Most Internet users love what they can do with it; access information on any conceivable topic at almost the speed of light. It is enormously useful at making everyday life easier, but there is also the dark side. Spies, paedophiles and drug dealers; a whole cast of shadowy figures lurking in virtual back alleys. George Orwell's dystopian vision of 1984 seems prescient; governments and others now have a window into almost everything we do. Our public and private lives open to scrutiny. It conjures the unsavoury image of a voyeur peering in at one's window, camera in hand.

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Technologists are powerful change agents.

Behind it all are the technologists who make it happen. Technologists in the 21st Century are among the most powerful people in the world. Hundreds, even thousands of years in the future, it is likely that the technological advances of the late 20th and 21st centuries will be recognised as pivotal in the history of humanity, the point at which the exponential growth of digital technology really began.

**IMAGE:** © FutUndBild - Flickr
IT ethics

The French philosopher Emile Durkheim said that when values are sufficient, laws are unnecessary; when values are insufficient, laws are unenforceable. The principle is applicable to technology. In the absence of binding international law, it is imperative that technologists have a moral compass with which to navigate the course of technology development in ways that serve the greater good and avoid harm.

With 90% of the world's data being created in the last two years, and the rate of increase rising exponentially, security and privacy protection are becoming imperative.

Good technology is life affirming

In the broadest sense, technology is ethical when it is life affirming, when it helps people grow towards their full potential, when it allows them to accomplish what they might otherwise not be able to.

As Kevin Kelly, founder of Wired magazine observes, there are children being born today for whom their technology of self-expression has not yet been invented. What would Mozart or Beethoven have done without the musical instruments of their time, or Da Vinci and Van Gogh without the pigments and paints they used to create their masterpieces? Or even Stephen Spielberg, Alfred Hitchcock and other great auteur filmmakers. What would they have done without the technology of film production?

Ethical technologists therefore develop the technology that helps people to express their innate creative potential. And it is important to also consider the interests of not just humans living here and now, but also the interests of future generations, of other living creatures, and the preservation of the environment.

Technology alone is neither good nor bad, as Natasha Lomas observes. A hammer, for example can be used constructively or destructively according to the intentions of the user. It can build a house or crush a skull. The Internet and technology in general becomes unethical when it dehumanises or diminishes people.

What are the risks of technology?

With the greater transparency and global reach of modern technology comes the potential for abuse. This has prompted some commentators to call for a curtailment of technology through legislative controls. This Luddite view is an over-reaction. As an abiding principle, while something might have the potential for abuse, this alone should not prohibit its use when it has the potential for benefit.

Privacy and intellectual property are two aspects of a larger issue; who owns information, who has access and under what conditions? The Internet is a very efficient copying and distribution system for digitized information. While much of this information distribution is not problematic, we will always have unscrupulous people who find ways to reach into private places and make copies without the owner's permission, then distribute that information. All without the knowledge or consent of the owner.

Privacy and intellectual property are the pre-eminent ethical issues of the Internet age, but there are three more broad issues worthy of mention: pornography, information accessibility and accuracy. These will be mentioned more briefly after the main discussion.
Ethics in the Information Age

Privacy

The problem with privacy is knowing where to draw the line. What information about us can be legitimately revealed to the world and with what safeguards?

Information privacy is a subset of the broader concept of privacy. With the advent of advanced Information and Communication Technologies, data can be collected, aggregated and analysed more quickly and in a larger volume than at any earlier time. More alarming, data can be collected without you being aware of it.

In the physical world, the line can be clearly drawn between public space—with little or no expectation of privacy—and the private space of your home. When you close the door and draw the curtains, you can reasonably have 100% expectation of privacy. This is not so easy in the digital world where the margins are blurred.

Yet privacy is not an inherent human right. It is in fact a fairly recent idea that has become well-established as a social norm. In mediaeval times there was little or no privacy, with people living communally, even high status individuals. It is not so long ago that we lived much as our primate relatives still live; communally in extended family groups, all in together. Our modern pre-occupation with privacy would be foreign to them. Perhaps the need for privacy came when people started living with strangers in towns and cities. Privacy is therefore a more fluid concept, a recent historical invention that may again be transformed.

