finally, the physical, economic and social barriers that restricted access to knowledge in the world's most hallowed libraries and universities would crumble and a modern Enlightenment would take hold.

And almost 30 years later, the Internet largely delivered on these promises. It enabled the creation of a global network of knowledge centres, accelerating the pace of research and broadening knowledge creation. It spawned accessible-to-the-many services like Wikipedia and Google Books. We also enjoy online marketplaces that provide fast and easy access to a world of goods and services, while burgeoning sharing economies and social networks bring connection and immediacy to our relationships, redefining the nature of community.

This revolution of our knowledge infrastructure—that is, the set of systems and institutions that allow for the creation and sharing of ideas across individuals and groups—was marked by increased openness and availability. Many assumed, as Asimov did, that this access would be broadly and equally distributed, that the benefits of the Internet would raise all boats. But this is true only if we can all connect to the network.

In the United States, approximately 87% of the population are internet users—representing about 277 million people and 95 million broadband service subscriptions. On the surface, this number is quite satisfactory; an impressive majority of Americans enjoy broadband access to the internet. Looking one layer deeper, how-

ever, reveals the inconvenient truth of today's knowledge infrastructure—if you can't pay, you can't play.

A 2013 Pew study found that a shade over half of American households earning less than \$30,000 per year have a broadband internet connection. By contrast, this quickly jumps to 70% for the \$30,000 to \$50,000 bracket, and 90% for those households with income above \$75,000. For some of the unconnected households, internet access is unavailable for geographic reasons; some are in remote, rural communities far away from the grid. For many more, unfortunately, access is unavailable for reasons of poverty and functional illiteracy.

The absence of a broadband Internet connection in our poorest households is problematic. Setting apart the problem of restricted access to employment and government services, lack of an Internet connection also greatly diminishes the opportunity for self-directed discovery. As ever, cultivating a love of learning seems to be the right only of the rich.

Love of learning has come to play a central role in our discussion of effective education; ideas like inquiry, child-centred learning and flipped classrooms are all tied to a desire to draw students into their own education. Increasingly, discussions of education are focused on the skills needed to thrive in the 21st century; literacy and numeracy matter of course, but so do critical thinking, creativity and integrative thinking. The Internet can be a pivotal tool for developing all of these skills, and for integrative thinking, it is particularly helpful.

Integrative thinking begins when a student is able to make their own thinking explicit, to understand that we all see the world through models—and that those models are necessarily limited. While it is certainly possible for students to be exposed to alternative perspectives in the classroom, the likelihood increases significantly

when we add Internet access to the mix. A typical student working on an assignment might use the school-supplied textbook as the main reference, meaning that at best they have their own perspective (and maybe their teacher's), in addition to that of the textbook. If we add broadband access, we dramatically increase that student's ability to question those perspectives, quickly and easily uncovering myriad views on the matter online. With access to the Internet comes the opportunity to discover and consider multiple viewpoints, enriching one's knowledge.

If we know that we need more low-income families online — at broadband speed — then we have a set of important design criteria for programs to realise this goal. The United States is experimenting, with some success, with a program to bring some of those 40 million Americans online. As part of the 2010 National Broadband Plan in the United States, the government set about enacting plans to improve broadband access among underserved populations. Part of this plan included incentives for private sector companies to offer broadband service (meeting certain minimum specifications) at affordable rates.

A typical low-income internet program in the United States offers a broadband connection of a certain minimum speed (the base speed continues to increase year by year), a low-cost (approximately \$150) internet-ready computer, and internet training materials. While specific criteria vary by internet service provider, the largest provider of this low-income service (Comcast) requires that the household must have one child enrolled in the National School Lunch Program. Provided they meet that criteria, a family receives broadband at a cost of \$9.95 per month, plus tax.

While the National Broadband Plan in the United States is not perfect (criticism ranges from overly restrictive eligibility requirements levied

by individual providers, to the lack of regional competition among providers), it does provide a working prototype for future program iterations. The base level of the service (as defined by minimum required download and upload speeds) has steadily increased in quality since program inception, and providers are extending their program offerings indefinitely, well beyond the scope of the original program. The program is making inroads on the digital divide issue, with Comcast having signed approximately 1.2 million subscribers. Perspectives are widening.

By contrast, Canada is much farther behind on providing broadband access to low-income individuals. One major carrier offers a program similar to the American plan, but only for specific community housing projects in Toronto. Unfortunately, such limited access does little to help the more than 50% of low-income Canadians who do not have broadband access. To say there is room for improvement in Canada's approach to broadband access is an understatement.

In his book *Where Good Ideas Come From*, Steven Johnson writes that, "Chance favors the connected mind." Considering our current challenges, the absence of connection is particularly paralyzing; those most in need of broadband connectivity are doubly disadvantaged. One of the most important pieces of our knowledge infrastructure today, the Internet wields the power to cut broad swaths across all facets of the infrastructure spectrum. Let's connect those who need that power most.

Darren Karn is a Research Associate at the Martin Prosperity Institute, Rotman School of Management, University of Toronto.