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Taking conviviality seriously (extended abstract)

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In his seminal book, “Tools for conviviality” [13], Ivan Illich laid down a strikingly prescient analysis of the woes that can plague a technological society. He advocated the development of convivial technologies, i.e. technologies consistent with the development of a convivial society. A convivial society is one which would: support “the autonomous and creative intercourse among persons, and the intercourse of persons with their environment” ([13] p. 24); “guarantee for each member the most ample and free access to the tools of the community and limit this freedom only in favour of another member’s equal freedom” ([13] p. 25); and “allow all its members the most autonomous action by means of tools least controlled by others” ([13] p. 33). The digital technologies that are so ubiquitous today bear the hallmarks of non-convivial tools:

1. *Biological degradation*: the disastrous ecological footprint of digital technologies is undeniable [11], a prime example of the absence of decoupling between the growth of industrial production and ecosystemic degradation, despite exponential gains in energy efficiency (e.g. Koomey’s law [14]).
2. *Radical monopoly*: the computerization of all sectors of economy and social life induces a radical monopoly on the handling of information. Digital technology has become a primary infrastructure on which all other critical infrastructures depend [24], and a mandatory recourse for any information handling problem, subject to ideological, technical, industrial and commercial injunctions [3, 19].
3. *Polarization*: the advent of surveillance capitalism [29], the biases and negative feedback loops induced by algorithms [20] (further reinforced with the large scale deployment of machine learning artefacts), are just examples of the unbalances and abuses of power made possible by digital platforms and automated decision making systems.
4. *Over-programming* and *obsolescence*: the ever-increasing sophistication of digital technologies, their incessant evolutions and accelerated obsolescence induce cultural, economic, generational and geographical divides that further exacerbate social inequalities [27].

Getting out of the current non-convivial nightmare is a holistic, systemic, and radically democratic effort, as Illich himself recognized. For computer scientists, one way to contribute is to design computer systems and digital infrastructures for conviviality, recognizing that infrastructure design in the Anthropocene is “wickedly complex” [5].

Designing for conviviality is not a new idea in computer science. Since the 1980s, Illich’s conviviality has been invoked by HCI researchers in relation to questions of accessibility and inclusivity, in particular in work by Gerhard Fischer [10]. But it has only more recently been considered as an analytical framework for the design of technical artefacts [16, 4, 28, 6]. As such, designing for conviviality can be considered an instance of *Value-sensitive design (VSD)* [25], and related to designing for specific values such as human well-being and sustainability. VSD stems from the consideration that technologies and artefacts cannot be considered ethically neutral, but are inherently ambivalent – as Jacques Ellul made abundantly clear [9] – and that they have moral and political bearings on humans and their environment. Ethical issues that arise when they get deployed are thus best avoided by making sure that relevant moral values are explicitly taken into account early on in their design. VSD has developed widely in the past two decades [26], by looking at particular moral values such as transparency, justice, democracy, human well-being, privacy, sustainability, and at specific technology areas such as defense, healthcare, biotechnology, ICT. In computer science, it was introduced originally by HCI experts in the 1990s with a strong emphasis on practical methodologies

[12]. VSD however has received several criticisms, notably by N. Manders-Huits [18], which highlight its lack of an overarching ethical framework, a form of relativism which seems somewhat contradictory given that VSD for example requires all stakeholders to be involved in the design process of a tool. More generally, along with other approaches such as Ethically-aligned design [1] or Responsible Research and Innovation [17], VSD suffers from a lack of commitment to the “good society” technology should contribute to, and from an insufficient critical stance on technology. The convivial society provides this missing overarching commitment, and Illich’s threats to conviviality constitute powerful diagnoses on an ailing technical system.

How then, do we go about designing convivial digital technology? Let us side-step the question for the time being and start by exploring two avenues of inquiry. The first one would question the goals: what is a convivial society? what is a convivial handling of information? The work of Illich questioned major technical systems of the industrialized world: medicine, education, transport. We are missing an Illician analysis of information and communication technologies, to understand in particular the convivial balance in our field, the thresholds where information speed and automation threaten human creativity, autonomy and control (an example of what Illich calls *counterfoil research* [13] p. 92). But we need also to question conviviality itself in at least three dimensions: principles, complexity and scale. First, conviviality summons multiple strands of reflection, around issues of justice (“In an age of scientific technology, the convivial structure of tools is a necessity for survival in full justice which is both distributive and participatory.” [13] p. 26), dignity, and autonomy. Each of these is the topic of ongoing debates and proposals, in an age of rediscovered planetary limits and humanity’s embedding in its biosphere. Situating conviviality and the convivial society in this landscape, in particular in discussions about prospective scenarios, examining its possible role as an attractor for post-growth societies, holds for us a crucial importance. Second, complexity and scale both seem naively antithetic to conviviality. Yet Illich gives the example of the (1970s) telephone system as an eminently convivial tool. Does conviviality lie in unity or simplicity of purpose? But what to make of the industrial scale at which the production of ICT technologies apparently needs to operate? Is conviviality recovered at scale by alternative modes of productions [15, 2]? We need to disentangle this paradox to understand the multi-dimensional aspects of conviviality in digital technologies.

The second avenue focuses on a redesign of digital infrastructures as commons. Commons, as a form of collective action for the autonomous handling of shared interests, goods or resources [7], are an integral part of Illich’s vision of a convivial society, as discussed in [8]. They are a necessary alternative to what Illich calls “managerial fascism” to get us out of our ecosystemic crisis (“The alternative to managerial fascism is a political process by which people decide how much of any scarce resource is the most any member of society can claim; a process in which they agree to keep limits relatively stationary over a long time, and by which they set a premium on the constant search for new ways to have an ever larger percentage of the population join in doing ever more with ever less.” [13] p. 116). They allow collective virtues of sobriety, modesty and temperance to exert their homeostatic influence. We believe that designing digital infrastructures as commons raises not only institutional concerns but also hardware and software architectural challenges. C. Voinea in discussing designing for conviviality highlights several design criteria, organized around the “axiological pillars identified by Ivan Illich, namely personal autonomy and social cohesion” [28]: flexibility, transparency, simplifiability and usability along the first one, sharedness, creativity and sociality along the second one. These constitute a useful initial set but other criteria need to be considered such as dependability, maintainability, compositionality, and accountability, which should take priority over performance, the overarching criterion in current computer system design. Architecturally, the commons imperative suggests designing digital infrastructures as federated systems, operating at different scales with communities at each scale in full administrative authority, in stark contrast to the administratively centralized character of current cloud systems – an effort at “disintermediation” as advocated by [22].

Illich’s ideas around convivial tools seem nowadays to resonate well within the computer science and engineering community. Is it because the nonconvivial nature of the tools we built is so obvious? Is it because performance increase, the overarching design criterion in our community, is so well-aligned with a productivist worldview which seems at odds [21] with any hope of respecting a safe operating space for humanity [23]? In any case, taking Illich’s conviviality seriously could start useful discussions and collaborations between computing and science and technology scholars.

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