Connecting Through Consilience: Ecology, Society, Culture and Technology

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Abstract

Amongst linguistic, cultural and geographic diversity, humanity is characterised by inquisitiveness, communication and a deep desire to connect with each other. Despite our advanced intelligence and technological capacity, we are creatures of nature - a species which occupies a habitat, depends on consumable resources and fragile in many ways. As a species, we currently face challenges including overpopulation, diminishing resources and habitat degradation. In essence, we are exhausting the resources we depend on. [1]

Resource depletion, disruption, famine, growth and sustainability are all observable in other species and natural systems. Human societies and systems can be described through the same scaling rules that apply to systems in nature. [2] Therefore, it is important that we look to natural systems to understand ourselves as we face these challenges.

Panarchy and Dynamic Systems

In ecology, panarchy describes coupled human-environment natural systems as nested cycles in constant dynamic flux, with occasional disruptive events catalysing adjustment in the entire system.

> "...social-ecological systems form nested sets of adaptive cycles. The larger, slower cycles generally constrain the smaller, faster ones and maintain system integrity, but...critical cross-scale interactions can operate…" [3] whereby cross-talk between cycles can trigger systemic crisis and change. [3,4]

Like human-environment systems, human-technology systems are also coupled and can be described in a panarchy cycle. There are cyclical patterns to the advancement of technology through three kinds of change - incremental, abrupt and transformative. [4]

Incremental change is slow and stable, abrupt change happens quickly but may be localised, and transformative change is systemic with long-term impact. Currently, two factors point to the possibility of transformative change in human society - the exponential rate of technological change and the ecological pressures on humanity as a species.

The Technology Trajectory

If we look to nature, species facing habitat and resources crises do not survive by doing things the same way. Successful species evolve and adapt in the face of crisis.

In the history of human society, evolution and adaptation has involved changes in human-technology systems - from the use of stone to metallurgy to the industrial revolution to the digital age. Likewise, the next transformative change will likely involve technology and our collective capacity for innovation.

Innate human inquisitiveness and a deep desire to connect drive humans to bring technology ever closer to ourselves. Through exponentially accelerating innovation, [5] technology is on a trajectory from bearable to wearable towards implantable. [6]

Ambient technology offers a ‘dream’ - a hopeful, peaceful, technologically advanced future. [7]

As technology offers us a dream, it also offers a ‘solution’ for the desperate challenges humanity currently faces. The pressing question for decision makers - developers and engineers, policymakers, legislators, investors and consumers is how we get this right - harnessing technology to meet our pressing ecological needs.

How do we sustain a mindful and meaningful interaction with technology to help our species sustainably adapt, survive and thrive? What are the socio-ethical implications of technology for society more broadly as the Internet expands concurrently outwards (away from humanity) and inwards (towards humanity) as part of a networked electronic ecosphere? [11]

Connecting Through Consilience In Action

In understanding and ultimately answering this question, we have much to learn by valuing, appreciating and collaborating with people who hold knowledge from different sectors and cultures - respectfully accessing *all* of the collective wisdom of human understanding and innovation across culture.

Consilience [8] in action [9] connects knowledge holders who share in a culture of respect, using common language to communicate. The Consilience Workflow Framework (figure, [10]) describes how knowledge holders can practically work together for tangible outcomes.

In conclusion, to meet the challenges facing humanity we must operationalise the incredible breadth of skills, knowledge and experience across cultures and disciplines through common understanding, language and collaboration.

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Appendix

Figure - Consilience Workflow Framework