

TECHNOLOGY AND (DIS)EMPOWERMENT

A CALL TO TECHNOLOGISTS

AADITESHWAR SETH



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Technology and (Dis)Empowerment: A Call to Technologists

AADITESHWAR SETH

Indian Institute of Technology Delhi and

Gram Vaani Community Media



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INVESTOR IN PEOPLE

Endorsements

If you want to use information technology to make a positive difference in the world, then you need to read this book. Aadi Seth combines careful analysis of the interplay between technology design and socio-political processes with a wealth of practical experience to identify key challenges that efforts around IT for Good will always have to face.

– *Andy Dearden: Professor (Emeritus) Interactive Systems Design, Sheffield Hallam University*

Given the enormous influence and control of technologies over our lives, an ethical enquiry into their development, use and ownership is of vital importance. This book provides an incisive account of how state and market-led technologies have exacerbated socio-economic and environmental injustice, and conversely, how technologies based on the ethics of plurality, diversity, power-based equality, freedom and participation can help the movement towards justice and sustainability. Seth's call is not for rejecting technology, but for paradigm shifts towards more socially engaged technology and technologists.

– *Ashish Kothari: Kalpavriksh, Vikalp Sangam and Global Tapestry of Alternatives*

Professor Aaditeshwar Seth has spent years developing technologies through Gram Vaani, a social enterprise delivering a voice-based social media platform in northern India. Based on wide-ranging scholarship and hard-won experience, he counters market values with an approach to social impact that takes ethics and socio-technical theories seriously. If you're a technologist hoping to contribute to social good, this book will keep you honest!

– *Kentaro Toyama: Professor, School of Information, University of Michigan*

What comes out most importantly in the text is Aadi's two-fold firm conviction – one, that a technological community committed towards social good is indeed possible; and two, that dividing lines across technologists and ordinary people can be bridged, and this is what he has argued for. I hope that the technological community engages with these arguments.

– *Rahul Varman: Professor, Department of Industrial & Management Engineering, Indian Institute of Technology Kanpur*

For Gram Vaani, Stuti, and Iram.

Contents

About the Author	<i>viii</i>
Foreword	<i>ix</i>
Preface	<i>xi</i>
Acknowledgements	<i>xiii</i>
Chapter 1 Introduction	<i>1</i>
Chapter 2 Contemporary Problems	<i>9</i>
Chapter 3 Understanding Social Good	<i>33</i>
Chapter 4 Ethics-based Foundations	<i>55</i>
Chapter 5 The Limits of Design	<i>83</i>
Chapter 6 Ensuring Power-based Equality	<i>103</i>
Chapter 7 Constraining Structures and Ideologies	<i>131</i>
Chapter 8 Overcoming Paradigms That Disempower	<i>145</i>
Chapter 9 Societal Participation	<i>161</i>
Chapter 10 Conclusions	<i>183</i>
Chapter 11 Epilogue	<i>187</i>
Bibliography	<i>193</i>
Index	<i>219</i>

About the Author

Aaditeshwar Seth is an Associate Professor in the Department of Computer Science and Engineering at the Indian Institute of Technology Delhi, and co-founder of the social technology enterprise Gram Vaani. He is passionate about building appropriate technologies and participatory tools that can empower marginalized and oppressed communities to collectivize and voice themselves. Several million people have directly touched these technology platforms. Over 150 development organizations worldwide have drawn upon the work done by Aaditeshwar's team at Gram Vaani and his students from the ACT4D (Appropriate Computing Technologies for Development) research group at IIT Delhi. Many elements of their work have also been adopted by government departments and have influenced the use of technologies for development in the social sector. He is a recipient of the ACM SIGCHI Social Impact Award for 2022.

Foreword

The use of digital technologies has transformed much in the world over the last three decades. However, has it made the world better? Has it reduced or increased inequalities? Have the world's poorest and most marginalized really benefitted? This wide-ranging and fascinating book seeks to address these and other crucial questions about the role of digital technologies in society, and aims to suggest ways through which positive changes can be implemented to make the uses of these technologies fairer and more equal.

The book is rare in the ways through which it crosses boundaries: written by a computer scientist it explores the relevance of social and political-economic theory; crafted by an Indian, it draws heavily on European literature. Much of the theoretical framing is thus situated within Aaditeshwar Seth's explorations of the works of European authors such as Marx, Foucault, Castells, Latour, and Gramsci; his basic demand for a paradigm shift in thinking about these issues likewise draws heavily on the USA's Kuhn's notion of scientific revolutions. His book is also enriched through a combination of this conceptual research with the experiential evidence drawn from his own practical engagement on the ground.

The potential agents of change for Seth are the technologists themselves. These are for him the engineers, designers, researchers, and managers involved in the digital technology sector. The book is intended to provide them all with a framework that can help change their practices – if only they will listen. He takes the reader on a journey that begins with understanding the importance of social goods underlain by an ethical foundation embedded within the traditions of humanism. The book then explores why traditional design processes have their limitations, and the need to change existing power structures so that they can instead be shaped to create more equal societies. He hopes that no technologist would want their labour to lead to harmful outcomes, and thus explores the structures and ideologies that limit their potential to design and implement projects that can be considered to be socially good.

