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Universal Access and Its Asymmetries

The Untold Story of the Last 200 Years

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CONCLUSION

In this final chapter, we have organized the discussion in two parts: summative and reflective. In the summative part—the first two sections—we bring together key findings from system-specific chapters into overarching frames. In the reflective part—the last two sections—we take a final look at the project as a whole and delineate its big takeaways.

In the first section, we focus on the gains and travails identified in the system-specific chapters. We provide comprehensive tables for individual's gains, individual's travails, system's gains, and system's travails, which draw together the gains and travails from the tables in the system-specific chapters. In these tables, we also note whether each specific gain and travail was discoursed.¹ In the accompanying commentary, we focus on gains and travails that were either not discoursed at all or not fully discoursed.

In the second section, we focus on blind spots and the utility of the recentering-on-reversal strategy in various contexts. We have created a comprehensive table that brings together findings from the system-specific chapters on the nature of each blind spot identified, the reasons for its occurrence, the utility of recentering-on-reversal strategy in the context it occurred, and our takeaway for future analysis of other systems. In the accompanying commentary, we synthesize the individual findings.

In the last two sections, we offer our final reflections on the project and discuss its potential contribution to universal access debates beyond the American shores.

GAINS AND TRAVAILS

The tables provided in this section are essentially quadrants of the gains and travails typology, as shown in figure 9.1.

In these tables, for each gain and travail, in the last column, we note whether it was discoursed. We use the following notations: yes, mostly, partly, and no. If a gain or travail was discoursed, we do not discuss it in greater depth, as we seek to take the discourse beyond what is said to what is *not* said. Accordingly, in the following discussion, we focus only on the gains and travails that were not discoursed at all or not fully discoursed (i.e., those with the notations “no,” “partly,” or “mostly”).

INDIVIDUAL’S GAINS

As we see in table 9.1, across all seven systems, almost all the gains to the individual were discussed. We find only two exceptions, both of which were partly discussed: education’s social benefits and public libraries’ aid to the homeless. In the case of the former, the social benefits of education were extensively discussed, but subsequent gains, such as women’s empowerment, were not considered. Similarly, in the case of the latter, the social benefits of the library were extensively discussed, but specific future gains, such as aid to the homeless, were not part of the discourse. Both speak to the nature of such systems. On the one hand, they create

	Gains	Travails
Individual	Table 9.1	Table 9.2
System	Table 9.3	Table 9.4

9.1 Gains and travails, quadrants and tables.

Table 9.1 Individual's gains

	Gains to the individual	Discoursed?
Postal system	Convenience of home delivery	Yes
	Increased access to crop prices, weather reports, educational and other information resources	Yes
	Improved road connectivity	Yes
	Increased value of land	Yes
Education	Increased earning power	Yes
	Skills to function in the world beyond one's immediate environment	Yes
	Social benefits such as improved sanitary practices, family planning, and women's empowerment	Mostly
Electrification	Improved quality of life	Yes
	Increased productivity on farms	Yes
Telephony	Reduced barriers of distance for social communications	Yes
	Reduced barriers of distance for business communications	Yes
	Enables calls for emergency assistance	Yes
Public libraries	Free access to books and other information sources	Yes
	Librarians often going the extra mile to provide information on government agencies and community organizations that could be of help	Yes
	Libraries as communal spaces	Yes
	Libraries helping the homeless	No
Broadcasting	Integration with global circuits of information flows—news, crop prices, weather reports, etc.	Yes
	Access to professionally produced entertainment of a wide range	Yes
	Reduction in rural isolation	Yes
Internet	Fuller participation in the social, economic, and democratic processes of a technologically advanced society	Yes
	Opportunities to reduce costs for transportation, entertainment, and services	Yes
	Opportunities to engage in new modalities of sharing, as well as creating and disseminating content	Yes

capabilities that the powers that be desire, motivating them to marshal societal resources for their development. On the other hand, once created, such systems' capabilities can be used for other purposes by the establishment as well as other actors, often in subversive ways, including by those on the establishment's payroll.

INDIVIDUAL'S TRAVAILS

In table 9.2, we see that travails to the individual were not fully discussed in the following cases: the postal system, electrification, telephony, and the internet. We consider the first three of these systems together and the fourth one separately, since they bring into play different issues, as we will see later in this chapter.

