

# Digital technology for people

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**Abstract:** This essay contains an exploration of alternative ways to deal with societal and environmental issues. Several assumptions of the European Enlightenment—*people as isolated individuals; nature as an object*—have led to many of our current problems. Typically and often, digital technology is designed and deployed within these assumptions. It can be useful to explore alternative ways to design and use digital technology, by looking at ‘non-Western’, Indigenous cultures. Four examples are discussed briefly: Ubuntu philosophy and the example of a language app for African languages; Māori data sovereignty; the building of a Lakota sweat lodge to inform building computer hardware; and the role of LAN Houses and mobile phones in the empowerment of people in a favela in Brazil. The essay closes with suggestions for learning from these examples.

**Keywords:** AI, indigenous, empowerment, mutual learning

## 1. Introduction

Our societies and our daily lives are shaped to a great extent by digital technology. We used to be happily surprised with the new and shiny. But not anymore. We are increasingly and justifiably concerned about the impacts, harms, and risks of social media, algorithms, and Artificial Intelligence (AI), on society, on our daily lives, and on democracy, inequality, and on our environment (O’Neil 2016; Eubanks 2017; Noble 2018; Benjamin 2019; Bender et al. 2021; Buolamwini 2023; Crawford 2021). Crucially, we need to understand that technology is not inherently good or bad, nor is it neutral. Rather, people, and the corporations and the states in which they collaborate (Runciman 2023), design and deploy technology to serve their particular interests. Key assumptions of the European Enlightenment—*that people are isolated individuals; that nature is an object to be exploited*—are very present. We are good in means, in technology; but largely at a loss when it comes to articulating and pursuing ends (MacIntyre 2007).

Below, several examples are introduced for doing things differently: how citizens can be empowered to design and deploy digital technology differently—to promote values like justice, freedom, conviviality, and democracy. These examples are from non-western or Indigenous cultures or marginalized communities. This approach is useful if we want to explore solutions for problems that the European Enlightenment, with its assumptions of individuality and domination and exploitation, has created (Steen 2022). Please note that this approach does not imply that non-western or Indigenous cultures are better than Western cultures; nor the other way around. Please also note that this gesture—to *look to other cultures in search of useful things*—brings risks of (neo)colonialism and harm. Instead, my gesture is meant to be respectful and modest, to learn from them. Moreover, we need to appreciate that Indigenous cultures are very diverse indeed. ‘A single “Indigenous perspective” does not exist’ (Lewis 2020, 4).

The goal of this essay is to explore alternative ways to design and deploy digital technologies; to better deal with societal and environmental issues. It is meant to help raise awareness and to inform, inspire, and indeed empower, people to act more collectively and as *active citizens*—rather than as individual and passive consumers or subjects, at the receiving end of what corporations or states design and deploy.

This exercise has roots in Aristotelean virtue ethics, which is concerned with enabling people to cultivate relevant virtues in order to live well together. The premise is that people *can* use digital technology as tools to cultivate specific virtues (Vallor 2016). Rather than what often happens, the other way around: that corporations, with business models for grabbing and monetizing people’s attention, offer social media apps that corrode people’s virtues, like self-control, honesty or civility, by luring them into their platforms and incentivize them to spread fake news and engage in uncivil mud-throwing and polarization.

The examples below are from different continents: Ubuntu and the example of a language app for African languages; Māori data sovereignty from New Zealand; the building of a Lakota sweat lodge to inform building computer hardware; and the empowering use of digital technology in a favela in Brazil.<sup>1</sup> Please note that the discussions below are merely vignettes or illustrations. For a fuller appreciation of people’s perspectives and experiences in these vignettes, we would need to dive into them much more extensively.

## 2. Ubuntu, a language app, and relational ethics

Several cultures in sub-Saharan Africa adhere to (variations) of the philosophy of Ubuntu; it recognizes the humanity of a person through that person’s relationships with other persons. It is often summarized like this: *‘I am because we are.’* Ubuntu has been a key tenet in the work of the Truth and Reconciliation Commission in South Africa in the mid-1990s, and in Bishop Desmond Tutu’s leadership.



