The seminal work by Garret Hardin nearly 40 years ago on the “Tragedy of the Commons” [1] clearly resonates within the Information Communication Technology (ICT) community today. Opinion pieces in the Communications of the ACM [1] and IEEE Spectrum [2] have focused on the tragedies’ “scarcity of resources” paradigm and its implications for the Internet and Web. Cerf concludes that this shared environment must be protected for the benefit of all users before it becomes too unsafe for reliable use. Lucky, more pragmatically, highlights online social behavior being incompatible with “courteously” designed Internet protocols. In essence, the tragedy is still with us, alive and kicking.

Hardin’s original work also discussed an issue that has become more relevant to our society. He describes the “no technical solution problem.” That is, how can we solve something that cannot just be solved by technical means? This drives people to make decisions that are usually always in-compatible with society (hence, the tragedy). He gives the innocuous example of cheating in a tic-tac-toe game to the more contentious control of the overpopulation of the world (hence, the scarce resources problem).

This conclusion is the same found by Toyama in “Technology is not the Answer” (4). He found that technology was an “amplifier” of human capacity, but did not help in any way to address our deficiencies. In fact, technology was good at amplifying human intent – both bad and good. When technology is utilized and human decisions are made for societal benefit, then the outcome is generally an improvement. But humans can also utilize technology not only for personal gain, but to intensify their own position over others, with detrimental effect. Toyama’s “law of amplification” (5) probably should now be more widely quoted with other formative laws of technology. He calls on the immense influence that the technology community has to engage beyond our professional comfort zone, and to challenge inequality, politics, and social forces in humanity’s favor.

If we take Hardin’s original thesis and mix it with Toyama’s, then we end up with an interesting dilemma for our community. Our “scarce resources” are different from 40 years ago, but...
the tragedy is still with us, alive and kicking.

Just like “Zombie Economics” (6), there is an unshakable faith in our industry that we can do anything and that everything we do must be good and beneficial to society, and more importantly, for the advocates of the mainstream ideas. Our industry has had similar crises before, such as dot-com busts, that exposed our assumptions, but the ideas are still here and speculation continues unabated.

As an industry and society, can we continue to develop solutions that unduly amplify human behavior – so that we provide and support a way for harm to be normalized? As an industry and society, can we continue to promote solutions based on long-held and dominate theories – so that the wider community is misled by influential advocates? The answer is a clear “no” to both. Some examples highlight these concerns:

Social Media is Fraught with Amplified Social Discourse

While there are clear benefits of connected communities formed socially and professionally, there is also a dark side that flourishes and grows deeper and stronger. Social media systems simply cannot handle human behavior of this kind. They are not designed to deal with such ramifications, and the services ignore pleas to provide better controls for negative experiences.

Artificial Intelligence is an Example of Our Zombie

Artificial Intelligence (AI) has had a modest 60+ year run at becoming one of the industry’s highest achievements. But AI has never achieved its own objectives and those objectives are unlikely to be fulfilled without a better understanding of how our brain actually works (8). Only solutions that simply require computational and statistical prowess have shown promising outcomes. However, this has not stopped the industry from lauding AI through media-driven events, such as AI challenging and defeating the best chess and Go players. These systems are discrete brute-force algorithms tailored specifically at these esoteric areas.

The Sharing Economy is an Example of Our Tragedy of the Commons

The sharing economy has hit us with brute force, disrupting industry after industry and threatening to be as pervasive as the Internet itself. There are positives to this approach in that the wider community can now participate more in economic activities. But there is misplaced truth that these “sharing” systems are actually hidden monopolies and are making decisions over our scarce resources that ultimately will only benefit a few in the long term.

What can we do as the ICT community? In the examples covered here, we can: design systems to detect and dampen amplification of anti-social/professional behavior; promote our services/systems to the wider community rooted in clearer reality and not false hope; and break down the sharing economy by insisting that a truly distributed design be supported for both decision making and sharing of benefits for all participants.

The ICT community drives some many aspects of our lives today and we must recognize that our digital society does not warrant technical solutions alone, and that human behavior (for those that design solutions and those that exploit them) must not be left unchecked. As a community and a profession, we must now face these challenges directly, move forward from past ideas, and foster and engender genuine trust with society so that there will be no tragedy of the digital commons in our coming future.

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References