Subtle Recontextualization In the cases of the postal system, electrification, and telephony, the nonconsidered travails were a product of a subtle recontextualization of the individual's everyday life—over time, incremental and gradual changes amassed into a totalizing transformation. As Rural Free Delivery (RFD) expanded, the postal service secured address changes on one rural road, and then another, and eventually a nationwide, comprehensive, grid-based addressing system was in place, refashioning the local environments of rural communities, erasing local idiosyncrasies, and enabling extralocal flows. Electrification eased the labor of farming, vegetable and fruit processing, canning, and such undertakings on one farm, and then another, and another, but the cumulatively increased farm productivity also reduced the need for labor, prompting more migration to cities. Telephony first connected farmers to their neighbors, and then to businesses in nearby towns, and eventually to the world at large, engendering asymmetrical, extralocal relationships that eroded local autonomy. All these changes were subtle and gradual and very consequential in the long term, as they recontextualized the individual's rural life—ironically so, as the development of these systems was motivated by their proponents' desire to preserve rural communities.

Discounted Travails In the case of the internet, much has been said about online fraud, loss of privacy, traces and records created by one's social media activities, and the blurring of the public-private boundary. However, from

Table 9.2 Individual's travails

	Travails to the Individual	Discoursed?
Postal system	Exposure of local small businesses to competition from urban-based corporations	Yes
	System's imperative to install standardized mailboxes, assume snow removal responsibilities, etc.	Yes
	Refashioned local environment with the imposition of a grid-based addressing system	No
Education	State's encroachment on parental control	Yes
	Secularized education that does not offend anybody	Yes
	Centralization and bureaucratization of education	Yes
	Prioritization of needs of state and economy over idiosyncratic flourishing of children	Yes
Electrification	Increased productivity on farms, reducing the need for labor, prompting more migration to urban areas	No
Telephony	Dividends of connectivity are dependent on power differentials between the parties connected	No
	Consequences of scaling-up of telephony from area networks to a global one were not understood; scaled-up networks engender asymmetrical extralocal relationships	
Public Libraries	Part of the array of disciplinary institutions that seek to mold the individual	Yes
	Alienating environment in regard to class sensibilities	Yes
	Having to pay taxes whether or not one considers the library to be a public good	Yes
Broadcasting	Encroachment of particularistic local culture by universalistic cosmopolitan culture of the metropolises	Yes
	Erosion of locally organized cultural activities whose value primarily lay not in the final product but the process of creation itself, which helped build communal bonds	Yes
Internet	Cost of equipment and service	Yes
	Hazards of online fraud	Partly
	Loss of privacy; marginalized losing one of their few advantages—diffused visibility	Partly
	Social media activities creating a record	Partly
	Blurring of public-private boundary	Partly

our standpoint, it is important to note that these travails are absent in universal access discourse, which has focused on the costs of connectivity, and lately also on the skills needed to make effective use of connectivity after it is provisioned. If these travails hold weight for the population at large, why are they discounted for disadvantaged persons receiving subsidized access? It is as if connectivity trumps everything else. Should it? We will revisit this question a little later in this chapter.

SYSTEM'S GAINS

As we see in table 9.3, almost all the gains to the system were discussed, often in a general way. We note a number of them as being mostly discussed because they were not fully spelled out. For the enhanced security capabilities of the state, as with the postal system and the internet, this is very understandable given the imperatives of security. In other cases, for a complete understanding of universal access, a fuller articulation was called for. For instance, at one point, the Rural Electrification Administration (REA) threatened to go beyond power distribution to power generation in order to secure cooperation from private utilities, which also sold power to rural cooperatives. Clearly, the REA knew that the sale of power was a gain to the private utilities and used it as leverage. Yet it did not fully articulate it as such in rural electrification discourse, which remained skewed toward individual's gains and system's travails. In a similar vein, the discourse on public hygiene could have gone beyond the humanitarian to the economic payoff—cost savings and productivity gains; the discourse on telephony beyond gains to independents from the latent demand that their networks revealed to the entire economy; and the discourse on broadcasting beyond the expanded reach of advertising to tutoring of consumption on an industrial scale to better align production, distribution, and demand. Finally, in the service of the candor that we seek, we should acknowledge that the digital divide is now an industry involving billions of dollars of subsidy flows and millions of dollars of research and implementation grants, as well as thousands of employees of equipment and service providers, funding agencies, nonprofits, consultancies, and academic and nonacademic researchers.

