**The Leap of Rhodes or, How India Dealt with the Last Mile Problem**

An Inquiry into Technology and Governance

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**Chapter I**

# NAMING THE PROBLEM: OR, THINKING LIKE THE STATE

> I am anxious that we should reach our people in the villages as well as in the towns with some kind of a record of the work that has been done and that is going to be done… It is not enough to give just a glimpse of something being done. It should be a longer and more educative picture and it should be taken in mobile vans to remote villages… By this means also, we shall produce that understanding enthusiasm that we wish to develop and, at the same time, a certain unity in our national planning… Ultimately, what counts is the approach to our rural millions – Jawaharlal Nehru, quoted by B.P. Sanjay[1]
>
> Backward sections do not always derive adequate benefit because of traditional barriers in the free mixing of castes and sexes in the rural community. Women, artisans, landless labourers ands Harijans are represented rather sparsely in the audience. Pre-tuning of the sets to only one particular wavelength, which is generally the case, makes entertainment limited and the village listeners remain unsatisfied. A large number of sets installed, in many cases between 50 and 70 per cent, are generally out of commission for want of minor repairs, replacement of battery etc. Lack of adequate maintenance arrangement is the biggest single obstacle in the way of community listening. (R.K. Chatterjee on early 'rural radio listening forums' in Maharashtra in the early 1950s)[2]

**I**

## The Ailawadi Paradox

In 2007, the former Chairman of the Haryana Electricity Regulatory Commission, V.S. Ailawadi, was changing his wires.

An electricity regulatory body is quintessentially a last mile solution provider. India's Central Electricity Regulatory Commission describes its mission statement as 'intended to promote competition, efficiency and economy in bulk power markets, improve the quality of supply and promote investments'. A crucial part of its purpose is to 'advise government on the removal of institutional barriers to bridge the demand supply gap and thus foster the interests of consumers'. In saying what he felt on the matter, however, Mr. Ailawadi was clearly pushing the limits of

[1] Sanjay, B.P., *The Role of Institutional Relationships in Communication Technology Transfer: A Case Study of the Indian National Satellite System (INSAT)*, Ph.D. Dissertation, Simon Fraser University, 1989, pg 42.
[2] R.K. Chatterjee, *Mass Communication* (New Delhi: National Book Trust, 1973), quoted in Sanjay pg 43

both institutional barriers and what their removal could now mean. He was, also I think, propounding a new theory of the state.

'The problem of last mile connectivity for ushering in the second telecom revolution', thundered Ailawadi, 'can never be resolved as long as the huge infrastructure created by BSNL and MTNL, *with public money*, comprising copper wire and optic fibre, remains under-utilised'. 'Various technologies like WiMAX, W-CDMA (Code Division Multiple Access) and broadband over power lines (being) touted as alternatives' cannot work because they are too expensive. The only possible solution is to unbundle the local loop by BSNL/MTNL. Such unbundling would bring in competition for wireless applications and broadband services not just for 45 million landlines but also for 135 million mobile users of various service providers.

So why wouldn't the BSNL/MTNL agree? Mr. Ailawadi pours scorn in BSNL Chairman and Managing Director A.K. Sinha's statement that 'We have built the infrastructure and why should anyone else use it? Will they pay for the salaries of the employees?'. 'Only in India do we treat our PSUs like sacred cows'. The Telecom Regulatory Authority of India has yet to come out with effective regulations for addressing the interconnection problems created by the incumbents, and the incumbents continue to delay links to their points of interconnection. The issue of congestion for Mr. Ailawadi is only due to the lack of adequate inter-connect points by BSNL/MTNL, although these state behemoths obfuscate this issue 'on the plea of shortage of space or equipment' (V.S. Ailawadi, 'The Last Mile Problem in Indian Telecom', *Business Standard*, January 23, 2007).

With this monograph I want to immortalize Mr. Ailawadi by naming a key paradox after him. His short statement sums up three key contentions that this monograph will try to explore, and hopefully to destabilize. *First*, that the only way delivery of key assets such as telecom (or we may say, state benefits as a whole) to people at large, and 'especially people in India's rural areas', can happen in India is by private, and in this we include informal, agencies poaching on underutilized state assets – legally or illegally. However, India's state agencies – who are sitting on large underutilized resources – are both incapable of utilizing these resources or making them available to those who could have made better use of them, for reasons that are as yet (at this stage of the argument) unknown. *Second*, the only way the state versus private players issue can be comprehended is through the language of antagonism. Private players are, for him as for all those crawling out from statist woodwork spouting hyper-privatization language, inexorably posited in *opposition* to the state. To Ailawadi's argument, this opposition, this in-built antagonism, is a given. The State cannot deliver; Ailawadi therefore wants access to state assets, and he wants them cheap. On their side, State corporations want private players out of their backyard since they would certainly not pay state government employees their salaries.

