# Connectivity, Communications and Technology

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In the words of Rucker (1983, 108) 'the human race is a single vast tapestry, linked by our shared food and air'. In this sense, it is correct that the entire human race is connected through the material world. It is wrong, however, to assume that such connections create any kind of unity. In international relations, when we think of humanity, we do not think of a single, homogenous, peaceful body, but of a number of distinct factions competing, coercing and cooperating to achieve their own end goals. These factions may be groupings such as ethnic, racial or religious divisions or they may be nation-states. They can also be anywhere on a scale from very large to very small. Importantly, however, none of these groupings exist independently of the individual humans within them. The individual is the basic unit at which humanity exists. In this way, individuals are symbiotic with the wider system, with each playing a role in shaping and influencing the other. Humanity consists not only of human bodies, but also of the ideas, the convictions, and the wills contained within human minds. Given this definition, what does it mean for humanity to be connected? In a physical sense, a disconnection has always been present. Each human mind is contained within a human body that exists separately from all others. It is, however, on the metaphysical plain – that of ideas, convictions, and wills – that humanity can be connected. The uniting of many individuals for a common cause, for example, represents a connection of minds leading to action. Such unity can of course arise by complete chance or through non-conscious actions. However, more powerful connections arise when the unity stems from conscious interaction. Central to the concept of connectivity, therefore, is the ability to communicate with others, which we do more and more today via digital means.

## The internet

The internet is a collection of connected computer networks, linking tens of billions of devices across the globe. These include servers, personal computers, mobile telephones and video game consoles. Increasingly, other devices are also being connected to the internet, such as cars and domestic appliances. Devices connected to the internet are connected to each other through network links. These links can be either physical cables or wireless connections. Physical cables come in an array of shapes and sizes, ranging from small cables used to directly link two computers together, to large undersea cables connecting continents. Wireless connections, though not visible, work on similar scales, from Wi-Fi networks in the home to links to satellites in space. Communications on the internet may traverse any combination of these network links, and they have become a hotly contested topic in international relations.

Though often used synonymously, the internet is not the same as the 'world wide web' (www). The web is just one of many services operating on the internet, accessed through a web browser to display documents containing text, images and other media. Examples of other services on the internet include email, voice and video communications and online gaming. The distinction between the internet and the web is important as conflating technological concepts can have severe repercussions in the area of laws and regulations where precise wording is paramount. Throughout this chapter, the internet should be envisaged as the whole gamut of connected digital devices and services. When individual devices or services are discussed in detail, it will be made explicitly clear which device or service is being talked about.

### Digital commerce

Commerce is a cornerstone of human interaction. Throughout history the trade of goods and services has provided opportunities for humans to connect and necessitated methods of communication. Bartering, agreements and contracts have been made possible through verbal, written and visual means. With the exponential growth of the internet, it was inevitable that merchants and private traders would adopt this channel for commercial purposes. The shift of commerce from offline to online has repercussions for human interaction and communication. In the modern economy, commerce involves a long supply chain and multiple agents that affect the production and transport of goods. To take a product from idea to conception to finally reaching purchasers requires first raw materials, then a manufacturer, a distributor, a seller and a customer (with possibly a marketer or two thrown in for good measure). Each step in this process requires individual human beings interacting with one another, especially at the point of sale. Through digital commerce, however, many of the middlemen in the process can be eliminated. Customers can purchase goods directly from the manufacturer with a few clicks or taps without ever (directly) interacting with another human being. To buy a television, for example, would previously have required a person visiting a more generalised retail outlet such as an electronics store, speaking with a sales representative and making the purchase. The retail store would in turn have procured the television from a distributor, who would have acquired it from the manufacturer. Thanks to the internet, however, a prospective buyer can now simply visit the manufacturer's web page, purchase the television and have it delivered to their door, effectively cutting out most of the traditional commerce chain and with very limited interpersonal communication.