Table 9.3 System's gains

	Gains to the System	Discoursed?
Postal system	Increased sale of newspapers and periodicals	Yes
	Increased reach of advertisers	Yes
	Increased business for mail-order companies	Yes
	Enhanced administrative and security capabilities of the state	Mostly
Education	Educated workforce	Yes
	Increased capacity to create and staff complex systems in industry, military, medicine, etc.	Yes
	Savings such as in healthcare with improved personal hygiene	Mostly
	Assimilation of immigrants	Yes
Electrification	Utilities supplying wholesale power to rural electricity cooperatives	Mostly
	Electrical appliance manufacturers profiting from expansion of markets for their products	Yes
Telephony	Revelation of untapped latent demand in rural areas it had failed to fathom	Mostly
	Quickened pace of technological advance	Mostly
Public libraries	Libraries complementing the school system	Yes
	Libraries providing opportunities for the development of information technology skills, which are important for today's economy	Mostly
	Libraries helping to dispel discontent by reducing ignorance and contain it by providing harmless entertainment	Yes
Broadcasting	Tighter integration of rural areas into the metropolitan economy	Yes
	Expanded markets for corporations	Yes
	Tutoring of consumption on an industrial scale	Mostly
Internet	The state more efficiently delivering services and also surveilling	Mostly
	Private companies leveraging an infrastructure created with public funding to make profits	Mostly
	Funding of a digital divide "industry"—equipment and service providers, funding agencies, nonprofits, consultancies, academic and nonacademic researchers	No

SYSTEM'S TRAVAILS

In table 9.4, we see that all the travails to the system were discussed in all the seven cases, albeit not in our analytical terms.

Tables 9.1 through 9.4 are deliberately constructed artifacts. We have slotted in them gains and travails that we identified in the course of our research, seeking to be as exhaustive as possible. In actuality, though, these gains and travails were not discussed in this manner, let alone in one forum. In these tables, we brought together a forced gathering of the sorts

Table 9.4 System's travails

	Travails to the System	Discoursed?
Postal system	Conflict between postal service and publishers	Yes
Education	Unavoidable trade-offs of the sort that give rise to unhappy constituencies	Yes
	Expansionary tendency—there are always constituencies pushing for upping the level of universal education to higher grades in school, to community college, to four-year college	Yes
Electrification	Tumult generated by strenuous and sustained political pushback by those opposed to government's involvement in electrification	Yes
Telephony	Caught off guard by the emergence of competition in rural areas	Yes
	Access issues attracted federal scrutiny	Yes
Public libraries	Only about half the population visiting a public library at least once a year	Yes
	A sizable section of the population (about one-fifth) never visiting a public library	Yes
Broadcasting	Initial difficulties in setting up the system for regulation of broadcasting	Yes
Internet	The institutions, both public and private, more vulnerable to hackers	Yes
	The power grid and other infrastructures more vulnerable to hackers	Yes
	Greater possibility of foreign interference in domestic affairs	Yes

of expected benefits and concerns that various stakeholders have voiced here and there. On the other hand, for our part, in the future, we hope that they will stimulate conversations that put all the gains and travails on the proverbial table, help us develop a fuller understanding of universal access, and create grounds for formulating and implementing thought-through policies.

BLIND SPOTS AND RECENTERING-ON-REVERSAL

As we have seen in the preceding chapters of this book, recentering-on-reversal is not a sure-fire strategy. On the contrary, it is a strategy for developing exploratory probes that prompt us to go beyond the articulated and tease out the unarticulated. Its payoffs vary (see table 9.5).

