Is There an ICT Commons, and Is Tragedy Inevitable?

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In 1968 the immensely influential article by Garrett Hardin titled "The Tragedy of the Commons" [1] was published. In it, Hardin argued that the result of holding exploitable property in common was that each user had an incentive to use more than their fair share before others did. The result was that the common property was over-exploited and eventually became unusable by anyone. His thesis was based on observations made over a century before by the British economist William Forster Lloyd [2] in the context of explaining the problem of farmers in England over-grazing their cattle on lands open for the use of all (commons).

Historically, the problem of over-grazing on commons was "solved" by enclosure, a legal process by which title to common land was conveyed to an individual landholder who then had exclusive rights to exploit it [3]. Exclusive rights removed the incentive for over-exploitation since property owners have little incentive to diminish the value of their property through over-use. However, enclosure also meant that access to that property was eliminated for those who had previously used the property as a benefit of their rights held in common. Many people who had relied on this common resource were reduced to landlessness and poverty.

Just as we can think of land held in common and the issues that arise from this sort of ownership, we can also think of the open information and communications technology (ICT) infrastructure that we loosely refer to as the Internet as a modern-day commons. It is open to all who have an appropriate access device, and can be exploited by all for a range of communications, information, and entertainment purposes. I think we can refer to this as an ICT Commons. A natural follow-on question to the introduction of this new term is whether this new commons, existing in a virtual world of network protocols, data flows, and content storage, is also prey to the types of issues that we saw in the physical commons of land, grass, and cows. Can an ICT Commons be preserved, or will abuse of this commons by many actors who want to use it for their private gain render it unusable? In other words, can we make the ICT Commons sustainable, or will there inevitably be a "Tragedy of the ICT Commons"?

What are some of the attributes of a sustainable ICT Commons? I suggest that accessibility, availability, and provenance are three key attributes because they map onto the issues seen with the classical commons dilemma.

Accessibility is the first attribute we consider. A commons cannot exist unless the means to access it are widely available. Estimates vary, but recent data seem to indicate that more than 4 billion people have regular access to the internet. This still leaves about 2 or 3 billion people unconnected, but this gap has been closing rapidly. Gaining Internet access is highly related to increases in personal wealth, and as people move above the poverty level, the means to access the Internet will continue to spread. Hence, from the point of view of access, it seems that a sustainable global ICT Commons has formed or is forming. The sheer number of participants indicates that this commons has a critical mass, and trends indicate that this mass is likely to increase further.

Availability is another attribute of a sustainable ICT Commons. One way to define it is whether there is an understanding among its users that they have a mutual responsibility to place valuable content into the commons. Here, the evidence for sustainability is less clear. As early as 1998, Onsrud and others [4] documented that as the Internet emerged, some actors were already trying to restrict what information flowed onto it. There was a trend to prevent information from entering the commons, whether through restrictions on sharing of public records or through the increase in copyright terms and licensing. While these practices have continued, today we can see, particularly in some countries, overt censorship of the content that users are permitted to donate to the ICT Commons. Collectively, these practices amount to a kind of enclosure, where valuable information that should be available to all is walled off and not placed into the commons. This enclosure of the ICT Commons, while benefiting the private interests of some people, companies, or governments, leads to the information impoverishment of the users of the potential ICT Commons.

Provenance refers to the origins of something, the record of which is used as a guide to its authenticity or quality. Provenance is the term I would use for a third attribute of a sustainable ICT Commons. The two criteria discussed above, access and availability, are not enough to create a sustainable ICT Commons. One can have access to the commons, and there can be plenty of available information, but if the information is of uncertain origin with doubtful authenticity, then the effect on the commons of information with poor provenance could be quite negative. Low quality information leads to a commons of uncertain value, and users participate at their peril. In the physical commons, this would be like having forage of low nutritional value or containing inedible weeds. This is exactly what we see today when unsubstantiated rumors and conspiracy theories are wantonly spread across the Internet, and large corporate players refuse to police the information that they are making available. Worse still, some state and near-state actors deliberately pollute the commons with information garbage, seeking to mislead users and mold their actions to these actors' private interests.

If sustainability is the goal, some standards need to be set about access and availability, but above all, about the provenance of the information on the ICT Commons. Without this, we wind up with an ICT commons that has been over-exploited and is hence valueless, just as occurred with the original common lands. We need to avoid this tragedy of the ICT Commons.

What is to be done? Standards provide a way for stakeholders to agree on a common set of self-regulatory principles and rules. We can see examples of this in the physical world. For instance, much innovation in the regulation of fisheries, including enforcement mechanisms, has been achieved though stakeholder negotiations over the use of a common resource [5]. Similar discussions in the ICT world, mediated by well-known and trusted standards development processes, must be embraced by stakeholders before the ICT Commons, which could be a landmark in human cultural achievement, becomes over-exploited, unusable, and in no sense sustainable.

References

[1] G. Hardin, "The Tragedy of the Commons," *Science*, vol. 62, 1968, pp. 1243-48.

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[4] H. J. Onsrud, "Tragedy of the Information Commons," in *Policy Issues in Modern Cartography*, T. Fraser, Editor. Elsevier, 1998. https://doi.org/10.1016/S1363-0814(98)80010-5.

[5] P. S. Levin and M. R. Poe, *Conservation for the Anthropocene Ocean*. Academic Press, 2017. https://doi.org/10.1016/B978-0-12-805375-1.01001-1.