It is however a *third* contention that truly concerns my work. Despite this pre-programmed antagonism, what brings both state corporations and private competitors startlingly together is their common understanding of what needs delivering: that the *last mile problem constitutes purely a unidirectional delivery mechanism* for services. On this procedure both Mr. Ailawadi

and Mr. Sinha appear entirely united. The only dispute is over who delivers better. Apart from wanting private access to the unbundling process of the local loop, Mr. Ailawadi is curiously disinclined to interrogate technological statism itself, or to in any way unbundle the *reason* for why the state made such a major investment into telecom infrastructure in the first place.

How, one may ask both, did the Indian state come to acquire such significant infrastructure assets, presumably dating back to times when the last mile had not even been envisaged in the way it is today? Why, the sequel question would ask, is the Indian state – having assembled such assets – now so thoroughly discredited so as to be rendered incapable of delivering their benefits to the people for whom they were meant? How did the state's investment into major communication technologies over the centuries, presumably going back to telegraph wires, find itself so uncannily become today's major *gatekeeper* – instead of sitting on obsolete technological infrastructure, as happened with terrestrial television and could have easily happened with telecom? Or is it that there is something wrong with the definition of the last mile, now revealed as committed to being a *retrospective* historical reconstruction, and further wedded to a state-shaped barrier to true access to 'the people'?

Can it be, taking the argument further, that alternative technologies 'like WiMAX, W-CDMA and broadband over power lines' are unfeasible not only because they are too expensive, but because *providing alternative technologies to what the state has fails to address the real problem*? Assuming for purposes of argument that Mr. Ailawadi's wildest dreams came true and realized his ideal scenario of private players simply taking over BSNL/MTNL's networks, would the new private corporations simply step into the shoes of the old state? Or would they need to significantly modify the technology to suit different ideological purposes? Or, can it be, there is no real difference, and it is simply a matter of who has charge? What are the pros and cons of what we shall now call *technological bypassing* – or finding new technologies to slip through state hurdles, as transistorization did in the 1960s to bring us commercial radio, the audio-cassette recorder did in the 1970s to become the quintessential smuggled object against which the Emergency would justify itself, or satellite television of the 1980s and the internet of the 1990s – as against *appropriating state technologies*? Is this at all an either-or? Is it, one may ask in the end, a matter of technology at all, or does the last mile problem mean something else entirely?

This monograph is about the following paradox: it identifies *a priori* contradiction: a contradiction that specifically disqualifies the state from performing an act of delivery, and it defines that contradiction as the last mile problem. In the process, the paradox identifies an alternative conduit by which to bridge the last mile – a communitarian, or a market-driven solution, let us say – and it then looks for two things that can bridge the gap: a *miracle technology* capable of doing so, and a *legal resolution* for using such a technology for both suturing a social gap that the technology shall somehow overcome. These, strangely, are not always anti-Statist positions, as the old Right was; rather, they provide the means by which the State refurbishes itself through some kind of technological renovation. Such a paradox then

poses further issues of how key functions of any new technology become *selectively useful for state apparatuses*, requiring some functions of the technology to be either banned, or made unusable. In thinking about technology, this monograph foregrounds *communication* theory and discusses mainly communication technologies – and explores ways by which a theory not on its own susceptible to restrictions of State order nevertheless finds itself shaped and delimited by the ways it becomes available for such state use.