In our cases, it was particularly helpful with the individual's travails that are subtle, prompting us to look for them and tease them out, as in the chapters on education and the internet. In the case of education, since the various stakeholders took the social system to be a given, the task of education was reduced to molding the individual to fit in. They explained away the consequent molding pressures (e.g., compulsory attendance laws, time discipline of schedules) as being in the individual's best interest. Looked at another way, though, they are the individual's travails, and, in this light, they energize the question: should children be molded to enhance the well-being of society, or should society change to enhance the flourishing of children? In the case of the internet, connectivity is taken to be inherently good, and people who willfully choose not to connect are taken to be an oddity or our "difficult bit." They are pathologized—something is wrong with them. Recentering-on-reversal prompts us to consider the converse—something is wrong with connectivity. Further, it prompts us to consider these very people as our window for a fuller understanding of individual's travails.

In contrast, the stakeholders tend to be relatively more aware of the system's gains. In the case of RFD, right from the beginning, rural small businesses raised the alarm against expanding the reach of urban mail-order companies. The farmers, however, were not responsive because, on the one hand, lower prices of mail-order companies benefited them, and, on the other, they begrudged rural businesses for overcharging them in

Table 9.5 Blind spots and recentering-on-reversal

	What Was the Blind Spot?	Why Did the Blind Spot Occur?	Could Recentering-on-Reversal help?	Takeaway
Postal system	Proponents of RFD sought the preservation of rural communities. Instead, it enabled information and material flows that censored them.	Preoccupation with the farmer's gains distorted the field of vision.	Decentering the farmer could have opened up a new field of vision, wherein urban interests are bigger winners.	The gains and travails of the individual and the system are not discrete but relational. Therefore, one should not only identify gains and travails with recentering-on-reversal, but also gauge their relative scales.
Education	The individual's travails were overlooked.	The nature of the social system was taken to be a given—the individual had to be tutored to fit in.	By drawing attention to the individual's travails, it could have energized the question: should children be molded to enhance the well-being of the society, or should the society change to enhance the flourishing of children?	Unarticulated travails ease the implementation of the dominant model.
Electrification	Utilities took rural electrification to be economically unviable.	Utilities saw rural networks as linear extensions of their urban networks.	The proponents decentered the urban areas and centered rural communities. In this changed mindscape, lateral connections among rural communities gained salience—the area coverage strategy.	Recentering-on-reversal can help develop solutions customized for the conditions of the periphery.

	<p>Proponents focused solely on the gains of rural electrification, dreaming of decentralizing industry to rural areas and stemming depopulation.</p>	<p>Proponents were optimistically biased toward local solutions enabled by electrification when they needed a global view with its attendant implications—both positive and negative.</p>	<p>The proponents' view was limited to the end nodes—sockets that would power local solutions. Center-staging of transmission lines would have opened another view—tighter integration with the metropolitan economy.</p>	<p>It is prudent to undertake recentering-on-reversal on one's own perspective when adversaries do not do so.</p>
<p>Telephony</p>	<p>Bell Telephone Company focused on population density and believed that rural demand could not justify investment in rural telephony.</p>	<p>Bell did not understand the intensity of demand; rural homesteads are not just places of residence, but also of production.</p>	<p>Farmers undertook recentering-on-reversal with actions on the ground—they erected jerry-rigged networks that connected neighbors.</p>	<p>Recentering-on-reversal can be a product of actions on the ground alone—without a deliberate conceptual strategy. A difficult bit on the margins is not an oddity for those situated on the margins—it is their everyday reality. When empowered, these people will undertake recentering-on-reversal on their own.</p>
	<p>Independents, once themselves oddities at the margins, later scoffed at an oddity at their own margins—barbwire-based lines.</p>	<p>Independents fell into the trap that centers typically fall into when viewing their margins.</p>	<p>Independents' dismissal of barbwire-based lines did not attitude on them. But this as we never know which oddity could be opportune for recentering-on-reversal—another entity could capitalize on it.</p>	<p>A position of centrality engenders a proclivity to be dismissive of the oddities on the margins. We need to guard against this and proactively counteract it.</p>

(continued)

Table 9.5 (continued)