Figure 1: Bhala brand (left) and keyboard app (right); <https://mamgobozidesign.com/bhala-rebranding> (left) and <https://www.techzim.co.zw/2021/01/bhala-an-android-keyboard-designed-for-african-languages/> (right)

Sábëlo Mhlambi, a Fellow at Harvard’s Berkman Klein Center for Internet & Society and a Technology and Human Rights Fellow at the Carr Center for Human Rights Policy, has pioneered the application of Ubuntu philosophy to the design and application of AI systems. He articulated the following critiques: people from marginalized communities are often excluded from the design process; there are biases in the collection of data and in the selection of features; the people involved in design often view technology as neutral and fail to recognize the many and diverse relationships that exist in society; and systems can lead to harmful commodification and centralization of data and resources. Drawing from Ubuntu, he argues that ‘[t]echnology should be created with a normative goal to eradicate inequality through the participation of the most disenfranchised’ and proposes that systems can be ‘used for public good and made available to the public in ways that protect privacy and promote the wellbeing of society’ and that ‘[g]reater funding and access to technical skillsets must be made available to the most disenfranchised’ (Mhlambi 2020, 25). Moreover, Mhlambi founded *Bhala*, ‘an AI startup that democratizes the advances of AI to millions of Africans’.<sup>2</sup> The company offers a free *keyboard and stickers app* for African languages like Ndebele, Shona, Swati, Swahili, Xhosa, Zulu, with spell-checker and auto-complete, and tools, to classify, generate, and correct texts in these languages (still in beta and only for Android)—see Figure 1. This is meant to remedy the default bias, persistent in digital technology, towards English, and thereby promote more linguistically and culturally appropriate communication via digital technology.

<sup>1</sup> This approach, to present examples, was inspired by Jer Thorp’s *‘Living in data’* (2021); it has many illustrations, to tell stories not only verbally, but also visually. Similarly, I also included illustrations. The Māori example (below) also appears in his book.

<sup>2</sup> <https://sabelo.mhlambi.com/about/> and <https://www.itweb.co.za/article/bhala-app-lets-locals-create-online-content-in-their-own-lingo/raYAyqodRDnvJ38N>.

More broadly, a similar approach has been developed under the header of *relational ethics* (Birhane and Cummins 2019; Birhane 2021; Mhlambi 2020; Mhlambi and Tiribelli 2023), as an effort to repair and supplement the default assumption that people are isolated individuals. Relational ethics can be understood to include also ethics of care and feminist ethics (Held 2006). That approach is concerned with, for example: the wellbeing of people who are affected by a specific system’s deployment; empowerment of the people who are affected by decisions regarding design and deployment, and indeed their participation in these processes; and with critiquing the ways in which such systems can shift power balances—notably, the ways in which their deployment can exacerbate injustices or inequalities.

### 3. Māori data sovereignty and self-determination

This story starts with the Treaty of Waitangi—see Figure 2. In 1840, representatives of the British Crown and Māori chiefs from New Zealand’s North Island signed a treaty with three articles. In Article 1, the Māori people agreed to cede their governance rights to the Crown. Article 2 establishes that the Māori will retain full chieftainship (*rangatiratanga*) over their lands, villages and all their treasures (*taonga*). In Article 3, the Māori people obtain full rights and protections as British subjects. We will focus here on the word ‘treasures’. This includes not only material objects, but also culturally valuable resources and immaterial objects, ideas and techniques. In the course of the years, the scope of *taonga* has been debated.

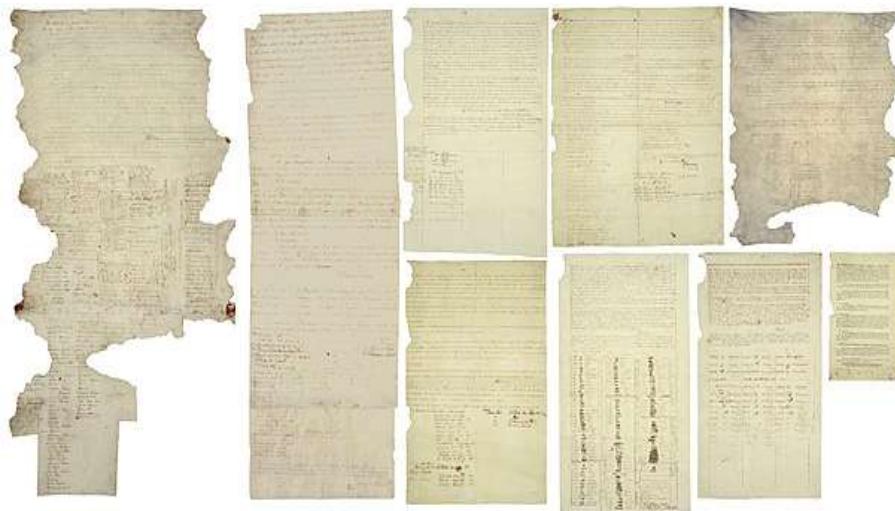


Figure 2: Treaty of Waitangi; [https://en.wikipedia.org/wiki/File:Treaty\\_of\\_Waitangi\\_all\\_documents.jpg](https://en.wikipedia.org/wiki/File:Treaty_of_Waitangi_all_documents.jpg)

This is not unusual with treaties; before and after their signing, parties debate the precise wordings and their meanings. Especially if a treaty is written in different languages, as is the case with Treaty of Waitangi, which was written in both English and Māori. A key question is: *What belongs to taonga?* The answer determines over which *taonga* the Māori will retain full chieftainship. In the course of the 1980s and 1990s, a series of rulings determined that radio frequencies, spiritual places, and knowledge about flora and fauna belong to *taonga*. Similarly, the Māori Data Sovereignty Network (*Te Mana Raraunga*) advocates for Māori rights regarding all sorts of data that pertain to their way of life, their environment, and their culture.<sup>3</sup> This would mean that these data are Māori’s *taonga*, also if these data are collected, e.g., by an organization in the UK, and are stored, e.g., in a cloud service of a corporation in the US.