According to Emily Nussbaum “Younger people... are the only ones for whom it seems to have sunk in that the idea of a truly private life is already an illusion.” Unlike older generations, who grew up sealing their diary with an actual padlock, the younger generation understand that there is a surveillance camera on every lamp-post and that our life is lived in the public gaze, whether we like it or not, so there is little point holding things close to your chest.

The technology of today makes the gathering and transmission of data about people very easy indeed. Moreover, information is a tradeable commodity. Governments and organisations of all kinds now use data mining in their operations. All manner of information about you, gleaned from your day-to-day activities, already exist on a multitude of databases. You need only use a credit or debit card, the web, public roads, emails and social networking for you to leave a digital trail. This information is usually collected without your knowledge or consent. Most of this data currently exists in silos and is not integrated with each other. However, that situation is changing, as governments and organisations come to see the benefits and economies of scale of integrating databases.

It is not uncommon for people to find themselves in trouble when information from multiple sources is integrated to reveal patterns of activity they would prefer would remain hidden. Is this good or bad? In some cases, the public interest is best served; in others the individual's right to privacy will prevail. Where to draw the line has to be determined case-by-case.

Australian Police now have mobile scanners that read the registration plates of the surrounding vehicles, highlighting those with expired registration, owners with outstanding arrest warrants, unpaid fines and other violations. In this instance, it has been decided that the public interest outweighs an individual's presumption of anonymity.
How soon before similar face recognition technology is applied to people walking around in public places? It's likely that this is already happening, but we have not been told.

Recruiters and HR firms routinely use Facebook and other social media to evaluate candidates. People put large amounts of information on Facebook, some of it quite personal. A recruiter might decide that a candidate that looks good on paper is not suitable after all based on what they are seeing on Facebook. Is this an invasion of privacy? Arguably not, since the person has knowingly put the information in a public place. However, it does raise the question: is it ethical for a recruiter to base their decision on matters that anti-discrimination laws would not allow to be asked in an interview, such as age, cultural background, or sexual orientation? The answer is probably no. On the other side, employers would argue that they have the right to make a fully informed choice about who they will trust.

Intellectual property

Intellectual property law covers four main areas: patents, copyrights, trademarks and trade secrets. Of these, copyright is at greatest risk of infringement in the Internet age, though risks still exist with the other areas. The Internet has rightly been described as one big copying machine, allowing the almost instant duplication and transmission of any digitised product.

For example, I use a textbook - The Ethical Technologist - in my third year university ethics course. A student acquired the eBook and illegally distributed it to all 350 students on the course. He did this simply and easily by sending everyone a digital copy as an email attachment. The irony of being an ethics course not being lost on anyone, this would have taken him just a minute or two to accomplish.

Hundreds of millions of people around the world routinely use torrenting services to download and distribute movies, TV shows, music, software and books—anything that can be digitised—without the permission of the copyright owners. It is an issue of great significance to the entertainment industry who claim losses in the hundreds of billions. Yet the Internet is by nature a decentralised network that is impossible to regulate in the way copyright owners would like.

While downloading is a violation of IP rights, the question remains: is it morally wrong? Throughout history, many things have been illegal that are now legal, such as same sex relationships and divorce, matters that the people concerned did not consider to be morally wrong. Simply citing the illegality of downloading does not necessarily determine whether it is moral. In the case of theft, criminal sanctions seem warranted. If I steal your purse, for example, my gain is clearly your loss. In the case of piracy, however, the relationship between gain and loss is more complex. You have not deprived the owner of the item; you have made an unauthorised copy. The use of the highly emotive term 'piracy' further clouds the issue.

Various legal remedies are being applied,
for example the recent ‘Dallas Buyers Club’ prosecutions, but these are largely ineffective, being described as a game of ‘whack-a-mole’ where no sooner is one avenue closed but another pops up. Circumventing the law is as easy as subscribing to a ‘Virtual Private Network’ or VPN service for a few dollars a month. The channels of distribution become a hot issue too. The first widely used system for distribution Napster was successfully shut down in 2002 by the recording industries because its central processors were located in a physical location. Its successor BitTorrent has evaded closure because it has no central location. Like the Scarlett Pimpernel, the recording industry seeks him here and there. But in fact he is nowhere and everywhere, dispersed across millions of individual PCs around the world.

