

Addressing Climate Change By Affecting Worldview

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Technologies do not function in society merely to enable human activity. Our interactions with technology influence our understanding of our world and our role in it. I suggest, therefore, that the most overlooked, and perhaps most radical, avenue to sustainability is using the transformative power of technology to our advantage, and developing strategically with an eye toward affecting a more sustainable worldview. Given the popularity and extensiveness of the Internet, I propose that it may be a suitable target for shorter-term wins toward engendering healthier orientations to technology and the planet.

1. THE PROBLEM

Far too often, we approach the problem of climate change as a call to “green” our practices – or indeed to create new technologies that help us to be “greener.” The trouble with this is that by making our irresponsible behaviour less damaging to the environment, we only further reinforces the fundamentally unsustainable notion that we can retain our highly consumptive lifestyles so long as we make minor adjustments. What is clear from *Design for Sustainability* research is that a truly harmonious relationship with nature will not be reached without people accepting drastic changes to their current way of life (Jackson, 2009; Walker, 2006; Davison, 2001; Daly, 1997).

Unfortunately what we see is that the current unsustainable models persist because they are highly integrated (economically, socially, culturally and philosophically) and are thus mutually reinforcing and self-perpetuating. In other words, the reason we live unsustainably is because it makes a certain *sense* to us, therefore what is required most of all is a radical shift in our thinking.

The root of the problem is the fact that our interactions with technology influence our worldview (Postman, 1998; Borgmann, 1984), and increasingly this means adopting technological values in place of human values. A case in point is the way the mechanical clock taught us to measure sequences and thus ushered in “the scientific mind

and the scientific man” (Carr, 2010). Consider, for example, what kind of worldview the Internet fosters. We tend to think of cyberspace as infinite, immaterial, and free, and therefore it does not place constraints on our consumption. We upload and download content without any concern for the environmental consequences of doing so, precisely because cyberspace is seen as a realm entirely separate from nature. But technology is the way in which we “take up the world” (Borgmann, 1984), and I suggest that participating in the accelerated and risk-free cycle of production, consumption and waste in cyberspace *reinforces these bad habits in real world*, as well as reinforcing the flawed dichotomy between humans and nature, which has further consequences for our orientation to the planet.

It could also be argued that our engagements with the Internet reinforce our faith in information, and in productivity. In the words of Paul Hawken (2010), “Do we really want to swap more productivity for the loss of our forests, our riparian systems, our resources?” If the answer is no, then we are going to have to bravely reassert the environment over productivity as our primary human value.

Making matters worse, the Web conditions us to expect immediacy and ease. In doing so, it spoils us, making it more difficult to recognise or respond to the fact that we may soon have to take a very different path if we are to survive as a species.

But as the root of our problem, the transformative power of technology is also the key to our salvation. The Internet is the dominant medium of our age, so if we aim to design the Web upon a foundation informed by principles of sustainability, our engagements in cyberspace may begin to foster behaviour conducive to planetary wellbeing.

2. ENCOURAGING INDEPENDENCE

Climate change is the consequence of unrestrained consumption of fossil fuels, so one solution to the problem would be to make the switch to renewable energy sources, like wind and solar. However, wind and solar are not consequence-free themselves, and indeed the more important shift would be *to reduce our energy needs*.

Consider that every hour of web browsing requires an additional 2.5Wh (equal to a 3.4% increase) to display the ads. For a country like the Netherlands, it would take 3,600,000 wind turbines to produce enough electricity just to power the advertisements the Dutch see while browsing over the course of a single year (Simons & Pras, 2010)! When we realize the significance of statistics like this, it becomes clear that we will eventually reach a tipping point when we are no longer able to support our energy demands, so we need to wean ourselves off of our dependence on electrical technologies as a way of life.

This is fundamentally a worldview problem. And we are not going to solve it by creating technological solutions to climate change alone. By turning to technology as the answer to global warming, we are falling into the same trap that created the problem in the first place, reinforcing the “technological condition” by yet again buying into the notion of technology as a means of “removing uncertainty from human affairs” (Szczepanski, 2005). In other words, we need to extricate ourselves from the cycle of creating technological solutions to a problem that is the result of too many technological solutions to other problems.

In order to address climate change at the level of worldview, one of the areas we need to focus our research is in determining a means of 1) evaluating the necessity of our technological creations, and then 2) enforcing an agreed upon standard. This means making a commitment – by developers and policy makers alike – to designing for *needs*, rather than *wants*. In this way, the technology itself may begin to foster this austerity in its users as a way of life. Practically, this means adopting the principles of the Slow Movement (Footprint Choices, 2011), which encourages people to reprioritize and make

a considered effort to foster connections to people, place and the things we consume.

The second research area would be to figure out how to empower people non-technologically, and prepare them for a major lifestyle transition. This point exposes the irony of the situation in which we find ourselves. The first step in making the transition to being less dependent on technology might just be in *developing technologies* that deliver this message to people while equipping them with the necessary skills to slowly disengage in preparation for Power Down. This means elaborating new metrics for success of technologies, which are independent of business metrics. As ridiculous as it may sound, these may indeed be based on how much they empower users to perform hitherto technologically mediated tasks without the need of technology.