For data sovereignty, the United Nations’ *Declaration On The Rights Of Indigenous Peoples* of 2007 is also relevant. It puts rights for self-determination, autonomy, and participation centre stage and includes rights that pertain to cultural heritage and knowledge; e.g., public health data, data about animals and

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<sup>3</sup> <https://www.temanararaunga.maori.nz/>

plants. For former colonies, like New Zealand, this is crucial. Data sovereignty is an effort to try to repair some of the damages of colonization, similar to giving back ownership over objects that were stolen during colonization. Moreover, data sovereignty is meant to combat common practices, in which states or companies from abroad collect data on Indigenous peoples and their environment, and then own, analyse, and utilize these data—typically, for their own benefit and often causing harms to the people that the data refer to. We can learn from this example with respect to technological sovereignty of the EU<sup>4</sup> (vis-à-vis the US (where corporations have much power) and China (where the state has much power), e.g., in order to promote freedom, equality, democracy, and participation.

#### 4. Building a Lakota sweat lodge and building computer hardware

First a bit of context. In 2019, a group of diverse, mainly Indigenous, people—from Canada, Australia, New Zealand, and the US—came together, ‘over 20 months, across 20 time zones, during two workshops’, to explore various approaches on AI (Lewis 2020, 4). Although their approaches are very different, they share several tenets, such as: Locality, i.e. the requirement that AI systems are designed in partnership with Indigenous communities; and Relationality and reciprocity, i.e. the requirement that AI systems help to appreciate how humans and non-humans are interdependent on each other (*Ibid.*, 21).<sup>5</sup> In the workshops, one subgroup drew parallels between the process of building a Lakota sweat lodge and building computer hardware—and proposed that both can be done ‘in a Good Way’, ‘because AI cannot be made ethically until its physical components are made ethically’ (*Ibid.*, 76). For the Lakota, ‘[t]he sweat lodge is a place where knowledge is generated about the world’ (*Ibid.*, 76)—see Figure 3. Just like a computer is a place where knowledge is stored and processed.



Figure 3: Building a sweat lodge; <https://www.helpersmentoringsociety.net/blog/what-is-a-sweat-lodge>

When building a sweat lodge, it is critical to start with identifying a specific need and involving relevant stakeholders: ‘individuals and community members, known and unknown, seen and unseen, including: stone spirits, plant peoples, animal peoples’ (*Ibid.*, 77). Similarly, building a computer device would need to start with identifying a specific need and involving, e.g., the communities of the places where the raw materials originate from. Furthermore, each object that goes into building a sweat lodge needs to be compensated for in some way, ‘offering something valuable in exchange’ (*Ibid.*, 78). Analogically,

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<sup>4</sup> <https://digital-strategy.ec.europa.eu/en/news/digital-sovereignty-european-chips-act-enters-force>

<sup>5</sup> Several more tenets are mentioned in the *Indigenous Protocol* (Lewis 2020, 21-22): Responsibility, relevance and accountability; Develop governance guidelines from Indigenous protocols; Recognize the cultural nature of all computational technology; Apply ethical design to the extended stack; and Respect and support data sovereignty.

regarding computer hardware, the people involved in mining the materials, will need to be compensated fairly, e.g., by providing safe working conditions and fair wages. And, after mining, the earth would need to be repaired to a healthy state. Finally, the people who build a sweat lodge are required to repurpose, return or transform the materials they have used. For computer hardware, this would entail requirements to repurpose or otherwise take care of the materials after the computer hardware's life cycle.

One can draw parallels with concerns for the materials, labour and energy that go into building and using AI systems, and the costs and risks to people and the environment (Bender et al. 2021; Crawford 2021). This problem is particularly hard to solve. Very often, especially for organizations with few resources, it is convenient to procure affordable hardware and cheap cloud services from big tech; e.g., an Android phone and Gmail, rather than, e.g., more 'responsible' options, e.g., a Fairphone and Protonmail. Moreover, some people are able to build their own hardware, e.g., with an Arduino or Raspberry Pi, or software models, e.g., with Hugging Face. This however, requires rather advanced expertise and skills. This can be a motivation to provide training options to enable people to develop such expertise and skills.