For decades there has been a gulf as wide as the Grand Canyon between the two sides of this issue. On one side we have publishers who would like to continue making the profits that were possible in the pre-digital age. **On the other side of the canyon are people who want something of value but don’t want to pay for it.**

As with any polarised issue, in time common ground will be established. That is likely to happen when prices are perceived by consumers to be reasonable and people can legally obtain content as easily as they can do so illegally. That will be conditional on not restricting legal downloads by territory; so called geo-blocking.

The common ground turns out to be ‘cloud computing’ where content is delivered, either for free or by subscription to anyone who can pay what the market considers reasonable. Kindle and iTunes are putting millions of eBooks into the cloud and within easy reach of the masses. Spotify and iTunes are putting the latest music on people’s players in the same way for a few dollars a month. Netflix and other subscription-based streaming services are going the same way with movies and TV.

**Pornography, Accessibility, Accuracy**

Cultural practices around the world differ. Something that is considered acceptable in one place may be offensive in another; but the internet is the great leveller, making all material available to everyone - everywhere - that have a connection. For example, in the West, the sight of women in bikinis on magazine covers is unremarkable. In some Middle Eastern countries, the same images would be considered pornographic.

Pornography is therefore a spectrum of erotica beginning with non-violent acts between consenting adults. Further along the continuum there is fetish erotica between consenting and non-consenting adults. At the extreme end is the most depraved of all involving sexual violence towards children. The world has an apparently insatiable appetite for pornography, with some estimates suggesting that it comprises up to 80% of the total content of the internet. That’s a lot of X-rated videos.

Sexting — the practice of circulating...
explicit images of themselves to others—is an extension of the concept of pornography. Any minor who takes an erotic image of themselves and sends it to another can be charged with child pornography offences. It raises questions about how to balance technology, sexuality and privacy in our personal lives.

Accessibility: How do we determine who has access to what information? Under what circumstances shall access be granted and with what safeguards? Access to information is contingent on having (a) the literacy skills to read and understand the information, (b) access to the equipment (computers, networks etc) that delivers the information, and (c) being able to afford the price being charged for that access. Equity of access as a principle means that, as far as possible, everyone everywhere should have access to information that can benefit him or her.

Accuracy: Building on the Privacy point, how can we ensure the authenticity of information given to others? Specifically, who is accountable for accuracy, and what legal remedies are available to injured parties?

The dehumanising effects of technology

The American philosopher Lewis Mumford wrote about the dehumanising effects of technology. In his National Book Award-winning work The City in History, he critiques the modern trend of urban sprawl as a de-humanising influence on people. As a species we evolved in extended family-sized groups. We did not evolve to live in collectives numbering in the millions, so we are not instinctively suited to city life.

Mumford blames the alienating influence of living in mega-cities for many of the social problems occurring in the modern world. Technology is embedded in the sprawl and has been a major facilitator of the sprawl. He emphasises that human living spaces must retain a strong organic relationship with the people who inhabit them.

The Answer: a simple three-part formula

Is there a set of general rules for ethical technology use that everyone can use? We argue there is. These rules are based on the work of philosopher Immanuel Kant whose ideas continue to exert a strong influence on the study of ethics today.

They are simple enough and general enough to work in the virtual world as they have done for years in the physical world. At the very least, they are a starting point for discussion.

At the risk of oversimplifying Kant’s ideas, we are suggesting that his categorical imperatives (unconditional requirements that are always true) be adapted as guiding principles for ethical technology use:

• Does this violate a moral rule?
• Can that rule be universally applied?
• Will this action lead to harm or dehumanise another individual or group?

If the answer to any of these questions is “no”, then it is arguably unethical to do it. These rules are based on rational principles and hold true in both the virtual world and physical world, applying the same standards to both.

Opinions about our technological future are polarised into utopian and dystopian views. Whether you love or loathe the prospects, one thing is for sure – if we do not adopt a code of ethical technology use, we face an uncertain future.