

# Technology and (Dis)Empowerment: A Call to Technologists - A Summary

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The book *Technology and (Dis)Empowerment: A Call to Technologists* was published in September 2022, and argues that the primary goal of technologists should be to bring equality and overturn hegemonic unjust social and economic structures through their inventions. Regular updates about articles and talks related to the book are being posted on this link <https://www.cse.iitd.ernet.in/~aseth/act.html>. Please drop me an email if you would like me to send an electronic version of the book text.

## 1 TECHNOLOGY AND SOCIAL SYSTEMS

The world faces large and intersecting challenges of environmental collapse, inequality, exploitation, health, and poverty, among others. Technologies, especially those emerging from information and communication tools (ICTs) are often projected as building systems to address these challenges. This includes solutions such as smart cities to improve energy efficiency, smart forests to tag individual trees and monitor their health, a plethora of digital financial services to improve economic mobility for the poor, identity solutions to improve targeting of social protection schemes for vulnerable groups, digitization of agriculture to improve the productivity of small and large farmers, digitization of health for centralized tracking of disease outbreaks, etc. Much of this technology solutionism is however known to amplify inequalities, further dispossess the poor and marginalized, erode democracy, and reduce freedoms [1–5].

Why do such technology approaches often go wrong? The answer may lie in the underlying values of the dominant neoliberal social system in which most technologies are developed today. The neoliberal system which assumes the supremacy of humans to control nature, justifies inequality as providing incentives for work while ignoring all other reasons like kindness and duties, and favours competition over cooperation and conformism over criticism, has time and again swung from crisis to crisis because it is broken [6]. Technologies built under the assumptions of this system can be no more successful than itself.

Alternative approaches such as those documented in *Pluriverse: A Post-Development Dictionary* rely instead on values of one-ness with nature, autonomy and sovereignty for communities, compassion and solidarity, care and nurture, and understanding the roots of happiness, among others [7]. These have led to a pluriverse of diverse systems that are more equal, respectful of nature, and of one another – learning and un-learning ways of being that avoid exploitation and oppression. What would technologies built under such value systems look like? What properties would they satisfy? And can the introduction of such technologies into the current dominant neoliberal system succeed in transforming it?

In my book, which I refer to as ACT, short for *A Call to Technologists*, I have tried to answer such questions by unpeeling various

layers at which a lot of technologies developed today often go wrong, suggesting ways of possibly how they can be done better, and challenges that scaling them may face in the dominant neoliberal system.

ACT draws heavily on my own experience as a practitioner with having co-founded a social enterprise in India, Gram Vaani, that provides voice-based participatory media services to rural and low-income communities to demand their rights and entitlements, share information and knowledge with one another, and empower marginalized social groups by giving them a voice [8–10]. Centred on the values of plurality and equality, we have built a federated network of such voice-based interactive platforms for local communities to encourage debate, bring diverse views, and thereby learn to respect others and understand their contexts. The platforms are used actively to discuss issues such as climate change, accountability of the government, labour rights, early marriage, property rights for women, agricultural practices, etc. The platforms are also leveraged by community activists to draw attention of various stakeholders to problems faced by marginalized groups, and to prompt quick action to address these challenges. While building and growing Gram Vaani, we learned a lot about how to build and manage technologies that can genuinely empower the poor, but also have faced significant challenges in scaling our work in the dominant neoliberal system. ACT summarizes some of these experiences and challenges, and generalizes them to an argument that the role of technology should be to overturn unjust societal structures to empower the weak and oppressed, but also that technologists will need to go the extra mile to support a transformation of the current social system into many alternatives which embrace these values. Such a transformation will enable technologists to realize their own humanism, as well as bring greater humanism in the world.