## 5. LAN Houses and mobile phones in a favela

This example deals with the ways in which disadvantaged ('oppressed') people in a favela of Brazil can utilize technology for their empowerment—see Figure 4. This is based on extensive ethnographic studies by David Nemer (2022). He grew up close to the favelas, but never really went there. This is typical; favela residents often stay in the favelas, and non-residents rarely go into the favelas. Nemer builds on the ideas of Paulo Freire and discusses ways in which people can use digital technology to fight for freedom.



Figure 4: Example of a favela; <https://medium.com/digitalhks/policies-on-the-margins-the-case-of-technology-in-the-favelas-in-brazil-ca497f075bd5>

The favelas of Brazil are infamous for their gangs, trafficking, and violence. But that is not the whole story. The favela residents use technology in creative ways to build community and safety; and to improve their lives. Here are two examples. In the favelas are Telecenters and LAN Houses. These function not only as places where people can use computers and go online, but also as places where people can find shelter when a gun fight breaks out on the street; as places where children can hang out safely, use Facebook and play games; and as places where people can learn computer skills, write their CVs and apply for jobs online (*Ibid.*, 55-80). Moreover, some Telecenters and LAN Houses enable the favela residents to access the internet on their mobile phones. Typically, the mobile operators' service within the favelas is poor, and subscriptions to internet providers are too expensive to favela residents. So what did, e.g., Cyber LAN House Gustavo do? He 'used fifteen Linksys routers placed inside plastic

boxes on the light poles and five hundred meters of Ethernet cable to connect his LAN House' (*Ibid.*, 43). With this hack, he was able to provide affordable internet access to the favela residents.

Furthermore, the LAN House now had great Wi-Fi. This supported the ways in which favela residents typically use their mobile phones—their *xinglings*. Typically, they would switch off the mobile data (too expensive) and use Wi-Fi instead to go online (*Ibid.*, 47). Moreover, the ways in which, especially groups of, say three or four friends, use their mobile phones promotes community. One brings a mobile phone. One brings a charger. And another brings a USB cable, to connect it to the LAN House's computer. They can then hang out and socialize. Sharing the phone, sharing the computer. When I imagine this, it looks differently from a group of four people, each looking at their own mobile phone, as typically happens in many other places. From this example we can be inspired to find ways to empower disadvantaged communities, not by inventing products or services for them, but to enable them to find ways to use digital technology that supports them, in their specific circumstances.

## 5. Discussion and conclusion

Now, what can we learn from these examples? How can they help us to explore ways to enable people to design and use digital technology differently—and, more specifically: to find ways to live well together?

As noted already, there is a risk of looking at other cultures to find useful things, to grab these, and to use these to do more of the same—and *not* learn anything new (Steen 2012). This we need to prevent. Instead, and in order to do justice to the people we want to learn from, we can organize communication and collaboration and mutual learning (Steen 2022). Meanwhile, and in order to facilitate such communication and collaboration, below are several tentative conclusions, mainly meant as suggestions.

*Please note that some findings may seem obvious, on a theoretical level. On a practical level, however, it can be very challenging to design and deploy technology in ways that facilitate, e.g., freedom, equality, and conviviality—given the dominant and default emphasis on designing and using technology in order to increase control over people, to make short-term, financial profits based on exploitation, and to make processes efficient. The move from individuality to conviviality can be especially challenging indeed.*

From Ubuntu and relational ethics, we can learn to include a broad diversity of people and to enable them to participate in the design and deployment of technology—not only those who write and read English. Furthermore, such perspectives can help to draw attention to the role of power, and the need to prevent gross power differences or imbalances—where, typically, corporations and states have too much power. From the example of Māori data sovereignty and self-determination, we can learn about ownership and control. Using legal documents and legal reasoning, people can obtain ownership and control over data about their own lives. This would be a welcome alternative to the default practices of corporations and states that collect and utilize data to further their own particular objectives. The example of building a Lakota sweat lodge can help to draw attention to the materials and to the labour and energy that go into the creation and deployment of digital technology, and state-of-the-art AI systems in particular. Those materials and the labour and energy involved typically are out of our sight. They happen overseas, in mines in conflict areas and unhealthy sweatshops. Any effort that can help to deal with materials, labour and energy more carefully and responsibly is welcome. Finally, the examples of favela residents using digital technology for their empowerment can remind us of the need to make technology flexible, so that people can adopt it and modify it to fit their own ways of living and their own objectives. Furthermore, it can help to remind us to give potential or future 'users' a say in the design process (Schuler and Namioka 1993), so they can be much more than merely 'users' (Oudshoorn and Pinch 2003). Moreover, we would need to try to involve stakeholders, to speak on behalf of people affected by the technology's deployment, and on behalf of the protection and conservation of nature, where the materials and energy come from.

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