**II**

## Technological Governance

Around the early 1980s, Marathi playwright Vijay Tendulkar was thinking of writing a play on a real life episode set in the Emergency in Maharashtra in 1975, among the Pardhi tribal community of the state. Maharashtra's Pardhis, historically a nomadic community of hunters (Paradh in Marathi means hunter), are a miniscule group, many of whom typically survive either as labour or as beggars in the city. It appeared that in the early days of the Emergency, some representative members of the community were told that the radio had announced that the government of India had declared special benefits for India's scheduled tribes. It didn't really matter what the benefits were: the thing was that the community had been mentioned by name. They quickly got hold of a transistor, heard this announcement not once, but thrice in a row on the news. They then took the transistor, dumped it on the table of a bewildered Forest Officer and eventually the local police, and demanded the announced benefits with immediate effect. The local authorities, themselves unaware of any such state policy and in any case historically inimical to the Pardhi community (it remains a 'criminal' tribe as listed by the notorious 1871 British Act), effectively told them to get lost. As tempers rose, the entire simmering discontent among the community peaked into a rare full-scale uprising, the looting of the police station and other government property. Tendulkar himself was of course very interested in ways by which people could take the law into their own hands and then be as fully violent and merciless as their historical oppressors, but here was a further element in the script of primitive justice: the transistor radio, linking the remote Pardhis directly to the Central Government in New Delhi, bypassing the entire local state administration and, we might say, declogging the system in the process in particular ways. One could read a revolutionary social collusion between the Centre and its extreme periphery, as it overcame the intermediary roadblock that was incapable of reproducing the efficiency of the new and comparatively untainted communications system.

It is probably a commonplace in the theory of political science that modern state structures are assembled on the back of modern technology. There has been significant work on how, say, modern communications systems shaped the apparatus of the modern state, and how the railways, the telegraph, the radio and the satellite, and of course the atomic bomb, provided the means by which instruments of modern governance came to be assembled. There has also been, therefore, some conversation between theories of technological usage – or how, and in answer to what need, specific technologies came to be invented – and the political needs of state governance. It follows, therefore, that the *purpose* to which technologies are *meant* – the 'how-

to-use' instruction manual for technologies of governance – would draw from, or at least have some link to, parent concepts derived from state ethics. It also follows that the connection is not always easily made: technologies at their origin either violate state protocols – as almost all major technologies inevitably do at their point of origin (and we can easily recall that Xerox machines, fax copiers and satellite transmission all posed considerable difficulties for state operations at the time they were invented[3]) – while other technologies that are custom-built for state governance, such as Electronic Voting Machines[4], for instance, or several technologies of e-governance, have had to gradually disentangle themselves from an overdetermined purpose to achieve their full technical possibility. In almost all such cases the fit between technology and governance has been a complicated negotiation.

What happens then, one may ask right away, when technology either *exceeds the purpose of its use* or becomes a *misfit*, fitting uncomfortably within the declared purpose of a state? Arguably, one of the ways by which, from the numerous technological innovations that pepper the Controller General of Patents, Designs and Trademarks, some get selected for further use while others get discarded lies in their capacity to state a purpose, and the further capacity of that purpose to find an intelligibility either for use either by the state or by the market. For either use, it must follow that the statement of technological usage needs as much to be a *delimiter* of possibility as a *description* of that possibility: the how-to-use manual always has significant fine print on how one may NOT use new technology.

Using technology against its grain, making it do things it is not meant to – whether this is the upturned bicycle used by Malegaon's powerloom weavers for a loom, or a torrent programme that uses spare processing capacity from computers – inevitably allows us to bring to the phenomenon insights well known to political science ever since Partha Chatterjee first showed how the Indian state first come to exist and only then produced, over the years, the ethical preconditions for its existence. The purpose of my argument is to generate a debate that has not taken place sufficiently, in the role (communications) technology may have had in *defining* the ethical preconditions for the concept of the state in India in defining the intended (as against the actual) use of technologies may have played in the process. I hope to set up a conversation, thus, between political science and communications theory by which we can explore the ways by which the area of technological governance – or how states use technologies as a means by which to deliver their benefits to citizens – could throw light on a theory of technological usage as a means of state practice.

To do so, this argument takes the specific instance of what has widely come to be called the 'last mile problem' in India, and in many parts of the non-Western world. What is the last mile, and why does the last mile typically come to be almost always attached with the suffix 'problem'? Indeed, it is almost less a problem than a *lament*, referring typically to the notorious incapacity of delivery mechanisms in India to reach their intended beneficiaries. Whether they be Tsunami

[3] Add footnote
[4] Add footnote

victims who never get food or clothing because some middleman has hived them off, or potential telecom users in India's villages, it has become a standard truism to say this: *targeted benefits do not reach their destination, and they do not do so because of distortions at, not the sender's but the recipient's end.* These could be physical distortions, such as benefits not physically reaching targets, as in relief measures, or *distortions of intentionality*: where they do reach but are found not to translate into intended use.