In some ways this method of conducting commercial activities is reminiscent of trade before the advent of mass production. From the days of the ancient Athenians gathered in the Agora, a central square for meetings and business, commerce was typically a highly personal affair. The public marketplace as a central site for commerce has now been re-enabled by the internet through websites like Amazon and eBay. Here, manufacturers and producers can reach customers directly, without requiring an established long chain of suppliers and agents. Though Amazon may be analogous to the Agora, a perhaps better example of how digital commerce affects international relations is the Silk Road. In ancient times, the Silk Road was a 6,000-kilometre trade route connecting Europe and Asia. It not only facilitated commercial trade but also enabled the flow of ideas, and even religions, between cultures. It was in effect a widely dispersed network of traders and outposts through which flowed both goods and information. Importantly, these flows were embodied through personal interaction between those who travelled along the Silk Road.

The ancient Silk Road shares its name with a modern digital counterpart. First established in 2011, Silk Road was an online marketplace that could be accessed and operated using software provided by the 'Tor network' in the form of a special web browser that preserves users' anonymity. This allowed shoppers to make purchases without revealing any personal information, including bank card details, as payments were made in bitcoin – a decentralised digital currency. Vendors operated under pseudonyms. The anonymity aspects of the transaction process differentiate the modern Silk Road from the ancient one, exemplifying the depersonalisation of commerce in the internet era. Silk Road and Tor are also emblematic of the growth of a part of the internet called the 'dark web' that can only be accessed by specific software, or specific means such as access passwords. The effect of this in the sphere of international relations is most starkly evident in the police operation that eventually shut down Silk Road. A holding page displayed after the seizure of Silk Road's website was emblazoned with the crests of a number of US and European law enforcement agencies, bordered by the flags of 13 countries between them speaking 11 languages. The internet has provided a place for shady activities, and the task of combating these has in turn taken on an international scope.

### Digital communications

At least as old as the idea of commerce is the idea of communicating with other humans across geographical divides. A primary means for doing so is through the written word. The most direct of these means is the letter, because it is sent from one individual to another individual carrying a specific message. As such, letters represent a key connection between humans. In the digital age, email and instant messaging have usurped letters as the primary means of written communication, with hundreds of billions of digital messages sent from one person to another each

day. The process of mailing a letter resembles the protracted commercial chain described in the section above. There is a sender who authors the letter and drops it in a post box. A postal worker then collects the letter and brings it to a sorting centre where a machine (though previously a human) directs the letter towards the right address. The letter is then transported by land, sea and/or air to a distribution centre where more sorting happens. Finally, a delivery person deposits it at the stipulated address, where the receiver accepts and reads the letter. Through a convoluted series of middlemen, the sender and receiver can thereby communicate with each other. With email and instant messaging, the human middlemen are completely removed from the process. The only step between sender and receiver is some technological wrangling that ensures the email or message arrives intact at the correct destination. In this way, sender and receiver can communicate directly and, importantly, with near instantaneousness. A written letter can take anything from a day to a week, or more, to arrive at its destination. By comparison, an email usually takes a matter of seconds, regardless of how much of the planet it has to traverse. Even emails to the International Space Station take only a few seconds to transmit.

You may take the speed at which you can message others for granted. But it is worth putting this in perspective with a historical comparison. According to legend, when Martin Luther set in motion the Protestant Reformation in 1517, he did so by nailing a polemical document to a church door in Wittenberg. This act began a process of violent upheaval that culminated in 1648 with the end of the cataclysmic Thirty Years' War. The full effects of Luther's public posting thus took some 130 years to come to fruition. The modern equivalent of his document would be a social media post. Given that digital communications travel with almost no delay, messages can be quickly delivered to millions of people to spread ideas and organise movements. Perhaps the best example of this is the Arab Spring, also called the Twitter Revolution due to the widespread use of social media to propagate ideas and organise a response. While the Thirty Years' War took over a hundred years to materialise and play out, the revolution in Tunisia took just a few weeks. It is clear that digital communications have played some role in speeding up such events.