	What Was the Blind Spot?	Why Did the Blind Spot Occur?	Could Recentering-on-Reversal help?	Takeaway
Public libraries	Proponents of public libraries sought to bring everyone, especially the disadvantaged, into the fold. Part of the population (one-fifth presently) never uses a public library at all.	Scholars point to middle-class sensibilities, teacher tonality, and other alienating factors.	This domain is ripe for recentering-on-reversal. It has a clear generative metaphor (teacher-student relationship) and a persisting difficult bit at the margins—the part of the population that never uses a public library.	Acknowledgment of the difficult bit (step 1 in a three-step process; see figure 1.2)—the existence of the never-users—does not necessarily lead to subsequent steps. Recentering-on-reversal is not purely a seminar exercise. (Since we know little about never-users, we need to develop a deeper understanding of who they are and what their perspective is before we can engage in recentering-on-reversal.)
Broadcasting	Developers of radio—governments and corporations—did not understand broadcasting.	Developers saw radio as a wireless extension of the telegraph—that is, the wireless telegraph. In their eyes, radio waves' tendency to spread was a nuisance.	Developers' field of vision was limited by the telegraph metaphor. Amateurs were drawn to developers' difficult bit—the tendency of radio waves to spread. They started playing music over their jerry-rigged transmitters for fun.	Recentering-on-reversal can occur without a deliberate decision to do so.

	<p>The belief that the problem of interference made the formation of a unitary federal system unavoidable.</p>	<p>The development of broadcasting regulation was based on the unquestioned assumption that for the formation of a broadcasting system, all interference had to be removed.</p>	<p>Decentering of interference as the central organizing issue opens up new possibilities. Such systems are messier and accommodate local idiosyncrasies.</p>	<p>Recentring-on-reversal opens up unquestioned assumptions for interrogation.</p>
<p>Internet</p>	<p>Connection is taken to be inherently good, and, conversely, disconnection is inherently bad.</p>	<p>The travails of connection are not considered.</p>	<p>Recentring on people who can afford to connect but willfully choose not to could provide keen insights into the travails of connectivity.</p>	<p>An understanding of the individual's travails could have prompted the development of more thought-out systems.</p>

the past. From the standpoint of preserving their communities, both lost as the information and material flows enabled by RFD citified them. In the larger debate on RFD, while the system's gain was considered, the *relative* scale of the individual's and system's gains was not. On the other hand, in the case of rural electrification, the system's gain was not given due consideration. While the proponents dreamed of decentralization of industry to rural areas, electrification tightened the integration with the metropolitan economy, and, furthermore, facilitated depopulation by reducing the need for rural labor. These blind spots occurred because the proponents were animated by and focused on the individual's gains—mail for the farmer, electricity for the farmer. Decentering of the individual's gains would have allowed a better understanding of the *relative* scale of the system's gains and its implications for rural communities, but not ensured it.

Our cases also provide insights into the different ways in which recentering-on-reversal could occur. In the case of electrification, it began as a paper-and-pencil exercise. Socially conscious engineers, eager to find a way of creating economically self-sustaining rural networks, as opposed to highly profitable ones, looked afresh at the practices of the utilities (network planning, cost accounting, and others) and interrogated their assumptions. Based on this analysis, they developed the area coverage strategy, and thereafter, they implemented it on the ground and demonstrated its viability.

In the case of rural telephony, recentering-on-reversal was a product of actions on the ground alone, without a deliberate conceptual strategy. In the face of Bell Telephone's dogged refusal to extend service to rural areas, farmers started erecting their own jerry-rigged networks. They did not set out to execute a strategy, let alone perform recentering-on-reversal. They simply took it upon themselves to satisfy their own needs, stringing wires to connect with neighbors. In our analytical terms, a difficult bit at the margins is not an oddity for those situated on the margins—it is their everyday reality. When empowered, they could undertake recentering-on-reversal quite naturally and develop solutions customized for the conditions on the margins.

We see an interesting resonance in the case of radio. The developers of radio—governments and corporations—saw it as a wireless extension of the telegraph. In their eyes, the tendency of radio waves to spread was a nuisance. Radio amateurs, on the other hand, were drawn to this difficult

bit. They started playing music over their jerry-rigged transmitters for fun, attracting audiences. Subsequently, a major corporation, Westinghouse, saw the commercial potential of broadcasting. Later, as the broadcasting industry grew, the federal government brought it under a unitary regulatory system on the basis of a totalizing logic—there should be no interference at all. As we show, the decentering of interference as the central organizing issue opens up new possibilities. For instance, if instead of zero tolerance for interference, we accept some interference below a certain threshold (e.g., only in the night, when radio waves propagate farther), we have more options for organizing the broadcasting system. Such systems are messier, but also much more accommodating of local idiosyncrasies.