But then whose problem is it? Is the failure technological or social in nature? Is it a failure of the model or of its implementation? For the state, the intentionality issue is often a variant of the horse-and-water metaphor: for beneficiaries, it is equally often a mismatch between problem and solution. At one level, the State both plays the role of the provider of the delivery conduit (without whom it is impossible to reach any beneficiary at all), as well as the 'noise' factor that distorts the conduit. At another level, where the market now starts to provide its own distortions, the 'last mile problem' begins to implicate further concepts, such as Indian society's famed 'impenetrability', its opacity, its resistance to external impetus, and the ensuing difficulties posed to the 'percolation' theory by institutional corruption, power hierarchies, etc. Can, in this light, the 'use-manuals', defining the way technologies are 'meant' to be employed, also be made the basis of *social theory*? Conversely, can the *violation* of their prescribed means, whether illegitimately by hackers, or legitimately by can-do barefoot technologists, or proto-legitimately by leapfroggers (like the chicken-mesh antennae and WLL-M that we will be seeing later in this book) also signify, as I think they do, a *political* dimension?

Conventionally, the last mile has been defined as the final leg of delivering connectivity from a communications provider to a beneficiary. Typically a function of cost, the last mile has been relentlessly perceived as primarily, or even exclusively, a *technological* problem. Among the standard perceptions of the last mile 'problem', as the Wikipedia definition shows, is the process by which any communication system has to, at some point, 'fan out' its wires and cables. Usually, this is seen as the point when the operation becomes not only physically massive, involving digging trenches and laying overhead cables, but also expensive.[5] Enormous communication initiatives since the days of telegraphy have sought to overcome this specific barrier of delivery, and have moved from wireless radio to various developments in fibre-optic, wireless, free-space optics, radio waves, one-way and multiple-sender-user communications and, most recently direct-to-satellite.

This book's purpose will be to interrogate the *nature of the state to which such a communications model commits us*. The classical definition of the 'last mile', we have seen, defines the final stage of providing connectivity from a communications provider to its ultimate recipient, and the commonest users of the term in this connotation have been the telecommunications and cable television industries. However, as the State has virtually reinvented itself in the very recent past and before our very eyes, the term has also come to mean something very much more. In recent years, especially (though not uniquely) in India, the term

[5] Add info on film exhibition with the coming of sound: also telegraph, typewriter, sound.

has been used to map technological access upon developmentalist-democratic priorities: combining the two into a devastating cocktail of technology, development, governance and markets characteristic of communications technology since at least the invention of the radio in the 1940s. From Electronic Voting Machines to web-based railway reservation facilities, from e-governance to e-commerce, the last mile has become the privileged mode of a techno-democracy, where *connectivity* has been directly translated into *democratic citizenship*.

Let me make the point with a very current example: e-governance. When it first became big in India in the mid-2000s, it came with several assumptions, mainly to do with the contention that somehow, leaving it to the technology instead of to mere human beings would make it faster, easier, more accessible, and less corruptible. One study (by Balaji Parthasarathy et al., 2005) shows that 'the defining characteristic [of] the use of computers, and sometimes connectivity, to reorganize both the functioning of the government and service delivery to citizens' is the presumption that 'increases in transaction speeds [and] ease of data storage and retrieval' *automatically signals 'transparency and accountability'*.[6] The report goes on to show how the cultural difficulty of translating such symbolic attributes into functioning systems crippled several major initiatives, precisely because their absolute belief in the capacity to attribute abstract democratic values into the technology itself.[7] The study contended that e-governance programmes would never work in India unless they found a theory for 'localization': both of the specific programme being implemented as well as of the ideal itself. The report goes on to say:

> Localizing information provision has at least two components to it – localizing content (linguistic and otherwise) and localizing the means of transmitting information. Linguistic localization is a beginning to localizing content, as there is a need to develop applications in local languages even while ensuring that various applications can be seamlessly integrated so that they are interoperable. While linguistic localization is essential, localization to accommodate cultural, social, economic, political, historical and environmental diversity and heterogeneity is also critical.