**Reach**

One important theory, only made possible by the digitisation of commerce and communications, is that of the 'long tail' (Anderson 2004). In a nutshell, the theory suggests that because products can be distributed and sold more cheaply, vendors can now stock a broader range of goods each of which appeals to a small customer base (the tail), rather than focus on a narrow range of goods that appeal to a large number of customers (the head). For example, the virtual shelves of Amazon contain almost every type of product conceivable, whereas the physical shelves of a retail outlet are limited by the space available. Through the internet, niche products can appear alongside mainstream ones. With a literally global audience reachable through the internet, even the most obscure ideas (about, for instance, political ideology, religious convictions, business ventures) can find someone to appeal to. There are both benefits and drawbacks to this phenomenon.

On the one hand, people living under repressive regimes may be limited in their ability to communicate both within and outside their country. With digital technologies this repression can be sidestepped, allowing the expression of grievances and bringing to light issues that might otherwise be shrouded from view. The Arab Spring, as discussed above, is a case in point. In Egypt, the Mubarak regime even switched off the country's internet services in acknowledgement of the role they were playing in the organisation of protests. The fact that protesters were nevertheless able to bring down Mubarak's regime shows how the internet can empower people to overcome repression. This is also true in cases where communication is not actively repressed, but simply ignored or lost. With a 'long tail' to communicate to, people have a greater chance of making themselves heard. With greater reach of communications, the presentation of a novel idea is more likely to garner support, dissent, or comments than an idea presented to a smaller audience. Consider, for example, 'crowdfunding' platforms, where budding entrepreneurs can present their ideas to the public and appeal for funding to make them a reality. The idea does not have to be a physical product, it can also be the manifestation of a political or religious conviction. The internet makes it possible for ideas to gain traction that in the past might have fallen by the wayside. In this way, digital communications can increase shared knowledge and foster conversations that lead to the reformulation and improvement of ideas.

On the other hand, the long tail also gives a voice to unsavoury constituents of society. Just as the repressed can make themselves heard, extremists may find a foothold in the murky depths of the internet where bad ideas can be

picked up and amplified. Perhaps the most notorious beneficiary of this has been the Islamic State group (also known as ISIS, ISIL and Daesh). Much has been made of their mastery of the internet to radicalise and recruit new members and spread propaganda – particularly through social media. There is no shortage of people, including Muslims, who renounce the group and actively seek to combat its message, but in the online world the majority view does not necessarily eliminate others being expressed. Previously, a bad idea might have faded into obscurity for lack of an audience, but with a long tail even the most heinous ideas can find adherents.

**Affordability**

More people than ever before are partaking in commerce and communications thanks to digitisation lowering the barrier to entry. The traditional lengthy logistics chain to move products adds more cost. At each step along the chain the handling party requires a fee, which will be passed on to the customer by increasing the price of the product. By shortening the logistics chain and cutting out middlemen, manufacturers make cost savings. Although the cost of producing a product might stay the same, savings can be made when it comes to distributing, selling and marketing the product. These savings can be passed on to customers in the form of a lower price, with the manufacturer maintaining the same profit margin. This lower price can potentially attract customers who were previously barred by high prices. The digitisation of commerce can thus open up markets by making products more affordable.

The digital communications chain has been shortened in similar ways, with the same sort of cost benefits. However, the monetary cost of communications was never really high enough to pose a barrier to entry. The benefits of the digitisation of communications are not primarily price, but rather the lowering of the skills required to partake. Communicating via letters as outlined above requires the ability to both read and write. Until the spread of mass education in the twentieth century, these skills were limited to a relatively small subset of humanity. Now, since literacy levels are high in most developed states, digital communications have the power to make a difference for people with learning difficulties or in areas where education is limited. Courtesy of video messaging applications, real-time long-distance correspondence can be achieved via face-to-face communication. This bypasses any need to be able to read and write, requiring only the interpersonal communication skills every person has. It does of course require a device, such as a laptop or smartphone, on which to run the application. However, devices are becoming cheaper, and a single device can be shared and passed around. Shared ownership not only spreads the initial cost of purchasing the device, but is in itself a means for people to connect with one another. The ability of a family to gather around a laptop and video call with relatives on the other side of the world is a powerful way to maintain relationships otherwise challenged by distance and time.