The public library is an unusual and educating case. The public library movement sought to bring everyone, especially the disadvantaged, into the fold. Yet a significant part of the population (currently one-fifth) never uses a public library. Interestingly, public libraries recognize this difficult bit—in fact, they openly acknowledge it, typically in their annual reports. Yet they continue to focus almost entirely on people who do use libraries. One could debate the mission of public libraries and whether it calls on them to seek out never-users.

From our standpoint, three points are noteworthy. One, acknowledgment of the difficult bit (step 1 in a three-step process, as shown in figure 1.2 in chapter 1) does not necessarily lead to subsequent steps in the recentering-on-reversal process—libraries acknowledge the high proportion of never-users but remain focused on the users. Two, this domain, public libraries, is ripe for recentering-on-reversal. It has a clear, generative metaphor (the teacher-student relationship) and a persisting difficult bit at the margins—the population that never uses the public library. Three, since we know little about never-users in that library surveys have focused on users, we need to develop a deeper understanding of who they are and what their perspective is before we can engage in recentering-on-reversal. In effect, it cannot be purely a seminar exercise.

Finally, we also have a cautionary tale among our cases. Independent telephone companies, once oddities themselves, later scoffed at an oddity at their own margins—barbwire-based telephone lines. As subsequent developments show, the independents' dismissal of barbwire-based lines did not backfire on them. But this attitude was problematic. All oddities

should be examined, as we never know which one could be a fulcrum for recentering-on-reversal, an opportunity that could also be capitalized on by another entity. Conversely, if another entity does not do so, we could benefit from performing recentering-on-reversal on our own perspective.

As we saw in the case of electrification, the proponents focused solely on the gains of rural electrification, dreaming of decentralization of industry to rural areas and stemming of depopulation. Their view was limited to the end nodes—sockets that would power local solutions. Center-staging of transmission lines would have opened another view—tighter integration with the metropolitan economy. In the end, rural electrification neither decentralized industry nor stemmed depopulation. The proponents would have been better off if they had performed a recentering-on-reversal from their own perspective.

The abovementioned examples show that the applicability and payoff of recentering-on-reversal is contingent on the context. We have cataloged the few cases that we have seen so far. With more cases in the future, we will be able to more fully understand how to employ recentering-on-reversal most effectively.

In sum, recentering-on-reversal is a very specific analytical strategy. It could be brought about in various ways. We have discussed three ways: (1) incremental improvisations on the ground, (2) deliberate analyses prompted by the press of practical problems, and (3) seminar exercises. It helps identify blind spots, prompts counterintuitive thinking, and generates new understandings. At the same time, every oddity on the margins of the established order cannot be a pivot for a reversal, as we saw in the case of barbwire-based telephone lines. But then again, trying recentering-on-reversal typically costs little. It is essentially an exercise on the conceptual plane. Moreover, when recentering-on-reversal opens new views, the payoff is big. We should, therefore, never dismiss oddities on the margins that come to our attention—instead, we should keep an eye out for them.

FINAL REFLECTION

We are now at the end of a twenty-five-year journey set off by an unease. At first, the unease concerned burgeoning research on universal access for telecommunications services. On the one hand, in the first author's view,

researchers were producing copious papers on universal access, and, on the other, they were circling in narrow circles, conceptually speaking. In a nutshell, upon the spread of a new technology, researchers would identify the have nots, chart the gap, and call for universal access initiatives, and then, when the next new technology arrived, researchers would repeat the cycle. Seeking to broaden our lens, to develop a different perspective, the first author delved into the development of universal education. This yielded the first insight for our present project: universal education became a priority more than half a century after independence, only after it started suiting the interests of the powers that be, discussed at greater depth in an article entitled “Universal Service: Prosaic Motives and Great Ideals” (Sawhney 1994). Consequently, the unease deepened as universal access research continued to focus on the have nots of new technologies, when larger issues were play.