Parthasarathy's work provokes us to consider up-front and without delay whether the last mile problem is at all a technological issue, or whether we might be better off framing it in social terms. Or should we not be seeing it as an either-or? Historians of modern science have looked at the role of the national impact of technology[8], have addressed its showpiece endeavour, its atomic programme[9], etc. There has been little work, as far as I know, that has extended an

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[6] Add link and biblio ref

[7] A century-old ancestor to this belief in the technology's innate capacity for objectivity, fairness, accuracy and so forth could be in the late 19th Century career of still photography, which attributed similar objectivity that claimed to be immune to the limitations that 'mere' human beings could ever achieve. See Ashish Rajadhyaksha, 'The Phalke Era: Contradictions of Traditional Form and Modern Technology', *Journal of Arts & Ideas*, no. 14-15 (July-Dec 1987). http://dsal.uchicago.edu/books/artsandideas/pager.html?issue=14-15&objectid=HN681.S597_14-15_049.gif

[8] SEE GYAN PRAKASH, *ANOTHER REASON: SCIENCE AND THE IMAGINATION OF MODERN INDIA*, PRINCETON: PRINCETON UNIVERSITY PRESS, 1999.

[9] ITTY ABRAHAM, *MAKING OF THE INDIAN ATOMIC BOMB: SCIENCE, SECRECY AND THE POSTCOLONIAL STATE*, HYDERABAD: ORIENT LONGMAN, 1999.

inquiry into the methods of deployment of, say, the telegraph, the radio, terrestrial or satellite television, or information technology, into a further inquiry into how its systems could have been a source for (or, we could say with Parthasarathy, a barrier to) a theory of governance.

**III**

## Politics and Leakage

When this monograph started a year ago, its conceptual ambitions were simpler: I had hoped to outline some kind of social-historical account of the last mile. I would do so with a fundamental assumption: that in making the last mile a purely, or at least substantially, technological issue, the Indian state was founding its very *raison d'etre* on a misapprehension: that this curiously resilient barrier to the people was technologiz*able*, so to say. I was set to challenge the contention that any human recipient of state benefit could ever receive state support when the conditions of doing so rendered them incapable of comprehending what it was that they were receiving. I wanted to propose that the unfortunate technologicalization of democratic theory that would define the purpose of technology as primarily a delivery mechanism, was forcing its practitioners to assume, first, an *evolutionary* rather than *distributive* model for connectivity, and second, to introduce a major bias for what we could see as the command model – preferring broadcast (or one-to-many) modes to many-to-many peer-to-peer formats. The argument had hoped to show that contrary to the relentlessly technologized definition of the last mile, the communications barrier could well be most appropriately seen as *also*, and even perhaps *primarily*, a human resource issue. The technologization of human resource was not only a misconstruction of what is technologically possible (or we may say with the Pardhis, a *correct* construction unsupported by the mechanisms of interpretation of data), but even more, a straitjacketing of the roles of *citizenship*, which may partially explain why Indian citizens may so resolutely have refused to receive state benefit under these circumstances. The endemic assumption of such a model has historically been, firstly, that it is the *sender*'s responsibility to bridge the divide, secondly that *technology* can aid him to do so on its own, but thirdly and most importantly, that such technology could negate the need to define connectivity as a multiple-way partnership as it reduced the recipient into no more than an intelligent receiver of what is sent.

This realization was itself not new: India's social sciences have made several political arguments on how citizens were able (or not) to act upon citizenship rights, or why citizen actions took the form of insurgencies and rebellions, but I was curious to see if this kind if sender-receiver mechanism fit into a *communication* theory. Could this be the reason for the extraordinary resilience of this model of state development, or why the Indian state has so steadfastly refused to examine the model itself as well as shown such commitment to the idea that, somehow, the next available technology would allow us to 'leapfrog' – not so much over time into a future era, but leapfrog over *space*, over the last mile barrier to finally access our resolutely elusive citizen?[10] My argument was going to ask why, within the terms of communication theory, proto-

[10] Long footnote on the theory of leapfrogging

citizens perfectly capable of availing of various kinds of state-support – from public distribution systems to pan cards, from voter IDs to employment guarantee schemes – appeared to *prefer* to receive these from what the State would consider illegal means, like the notice offering pan cards within two weeks on the Jayanagar tree – rather than receive them from the State directly. The issue was *not*, I wanted to show, inefficient distribution. There was no evidence that the kind of market mechanisms that illegally sprang up around state aid, offering to mediate the same aid for a fee – like the ubiquitous tout standing outside the railway train booking counter – was necessarily more efficient than his legitimate counterpart behind the counter. The issue was, I thought, the somewhat more discomfiting and even destabilizing conditions under which the State constructed its citizen-subject.