This is not just a reflective and interpretative framework; unlike so many other recent academic works in the field it also has a profoundly normative stance. It suggests what should be rather than just what is. Indeed, the word 'should' is mentioned 178 times in the book's 220 pages! In a challenging account of ways through which disempowering 'paradigms' can be overcome, he suggests 17 questions that all technologists could think about if they really do wish to bring about 'good' change (pp. 158–159). These might usefully be stuck on office walls (in the real world) or embedded in software and posted on social media used by

technologists (in the virtual world) to serve as reminders of the role that they as individuals can indeed play in making the world a better place.

Throughout, the book draws on specific examples and case studies, mainly drawn from Seth's own experiences. At various points in the book, he thus highlights the many challenges associated with the introduction of the Aadhaar unique identity system in India. He also draws extensively on the work that he has led in developing Mobile Vaani (supported mainly through Gram Vaani of which he is a Co-Founder), which is a federated network of voice-based participatory media platforms intended for less-literate users to share and discuss common concerns and solutions with each other.

In short, this book deserves to be widely read. It combines the author's passion and enthusiasm for the potentials of digital tech to be used wisely to help create better and more equal societies, with his understanding and realization of the many challenges that have to date prevented this from happening. Technologists across the world, and especially in India, are well placed to learn from and work with him, to begin to craft that better society.

Tim Unwin
26 January 2022

Tim Unwin CMG is Emeritus Professor of Geography and the founding Chairholder (since 2007) of the UNESCO Chair in ICT4D at Royal Holloway, University of London. He was formerly Secretary General of the Commonwealth Telecommunications Organisation (2011-2015) and Chair of the Commonwealth Scholarship Commission (2009-2014). His books include *Reclaiming Information and Communication Technologies for Development* (OUP, 2017) and his edited *Information and Communication Technology for Development* (CUP, 2009).

Preface

This book has emerged from confronting what appears to be a prevailing absurdity in the world today. We are surrounded by social problems of poverty, inequality, the environment, and many others, yet technology is scarcely deployed to directly address these problems. Technologists are more excited with getting advertisement predictions correct, or creating more addictive technologies, or improving technology infrastructures with little reflection on the uses to which the infrastructures are applied, and they assume that somehow magically these innovations will make the world a better place. Many of these innovations may however be entirely unnecessary, or may even harm users and society in general. Yet the world seems to be caught in a paradigm paralysis of continuous technology innovation without a moral compass to define worthwhile purposes of the innovations. A marginal category has indeed emerged of technologies for *social good*, but this space has remained small so far even though social good should have been the primary goal of technologies from the start. Even within this marginal category, although a growing brigade of technologists seem to be stepping in to address various prevailing social problems, they often get it wrong and create technologies that disempower the people they were meant to support. Yet the persistence of many such do-gooders remains unshaken. Voices and systems that would be truly empowering for people are sidelined in the presence of an orchestrated hype of buzzwords such as digitization, artificial intelligence, Internet of Things, smart cities, digital financial inclusion, etc., and their associated technologies are often deployed without contextual considerations which invariably worsens the entrenched structures of inequality.

What explains this absurdity of the world, of society, of technologists? How do well-meaning technologists end up building systems that harm people? Why does it always seem like an uphill battle to do what clearly seems to be the right thing? What should change so that genuine social good which avoids and prevents exploitation and disempowerment becomes the unanimous goal for technologists and society to pursue? I have been trying to walk this path for nearly a decade and a half of using technology to address social problems, and these questions have come up time and again. They come up in teaching where I feel we are failing to nurture a desire among students to use their skills for the wider benefit of society and to critically question the impact that their work has on society. They come up with our work at Gram Vaani, which has been incredibly difficult to scale in the presence of hype and problems created by other technologies, and has also humbled us with the complexity of bringing positive change in the lives of people. The

questions also come up in professional research circles where research communities such as Information and Communication Technologies for Development (ICTD) that have drawn attention to problems created by technology have continued to remain small, while mainstream technology research continues vigorously to innovate systems with little interest in governing how these innovations get used. In my attempt to find answers to these questions in books, papers, and from my own experiences, I would not say that I have been especially successful, but I do feel much better situated now to understand the absurd ways of the world and I am convinced of two things.

First, overcoming these absurdities requires a paradigm¹ shift in how technologies are designed and managed. Technology design and management should be done with social good as the primary goal. The current paradigm of innovation which is driven by markets instead of morals, focussed on narrow values such as cost and time efficiency, is inadequate to solve important social problems. Second, to bring about a paradigm shift towards thinking of technology as a tool for social good requires the technologists to change themselves, that is, embrace a change from within – in their ethos and ways of working and thinking, rather than being guided by external regulations or value-less institutions like markets. This is why this book is addressed to technologists – the people who design, build, manage, and research technologies – to understand the current paradigm where technology often disempowers the weak, discover new rules and methods that an alternate paradigm of empowerment and equality should adopt, and build a strategy to bring about this paradigm shift. My hope is that these thoughts can be useful for technologists who, like me, may be feeling just as perplexed in seeing their labour leading to outcomes that at heart feel wrong, and join hands in charting a road where technologies are used appropriately and unanimously for social good.