To cut a long story short, in 2003, the first author wrote a paper entitled “Universal Service Expansion: Two Perspectives,” which later became the stepping-stone for the present project (Sawhney 2003). This paper argued that the benefits of universal service expansion should be looked at not only from the standpoint of the individual, but also the system. From today’s vantage point, the examples provided in this paper look quaint: touch-tone phones enable banks to automate account management, e-tickets enable airlines to cut operational costs, and information services enable governments to deliver welfare benefits electronically. The paper ended by saying:

Universal service is a far bigger phenomenon than a large-scale welfare project. It involves flows of billions of dollars. Any enterprise that touches on such large amounts of money is likely to generate complex agendas of varying shades of altruism and self-interest among the different stakeholders. Of course, the recipients of subsidized service benefit from the monies directed their way. But who else benefits beyond the generic network externalities? How does their vested interest shape what is said and done about universal service? Universal service does have a welfare component. But that is not the complete story. (Sawhney 2003, 330–331)

This line of thought, lingering on the back burner, was reenergized by Siobhan Stevenson’s 2009 paper, “Digital Divide: A Discursive Move Away from the Real Inequities.” In this paper, Stevenson (2009) says that the digital divide has become “an industry of global proportion” (1). Researchers

study access inequities along myriad social dimensions, such as income, race, sex, age, education, geography, health, physical and cognitive abilities, and motivation. The government agencies and foundations provide monies for data collection. Policymakers and administrators discuss reams of tables, graphs, and figures so produced, and then allocate resources for digital divide programs, which engage academics, activists, and employees of governmental and nongovernmental organizations. According to Stevenson (2009), all this activity makes “social inequality and the wealth gap a technical issue and concentrated on America’s most disenfranchised” (10). In effect, the problem gets reduced to increasing percentages of people of different types with access to different types of technologies.² Stevenson says that all this activity is a distraction. It keeps us away from a fuller understanding of the digital divide and, consequently, meaningful action. We end up fiddling with numbers-laden technocratic exercises without addressing the causes of the digital divide, which are of a structural nature.

A few years later, around 2012, a chance conversation between the coauthors led to a discussion on Stevenson’s paper, a sharing of mutual enthusiasm, and eventually the present project. Stevenson shows how obscurations hamper us from developing a fuller understanding of universal access. For our part, we seek to lay bare coalitions that bring about universal access, to engender an honest conversation, and flag blind spots, to elevate the conversation to the greatest possible extent.

With regard to the latter, we catalog the blind spots identified in the course of our research, and we hope that others will build on it in the future. Beyond specific blind spots, we hope that the very creation of such a catalog will raise the salience of blind spots in general. We will now bring our discussion on blind spots to a conclusion by reflecting on a blind spot of our times that is consequential for not just system development.

Our connectivity-centric thinking lionizes the power of the link, taken to be a transformative power. In our analytical vocabulary, our connectivity-centric perspective center-stages the links, fading away the salience of the nodes. If we decenter the links and center-stage the nodes, we get a very different perspective that throws the nodes into sharp relief. We are alerted to differences in their relative power—power writ large (economic,

political, cultural, etc.). Herein, the establishment of a link activates all the facets of power possessed by the nodes brought into networked proximity. Connectivity is no longer benign, let alone inherently good.³

We saw this dynamic play out vividly in the chapters of this book on the postal system, electrification, and telephony. As we develop universal access policies for the internet, we need to understand connectivity in all its complexities—not just gains, but also travails. For instance, shouldn't disadvantaged persons with subsidized connectivity also have their privacy issues given due consideration—from their standpoint?

With regard to the former, we offer a simple typology that brings into attention not only the individual's gains and the system's travails, but also the individual's travails and the system's gains. In our estimation, its power lies in its simplicity. We hope that it will prompt people to look afresh at universal access issues of import to them and ask profound questions that are beyond our present mindscape.

We have been celebrating the logic of inclusion, and, correspondingly, aspects of universal access that further “inclusiveness,” “access,” and “benefit” are clearly articulated, openly implemented, and showcased. But this is not the complete story, as universal access is a humanitarian project only to a certain degree. Universal access also has an instrumental, if not dark, side. It is also a binding project, which brings everybody into the system's fold. This logic of binding works through conscription, conversion, and travail—things that would give occasion for disquiet if we attend to them. These aspects of universal access are not articulated and are implemented quietly. They need to be made visible. We would then be pressed to also weigh in the individual's travails and the system's gains and, accordingly, develop and implement better thought-through universal access policies.