What I primarily wanted to do, then, was to make a strong plea for historically reconsidering one-way broadcast versus peer-to-peer versus two/multiple-way debate. I felt that the issue was to reconstruct the beneficiary of any connectivity cycle as a full-fledged partner and thus to overcome the bias written into standard communications models – and therefore several standard revenue models – that consistently tend to underplay the *significant sender/recipient* (as against the *pure-recipient* citizen). While both terrestrial and satellite systems of communication require some level of peer-to-peer transmission systems to facilitate last-mile communications, it has been a common problem that unless *either* a clear focus exists on geographic areas *or* significant peer-to-peer participation exists, broadcast models inevitably find themselves delivering – in their terminology – large amounts of 'noise' without sufficient spectrum to support large information capacity. In any such situation, the standard state strategy, as it has moved from various kinds of terrestrial systems of dissemination to satellite forms, has been to 'flood' a region with its broadcasting message, with extremely high wastage as much of the radiated information literally never reaches any user at all. This has in turn led to the vicious cycle of ever-increasing need for 'topping up' the information resource, and to keep expanding broadcast locations with large amounts of excess capacity to make up for the wasted energy.

On the other hand, I wanted to explore an alternative possibility: of seeing if successful experiments bridging the last mile have typically been ones where *recipients have been successfully integrated into the communications model* both as peers and, even more significantly, as *originators* as well as *enhancers* of data. This has successfully happened even in what have been resolutely one-way 'broadcast' modes such as film, television and radio. However, what I had wanted to show was that whenever this happened, as with Tendulkar's Pardhis, it was inevitably perceived as a problem for democracy than a solution: it became a transgressive, against the grain, act, contrary to the authorized technology usage manual. This problem, I would have suggested, has sprung as much from a built-in *ideological* commitment to one-way broadcasting formats, as from technological limitations. Presented as such, the technology constituted something like a social incarnation of the problem with its bias towards peer-to-peer possibilities lying in perennial conflict with broadcast-dependent models. Rather than attempting a one-size-fits-all for all models to follow, I was going to suggest, what was

perhaps needed was to work out different *synergies* between broadcast-dependent and peer-to-peer-enabled platforms.

What I had therefore planned was to develop what I have later in this book called the 'leaking sieve' model of the State. A particular kind of citizen action, an extra-legal means (or at least a means exploring the grey zone of illegality) are adopted by which the State may actually do to its work properly. This could also draw our attention to public impatience with the slowness of the State to react to the changing speed information flow. The problem by this point would no longer be political alone as it found itself properly mounted upon the information model itself, as Scott Lash suggests, stating that 'technological time does not so much question progress: it is too fast for progress. Invention is so fast that we outpace the logic of cause-and-effect… Technological time outpaces the determinacy of causality: it leads to a radical indeterminacy, to radical contingency; to a chronic insecurity' (2001). Taking our Pardhi community again from the Tendulkar play, and put another way with an ever-so-slight shift of the kaleidoscope, *we see the last mile being bridged all the time.* Clearly, someone else, somewhere else, impatient at the failures of development, is bringing whatever 'can-do' means available to do what the official percolation model of technological time either cannot do or is taking too long to do. My evidence would include the spillovers of development, the audio-cassette revolution of the 1980s, community radio, cable television, video art and the mobile phone revolution to explore this second aspect: the underside of development.

**IV**

## Declogging the Conduit

So what then changed in the last year? For approximately a year now, indeed ever since the project of the Last Cultural Mile was first dreamed up, Nishant Shah (at CIS) and I have worked on a series of research and implementation projects that would directly test the key hypotheses of this argument. Specifically, we have been interested in exploring the spaces of undergraduate education, peer-to-peer learning processes, the role of intermediate technologies, distributive mechanisms and the processes of redefining recipients of benefit into producers of knowledge. We have together explored key concepts in projects such as the Digital Classroom, the Networked Higher Education Initiative and are about to embark with other colleagues in CSCS and CIS on a major new initiative exploring the properties of the Government of India's Unique Identity Initiative (its Aadhaar programme). All these projects have been extensively detailed in this book, and provide much of the meat of the argument I intend to explore.