This book is not a criticism of technology. Technology has indeed led to significant progress in building a healthier, empathetic, and more connected world. My attempt, however, is to understand what factors shape the outcomes that arise from technology, and how can they be controlled by technologists and society, so that disempowering effects can be avoided. It is not a recipe through which technologists can always align their work with social good, but some ideas and pathways outlined here may help us together discover better ways to move forward.

¹I use the word *paradigm* in the same sense as Thomas Kuhn introduced in *The Structure of Scientific Revolutions*, as the dominant techniques, values, rules, and theories, which identify a particular framework in which science or technology is developed.

Acknowledgements

This is a book about values of technologists, and it would not have been possible without the people surrounding me who have shaped and informed these values for technologists like myself.

I want to thank the incredible Gram Vaani team for nurturing a space that allowed us to learn, make mistakes, and emerge stronger with the bold vision of empowering marginalized groups through technology. In no particular order, this is all due to the inexhaustible energy of Vijay Sai Pratap for taking over the reins of Gram Vaani which gave me space to reflect on our work and to put this book together; Sayonee Chatterjee and Sultan Ahmed who have always reminded us of the ground realities to spot gaps that might exist in our work and to overcome them; Kapil Dadheech and Rachit Pandey for leading the development and maintenance of the technology infrastructure that powers our work; Rohit Singh for patiently identifying synergies of our work one-by-one with literally hundreds of partners; Paramita Panjal for being our team's internal moral force reminding us to first be empathetic with one another before we can build more empathy in the world; Rohan Katepallewar for continuously finding new applications of our work and spawning exciting novel directions; Dibyendu Talukder and Praveen Kumar for setting high standards for our technology capabilities along with team members Ankit Kumar, Sohan Madhana, Aman Verma, and Prince; Rohit Jain, Vinod Maurya, Sujeet Kumar Choubey, Vishnu S, and Shiv Prakash Maurya for making sure that our technology services keep chugging along; Deepak Kumar and Rajeshwari Tripathi for patiently working through one of our most complex projects in Bihar; Brejesh Dua, Prashant Choubey, Matiuur Rahman, Subodh Patra, and Ramjan Ali for maintaining the quality of our projects; Lamuel Enoch, Bruno Richardson, and Eswaramoorthy for independently managing our work in Tamil Nadu; Sangeeta Saini and Saraswati Kumari for being the strongest and longest standing pillars of our content team, committed towards upholding the quality of our work along with their team members Vasanti Kumari, Ritu Singh, Preety Kumari, Madhubala Pandey, Shweta Sharma, Suresh Kumar, Dinesh Rautela, Akash Anand, Mohona Dasgupta, Sunidhi Raj, Sonali Samal, Anjali Kumari, Shilpee Minz, Deepak Jaiswal, Anand Kumar, Anika Parween, Aman Gope, Akhilesh Kumar, Naweed Ali, Nasia Raunaque, Sumitra Kumari, Rohit Paswan, Rishikant Pandey, Aman Anurag, Rajeev Ranjan, and Juhi Mishra; Amrita Ojha, Ashok Sharma, Rafi Ahmad Siddiqi, Santosh Kumar, Amarjeet Kumar, Deepak Kumar, Zulfaquar Ali, Deoraj Pankaj, Mehtab Alam, and Sanjay Kumar for being our eyes and ears on the ground and our faces to

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The Gram Vaani team extends to its hundreds of volunteers on the ground who proved their mettle especially during the COVID-19 pandemic by supporting community members to get access to food, cash, medical attention, transportation, social entitlements, and basic human dignity. It is through our volunteers that Mobile Vaani has upheld its standards of equality, humility, good journalism, and service.

All of Gram Vaani's work of course would not have been possible without support from numerous donors, investors, and partners, and the trust they placed in us. The list is really too long for me to mention all the people who in small and big ways have contributed towards it, but I specifically want to mention a few names who have been instrumental in shaping our work and vision: Anuragini Nagar, Arti Jaiman, Arvind Singhal, Ashok Shukla, C.S. Sharma, Daphne Luong, Harlan Mandel, Helen Hua Wang, the Indian Angel Network, Jean Drèze, Jessica Mayberry, the Knight Foundation, Lisa Braden-Harder, Mamta Kohli, the Media Development Investment Fund, Mira Johri, Nivedita Narain, Poonam Muttreja, Rajendran Narayanan, Rajiv Khandelwal, Rakshita Swamy, Reetika Khera, Rupsa Malik, Sajan Veniyoor, Sasa Vucinic, Sashwati Banerjee, Soham Mazumdar, Suhel Bidani, and Syed Karim.

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Inspiration from role models is what keeps us going. Over the years, the ICTD community became my home and provided no shortage of motivation. In particular, I want to thank Bill Thies, Richard Anderson, Neil Patel, and Rikin Gandhi for their inspirational innovations and persistence; Lakshminarayanan Subramanian, Kentaro Toyama, Neha Kumar, and Melissa Ho for their commitment to holding the community together; Revi Sterling for pushing these values into

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