BEYOND BORDERS: CORRECTIVE TO AN AMERICAN EXPORT

Until the 1980s, access-related policy discourse the world over centered on the notion of public service. In the US, it centered on the notion of universal service, later evolving to universal access. They were born of different traditions.

At that time, countries typically had PTTs—state-owned entities providing post, telegraph, and telephone services. Japan, Canada, and the US were exceptions to varying degrees. Japan had separate entities for electronic communications (Nippon Telegraph and Telephone) and regular mail (Postal Services Agency); however, both were state-owned. Canada had a state-owned postal service and a complex mix of private and state-owned entities for telephone and related services. The US also had a state-owned postal service, but it had privately owned telephone companies. The notion of universal service developed in the world of the latter.

Broadly, both public service and universal service uphold the social obligations of service providers (e.g., reliability, quality, price, equality of treatment, and access). But they are quite different in character. Lucien Rapp (1996), protesting the European Union's adoption of universal service in spite of the longstanding European tradition of public service, wrote that "universal service imposes a 'from the bottom' approach, from the undertaking's point of view, and not a 'from the top' one, from the point of view of the state, which is the guarantor of the respect of Republican principles, notably equality and solidarity" (395). Put more simply, since the motivations of state-owned entities and for-profit companies are very different, the level of state and public vigilance necessary to ensure that they deliver on their social obligations is profoundly different. Public service considerations guide the everyday actions of PTTs; they, as state actors, are implicitly obligated to discharge their social obligations and answer to people's representatives. On the other hand, universal service is an explicit state intervention to get for-profit entities to discharge their social obligations. It is a corrective of sorts.

Within a couple of decades, by the turn of the century, the picture had flipped. François van der Mensbrugghe (2003) noted that "today, universal service has received statutory expression throughout the world: the existence of universal service obligations would be recognized in 138 countries" (1). This transformation accompanied a deeper transformation—privatization of the PTTs the world over, in a spectacularly short period of time. Countries' motivations for privatizing their PTTs were complex, involving factors such as the following: the rising demand of big business for customized solutions, which PTTs were slow to satisfy; convergence

of telecommunications and computer technologies, which made demarcation between regulated and competitive services difficult; and governments' need for money and investment, which privatization obtained. What is important for us is that with privatization, countries the world over had a new need—a regulatory model for ensuring that for-profit companies met their social obligations. The only game in town, writ large, was the American regulatory model, which featured universal service, among other things.

In this flipped picture, our analysis of America's universal access experience, which was eye-opening in consequential ways, calls for also considering the global consequences of this American export—universal access. For instance, when only about 54 percent of Africans live in areas, let alone homes and compounds, served by piped-water supply (Howard and Han 2020), most African countries have established universal service funds for telecommunications—see table 1 in Arakpogun, Wanjiru, and Whalley (2017), which records universal service funds in thirty-four of fifty-four countries in Africa. Further, influential bodies such as the World Bank, World Trade Organization, and International Telecommunications Union actively promote universal service with funding, consultants, and training workshops. Moreover, they often join forces. For instance, the World Bank, European Commission, United Nations, and REGULATEL⁴ jointly sponsored the study *New Models for Universal Access to Telecommunications Services in Latin America* (Stern and Townsend 2006). In a similar vein, on a more granular, prototype level, Michael Trucano, World Bank's global lead for innovation in education, advocating for the establishment of universal service funds, says that “the most famous, and indeed the prototypical, example of how a ‘universal service fund’ has been used to connect schools to the internet is the e-rate program in the United States” (2015).

We do not explore the issue of whether the global spread of universal access is good. We are moving at a more basic level, advancing the argument that an American export should be coupled with its corrective. Countries create and run their systems in distinct ways, in accordance with their particular sociohistorical context and political ethos. Consequently, on the basis of our study of universal access in the US, we cannot speak on issues and implementations specific to any other country, let alone the world at

large. Generally, it is quite possible that researchers, policy analysts, and other stakeholders in other countries would find our gains and travails framework useful—it is simple, general, and abstract. But then, actual effort by such stakeholders to put it to use would be the real test. On this score, we are not even invested in the gains and travails framework per se. If it serves as a prompt to broaden the discourse with some other means our counterparts in other countries find more useful, it will have served its purpose.

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