As these projects began shaping up, I started suspecting the easy hypotheses with which I had originally mounted my argument. This was not some autobiographical course-correction: the objective situation had, I believe, changed in India. Indeed, in ways that could not have been anticipated a scant decade ago, the Indian state appears all set to precisely bridge the exact last mile through technology in ways that I personally would have considered impossible. It is not, I now think, any more making the tired old attempt. The state seems to have restructured itself in

basic ways, so that *this is no longer the old last mile.* Or, more precisely, there has come to be a redefinition of the last mile: and the new self-identity of a new state apparatus has been moulded primarily on its claim to bridge that divide.

As always with such change, such a redefinition has allowed us to retrospectively rethink the roles both technology and state have played even before the change came about. The purpose of this book now has become an effort to try and track what I want to suggest was the pre-history of this change, although I am acutely aware that I am putting this monograph down at a time when the last word is still a long way away from being said. My major earlier preconditions have broken down, but it is yet too early to tell whether they have been replaced with anything significantly different. Is the hype surrounding what we might broadly call digital distribution systems based on anything substantial, or will this new moment too be consigned to the same fate as its major predecessors, such as the transistor-radio at the height of the welfare state, the early history of satellite communications immortalized in the Indian State's SITE (Satellite Instructional Television Experiment) of the 1970s, or the televisual networking across the country of the 1980s that announced the first round of economic globalization?

In the rest of this monograph, I will propose that something is indeed new, that something new is in the definitional domain, and more importantly, that newness may well allow us a retrospective return to the key landmarks of technological change in communications in the past two decades. My newness proposition therefore is not premised upon a futuristic claim, but rather at identifying a break, from where to re-view recent Indian history and perhaps understand better what may have happened, the better to also identify what may happen in the future.

**V**

## Cloud Neoliberalism: The Leap of Rhodes

A fable, of our times:

> A boastful Nation was once bragging that nothing could bring it down. A wise bystander offered some caution: 'There is, in a distant space, something known as the Last Mile that can never be bridged. Nation-states through the late 20th Century have tried to cross it, but never succeeded. How do you know you will?'
>
> 'Just show me the last mile and I'll do it', said the boastful Nation, 'I have some secret tools, and an understanding of the Law, that allows me to draw the lines on where I should leap'.
>
> '*Hic Rhodus, Hic Salta*', said the bystander.
>
> So the boastful Nation took out some Technology from its bag of tricks, marked out a spot here, and another spot there, invented a Referee, and decreed for itself that if it leaped from

here to there, it will be deemed to have succeeded. And it did. (With acknowledgment to Aesop's Fables)[11].

> Bourgeois revolutions, like those of the eighteenth century, storm more swiftly from success to success, their dramatic effects outdo each other, men and things seem set in sparkling diamonds, ecstasy is the order of the day – but they are short-lived, soon they have reached their zenith, and a long Katzenjammer [cat's wing] takes hold of society before it learns to assimilate the results of its storm-and-stress period soberly. On the other hand, proletarian revolutions, like those of the nineteenth century, constantly criticize themselves, constantly interrupt themselves in their own course, return to the apparently accomplished, in order to begin anew; they deride with cruel thoroughness the half-measures, weaknesses, and paltriness of their first attempts, seem to throw down their opponents only so the latter may draw new strength from the earth and rise before them again more gigantic than ever, recoil constantly from the indefinite colossalness of their own goals – until a situation is created which makes all turning back impossible, and the conditions themselves call out:
> *Hic Rhodus, hic Salta!*
> [Here is Rhodes, here, leap!] - Karl Marx, *The 18th Brumaire of Louis Bonaparte* (1852)

A key point of change that will shadow this book is a particular, elusive change in the State that coincides with the onset of what has come to be called neoliberalism. It is important to note that the neoliberal state bears considerable resemblance to the earlier welfare state – or at least in most cases continues to swear by the same Constitution – so it is not that easy to mark, or to calibrate, the point of change I am trying to identify. One way to mark it is to differentiate the agendas of an older pro-market right, seeking to bring down the 'license-raj' and thus roll back the state, and a newer right that sees the State as *integral* to its functioning. According to David Harvey (2005), the classic theory of neoliberalism proposes that the State does three things: (1) the State is redefined as accountable to the same forces of market rationality as any other social agency. At the same time, (2) Neoliberalism requires the state to develop an additional, strictly limited feature, namely as a *facilitation agency* of a certain kind: such facilitation has to be limited to guaranteeing the *quality and integrity of money*, secure the *proper functioning of markets* through military, defence, police, and legal structures and functions required to secure private property rights and to guarantee, by force if need be, and where markets do not exist (in areas such as land, water, education, health care, social security, or environmental pollution), to create them. And finally, (3) To develop out of the process of its own redefinition a new definition of the public good. Beyond these tasks, says Harvey, it is required that *the state should not venture*. State interventions in markets, once created, must be kept to a bare minimum