I wanted to address ACT towards technologists for several reasons. One, as an educator in a computer science department in India, to try and convince our students that they cannot simply outsource their morality to regulatory institutions or the markets, and in fact they need to actively shape these very institutions which today are leading to an exploitation of the weak. Two, as a practitioner, I realized a long time back that there is no escape from having to continuously steer technologies to avoid harmful outcomes, so any technology design and management comes with its own baggage of responsibility for the technologists involved in the process. Three, technologists are in a powerful position in the world today to affect change, and if done well they can potentially make the world a better place. I make several suggestions to technologists to collectivize and shape the internal governance of their organizations, and strengthen democracy, to bring about this change.

## 2 TECHNOLOGIES FOR TRANSFORMATION

I next try to summarize a few of the key points I have tried to make in ACT.

First, I argue that technology projects should clearly clarify their goals in terms of both ends and means. Many projects leave their end goals as ambiguous, and rather adopt generic ethics statements that focus only on the means - do no harm guardrails that the projects should follow - and this I argue is not sufficient, like a ship without a compass to point it in the right direction. It could take the ship to many different destinations, not all of which may be desirable. Having clear end goals helped provide our team at Gram Vaani with such a compass - a guiding light - to aim towards and to continuously steer our decisions to meet these goals.

Second, it is important to then outline what goals are desirable to steer the projects so that they do not amplify inequalities. I argue that technology should be meant to bring power-based equality in the world, by removing unjust hegemonic structures that perpetuate structural injustice. If this is not the goal, then technology often tends to reproduce inequalities - being wielded more easily by those who can gain access to it, or design it for their own agendas. I draw on works by researchers like Tim Unwin who argue for the same reason that technology should be designed only for the poor [2], feminist scholars like Iris Marion Young who define the purpose of justice itself as showing the path to remove the underlying processes that cause structural injustice [11], Amartya Sen who makes similar arguments in terms of freedoms [12], and Marxists like Harry Braverman or technology historians like David Noble who document the processes through which technology often serves the agendas of the powerful [13, 14].

Being able to deconstruct the ends and means stated for technology projects can help distinguish the truly empowering ones from those that can disempower the people they claim to support.

Third, I delve deeper into the need to go beyond ensuring safety and equity, or goals like power-based equality, by embedding ethics in the technology design alone. I argue that attention must be paid to ensuring that the same ethical principles are followed in the management of the technology too. I define management as what comes post-design when technology is deployed, and I argue that it is important to make this distinction between design and management because often in practice the teams of technologists playing these roles are distinct and the methods employed by them are also distinct [15]. Most complexities at the management stage arise at the socio-technical interface when technologies begin to be used by people, and invariably lead to surprises and unforeseen situations largely due to the complexity of the world that cannot be possibly modeled completely at the design stage itself. Feedback processes to learn about these gaps, humility to acknowledge them [16], and proactiveness to correct them by evolving better policies or re-designing the technology systems, become essential.

Fourth, I borrow from the concepts of appropriate technology by E.F. Schumacher and the Scandinavian methods of participatory design to emphasize that the users of a technology system should be involved in its design and management [17, 18]. Only once the users understand the technology and are able to un-blackbox it, can they steer the technology from avoiding harms and to neatly handle exceptions in their diverse local contexts. This has always been a

key principle for us at Gram Vaani, and led us to develop the hybrid online-offline Mobile Vaani model - where the online technology is governed by an offline team of community volunteers [19]. It is the volunteers who are able to ensure a close embedding of Mobile Vaani within the communities, convey editorial preferences for the content carried on their platform, and ensure that all operations adhere to the ethical principles of inclusion and empowerment of the weak and oppressed. We have always endeavoured to get to a point where the technology simply becomes an infrastructure, and community institutions such as the Mobile Vaani volunteer clubs do the rest.