3. CULTIVATING A SHARED PURPOSE

I have argued thus far that affecting worldview should be the ultimate aim of any climate change agenda. But in the meantime, there are shorter-term gains that can be made. One of these would be to work towards determining a new purpose for cyberspace.

As it is now, our cyberspace activity has a tremendously underappreciated environmental impact. When using the Web, our browser’s computer consumes electricity, estimated between 12 and 150g of greenhouse gasses (CO₂e) per hour, depending on both the browser used and the computer used (Berners-Lee, 2010). (For comparison, boiling a litre of water using an electric kettle consumes 70g CO₂e.) In 2008, the Web itself represented 5 per cent of the world’s total global electricity usage and it is continuing to rise (Kelly, 2007). We also use servers and networks to the tune of 50g CO₂e per hour as of 2010 and this is also rising. We rely on data centres, which emit 130 million tonnes CO₂e globally per year today, but are estimated to emit 250-340 million tonnes CO₂e per year by 2020 (Berners-Lee, 2010). Additionally we need technologies to enable us to access and interact with the Web. Mobile phones, eReaders and computers all consume virgin materials, emit CO₂e during their production and use and contribute to eWaste (Grossman, 2006).

The real danger comes when these consumption trends continue to accelerate unabated, and indeed are glorified by the proponents of Web 3.0 who dream that cyberspace will eventually hold everything imaginable (Berners-Lee, 2009; Kelly, 2007). What these visionaries fail to recognize is that as we become increasingly dependent on cyberspace as storage for all we value, we are

forever consigning ourselves to supplying energy to maintain it, unable to disengage when the environment inevitably compels us to do so.

In short, the Internet seems to be crying out for a new purpose. Rather than serving as both an all-you-can-eat data buffet and a digital dumping ground, cyberspace has untapped potential to *facilitate a global environmental movement*.

So far, the Web has been appropriated for relatively mundane purposes, such as improving our human efficiency. While we have been conditioned to appreciate this as a worthwhile goal, it lacks the kind of *epic meaning* that moves people to do great things. As part of the technological endeavour of the Web, developers ought to work towards elaborating an epic story about the purpose of this technology in our lives, one that goes beyond the mindless, unquestioned Post-Industrial association of progress with meaning (Taylor, 2007). For example, when Tim Berners-Lee (2009) announces that Web 3.0 is going to allow us to do “wonderful things in ways we never could have imagined,” he fails to make explicit what it is we as a species are striving to achieve. That we can make increasingly detailed maps of the world (ibid) is not a satisfactory answer to the question, *Why are we doing all this?*

The more satisfying answer would be to *use the Web as a means to ensuring environmental harmony*, and we see glimmers of this potential with the initial stirrings of a worldwide grassroots movement (Hawken, 2004). But for the most part, *the Web has failed to realise this massive potential because the developers themselves have not embraced this as the central mythology of the Internet*.

4. CONCLUSION

Without implying any conscious or sinister motivations, I have suggested that the Internet as it is now produces a kind of intelligibility that works to promote a worldview that is at odds with sustainable living. If we are to address climate change at its foundations, therefore, we ought to work towards designing technologies (particularly the Internet) in a way that it promotes a radically different, less antagonistic, and ideally harmonious, relationship with nature.

Three research directions have been suggested. Firstly, we need to work towards establishing criteria that will help us determine the necessity of various technologies, which we can then use to develop stringent developmental policies that account for the often ignored environmental externalities. (This is similar to economist A. C.

Pigou’s argument that markets ought to impose a “tax to correct maladjustments” in the cost of goods that would work to counteract the devastation these maladjustments would bring further down the line (Hawken, 2010).) I can anticipate the reaction to my suggestion, namely that it amounts to a kind of censorship of technology; but the stakes are too high to subject climate change to the pressures of the whims of public cravings for technological toys. At the very least, computer technologies should be subject to similar governmental testing as food, pharmaceuticals, and automobiles – i.e. before providing these tools to the public, we ought to evaluate their environmental impacts relative to their proven social gains. In short, this means *slowing the process of development* to fully test our creations and allow time to make considered design decisions.

Secondly, I have suggested that developers ought to adopt a new ambition for their technologies, specifically that they should not aim to satisfy human *wants*, but to satisfy human *needs*. This means accepting that humans need less technology in their lives if we are going to survive on this planet, not more, and therefore developers need to collaborate with social scientists to determine how best to empower humans to be increasingly *independent* of technologies. Developers need to embrace technological modesty, and in a sense, aim to make themselves redundant over the next century.

This is a big ask of any technology developer. But at the end of the day, developers will suffer like any of us from the harmful effects of climate change. Perhaps this realisation will motivate us to embrace a new unity of purpose for our technological endeavour. This should be to focus on developing tools that enable worldwide collaboration towards solving climate change, as well as working interdisciplinarily to engender vigorous support for this new technological purpose.

I appreciate the scale of the changes I am proposing here. But climate change is an enormously difficult problem, brought about not only by the technologies that consume fossil fuels, but also by the mindsets that underpin the development of these technologies. As such, the only real solution to the problem will come from *adjusting our harmful orientation to our world*. Time is running out, and we cannot afford band-aid solutions; we need to think bigger than that. Although it is going to be difficult, and uncomfortable, we have to begin to prepare society for a radically different way of life that is conducive to planetary wellbeing. The first step may be in using technologies to get us to the point that we can accept this; the second step is unplugging.

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