Those previously separated by geographical distance and/or access to means of communication are now able to reconnect with lost acquaintances and even forge relationships with strangers on the other side of the globe. In this way, digital communications have the potential to increase humanity's homogeneity. If everyone is connected, divisions between locations, races, nationalities, classes and wealth can be blurred. Rather than emphasise the things that have traditionally separated humanity, it is possible to concentrate on those things that unite us: the shared values that make us human.

**Reliance**

Digital devices are inseparable from the new logistics and communications that are increasingly underpinning human activity. Devices come in a wide array of shapes and sizes and have an equally wide range of functions. Probably the most ubiquitous and familiar devices are personal computers and smartphones. For many people it is impossible to imagine life without the instant connectivity and wealth of information provided by the internet and accessed through such devices. Devices have thus become an integral, perhaps indispensable, part of human life. As these devices permeate society, it is conceivable that humans cede some of their humanity to the digital realm. Using the internet for many of our basic human functions, both individual and societal, effectively requires the internet to make up part of what it means to be human. In 1945 Vannevar Bush introduced his idea of a 'memex', which he described as

a device in which an individual stores all his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility. It is an enlarged intimate supplement to his memory. (Bush

1945)

Eerily prescient, Bush's description accurately describes smartphones. The implication of this is that, thanks to such a device, the limited human mind can be freed up to perform the uniquely human capacities to imagine, associate and experiment.

Of course, such reliance on technology can have negative consequences. If the technology was to disappear or be denied to us, we could potentially lose some of our humanity. The example of Egypt's internet services being cut off demonstrates the large-scale vulnerability of the technology, as do the cyber-attacks on Estonia in 2007 that lost citizens access to essential services such as banking. Consider Facebook, a social networking platform with over one billion users. Facebook, and its subsidiary Instagram, are used today as photograph repositories. Hundreds of millions of people upload photos as they are taken, effectively replacing the physical photo albums that older generations typically kept in their homes. Facebook thereby becomes an archive of visual memories. If the internet malfunctioned, Facebook, and the memories it contains, would be inaccessible. Memories, both individual and societal, are a key constituent of what makes us human: losing them would amount to losing some of our humanity. The example of memories shows how over-reliance on technology for important human functions may be unwise.

**Control**

The issue of internet control has recently come to the fore, chiefly due to revelations in documents leaked by the whistle-blower Edward Snowden in 2013. The documents showed the extent of the United States' intelligence capabilities in cyberspace, many of which were predicated on the fact that most internet traffic originates from, terminates in, or transits through servers based within America. This of course gives the United States a huge advantage, as it enjoys unprecedented access to the flow of information on the internet. Recognising this disparity, and also reacting to alleged infringements of their own citizens' rights, several countries have called strongly for the nationalisation of the internet. By this they mean moving to a model in which countries ensure data stays within their own borders. Where this is not possible, data should be handled in accordance with the law of its origin state, backed up by an international governance framework. Though this could redress the imbalance of power, it also has the potential to Balkanise the internet. Many of the benefits of the internet rely on the technology being uniformly functioning and accessible across disparate geographical areas. A Balkanised internet would inevitably produce a range of operating standards that might well be difficult to integrate. China is an example of a country that does operate a national internet policy, although for different reasons to those expressed above. Through the 'Great Firewall', the Chinese government blocks access to sources of uncensored information such as foreign news outlets and prominent websites like Facebook, Google and Wikipedia. The full benefits of the internet are clearly not available to the bulk of Chinese users, showing how control of the technology can be a powerful tool for controlling a population.

**Conclusion**

The internet is a truly revolutionary technology which has empowered individuals to connect with other individuals, systems to connect with other systems, and individuals to connect with systems on scales previously unknown. Though issues such as those around reliance and control demonstrate that modern technology is still a work in progress, the key point to remember is that through participation in logistics and communications, digital or otherwise, each person has the potential to affect the process and progress of international relations. Interacting with other humans through the written and spoken word and through trade is what makes humanity flourish. The internet has made this possible for more people, in more locations, more of the time, more quickly. We are therefore connected not merely by shared food and air, but also by a shared capability to meaningfully shape both our own lives and those of others.

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