Fifth, I discuss what might prevent technologists from following these principles above. I delve in detail into the current structures of the market and state that often compromise these values, either by design or by sidelining these principles in favour of other objectives. Profit-seeking goals of corporations, or social control goals of the state, and often interlocks between the two, infiltrate multiple spheres that lead to fallouts from technology. They infiltrate organizational culture by creating role-based segregation and moral buffers for various teams. They influence the incentive structures for technologists by emphasizing profit-maximizing metrics rather than impact-maximizing or harm-avoiding metrics. And in the current context of increasing digitization led by centralized architectures they inevitably lead to surveillance based models which at worst are designed to disempower individual and group freedom [20], or at best are highly error prone and often not scaffolded by fault-managing systems like for grievance redressal.

This is why the book is really a call to technologists to realize their position of strength in today's world and take steps to ensure that their labour is indeed able to lead to empowering effects for the weak. This is not just a hope. I rely here on Marx's concept of humanism. For Marx, social relationships arise from relations of production and consumption, and positive social relationships are those that create genuine use-value, without coercion or instrumental use of others [21]. Technologists are workers too, and I believe we are driven by these same desires of reclaiming our humanism. I strongly believe that sooner or later technologists will indeed see through the fog that often surrounds them and blunts their passion of taking deliberate action to bring about social good and only that through their labour. Collectives of technologists that can change their organizations from within, public spheres that connect technologists with end-users of their technologies, and new economic structures such as the commons, may hold the key to the way forward.

Finally, I argue that such a value-driven ethos for technologists can exist only within the morally grounded rules of behavior that democracy tries to create for society. Pluralism to listen to diverse voices, learn from them, and change one's preferences based on these insights, is what drives democracy. For their own humanism, technologists have a role here too to build meta-social good infrastructures that strengthen democracy through pluralism and structures of accountability and transparency. I argue that participatory media systems such as those created by Gram Vaani, and the community media ecosystem in general, are crucial for this purpose. These systems enable deliberation and learning and see the media as a tool in the hands of activists and communities to increase freedoms and democracy, and not as a mechanism for

propaganda wielded by the powerful. It is such federated infrastructures that can uphold pluriversal values and eventually facilitate the wider society to adopt power-based equality as a core value that its technologies should adopt [22], and to regain social control over these technologies to adhere to such values.

### 3 THE WORLD WE WANT TO SEE

Many revolutions in the technology ecosystem are already happening on these lines and breadcrumbs do exist that could pave the path for technologies to transform the world. The growth of free and opensource systems [23], for example, has demonstrated that rapid innovation can emerge through shared knowledge and resources without any expectations of material gain. Such materialistic incentives of wealth accumulation secured through private ownership of the intellectual property or assets are not the only incentives that motivate people to innovate. Rather, incentives of solidarity to work in cooperation with others, or the imperative for social good as a key characteristic of humanism, are strong motivations in themselves. To scale these projects, methods such as platform cooperatives that acquire the necessary material means of production from the external capitalist world [24], but utilize them internally in a cooperative manner to produce goods that are needed by other members of the cooperative, can be a means to build a commons-based economy and support various commons-based projects. As the commons grow and build their own economy centred on labour, they may not need material assets from the external world anymore and can in fact start producing goods for the rest of the world to bring more and more of it into its organizational fold. Appropriate technologies fit naturally into such commons-based models by reducing dependency on large external technology providers by building the necessary skills internally, as well as the institutional structures to manage the technologies [17]. Further, such revolutions may not always happen outside of the current systems as alternatives – the collectivization of technologists within their own organizations has repeatedly proven the possibilities that technologists can re-possess the ground for decision making to design and manage technologies more responsibly and with the values of equality and plurality [25].

Technologists should therefore not take any social structure as a given. A clarity of purpose, the humility to continuously correct course to steer their innovations, a commitment to values of equality and plurality, and gaining political power through collective means to exercise their judgement, can help technologists counter the dominant paradigms that produce disempowering technologies today. Technologists should aim to architect a new system, and not remain like a bee that works hard meticulously and with dedication but within the specifications laid down by existing systems, thereby preventing a departure from the status quo.

“A spider conducts operations that resemble those of a weaver, and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality.” - Karl Marx, Capital, Volume 1.

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