[11] The phrase arises from the Latin form of Aesop's Fables as translated from an Ancient Greek phrase. In the fable, a boastful athlete brags that he once achieved a stupendous long jump in competition on the island of Rhodes. A bystander challenges him to dispense with the reports of the witnesses and simply repeat his accomplishment on the spot: "Here is Rhodes, here, leap!"

because, according to the theory, the state cannot possibly possess enough information to second-guess market signals (prices) and because powerful interest groups will inevitably distort and bias state interventions (particularly in democracies) for their own benefit.

My own point of difference with Harvey is what I consider his inability to adequately distinguish such a turn from older neoconservative positions associated with 'privatization' and state disinvestment. Harvey proposes that both the curtailment of the State's powers and the need for its accountability to market forces originate with the phenomenon of state disinvestment, the classic example for which was in Thatcher's England. Thatcher, says Harvey, had set out to privatize all those sectors of the economy that were in public ownership, expecting those sales to boost the public treasury and rid the government of burdensome future obligations towards losing enterprises. Such enterprises needed to pare down their debt and improve their efficiency and cost structures, typically through shedding labour. The aim of such disinvestment, says Harvey, was mainly to

> change the political culture by extending the field of personal and corporate responsibility and encouraging greater efficiency, individual/corporate initiative, and innovation. British Aerospace, British Telecom, British Airways, steel, electricity and gas, oil, coal, water, bus services, railways, and a host of smaller state enterprises were sold off in a massive wave of privatizations. Britain pioneered the way in showing how to do this in a reasonably orderly and, for capital, profitable way. Thatcher was convinced that once these changes had been made they would become irreversible: hence the haste.

To me all of these are more strictly neoconservative moves, calling for state rollback, and would perhaps be best evidenced in India by positions such as Mr. Ailawadi's at the top of this Chapter asking that the state hive off its assets to the private sector. Long after Arun Shourie relinquished his position as India's Disinvestment Minister, he was advocating the listing of BSNL shares and taking on BSNL unions.[12]

Despite seeming resemblance, I now propose my second criterion for signaling the change in the character of the state: namely, the very different role that *technology* – more precisely informational technology - now plays within both the function of the state and the market. Unlike both Shourie and Ailawadi, no good neoliberal would today call for State rollback (it would be the ultimate hara-kiri to do so!), but would call rather for a radically different *nature* of state intervention. I suggest that the only way this shift can be characterized is through shifting the very terms of political science, in their relationship to *technology*.

Manuel Castells calibrates the shift one moving from an *industrial* to an *informational* society. A hyperindustrial society is often unable to make the shift, as the former USSR couldn't, and can sink in the process. Castells says that while the informational economy is distinct from the industrial, it does not *oppose* its logic but rather *subsumes* that logic through *technological deepening* – which is why perhaps the subtle, if foundational, shifts in the character of the

[12] http://www.moneycontrol.com/news/economy/bsnl-listinggood-idea-says-arun-shourie_425142.html

neoliberal state can sometimes be missed, by Harvey for example. This new technological process embodies knowledge and information in all processes of material production and distribution. The industrial economy has to become the informational economy or collapse, says Castells. The new informational economy requires 'fundamental social , cultural and institutional transformations', the core of which includes 'financial markets, international trade, transnational production and, to some extent, science and technology, and specialty labour'.[13]

My question, central to this book, is why India did not sink. Was it simply because India was not a 'hyperindustrialized' society, something that could in hindsight suggest an almost visionary understanding of the future among India's post-Independence business classes who, Vivek Chibber's recent history of industrial capitalism after Independence says, were not only unwilling to support development planning but virtually launched a 'concerted offensive' against the idea of disciplinary planning? The refusal by India's private sector to support to the state's industrial programme, says Chibber, forced India to turn its back to the promise of an export-led economy model of development – despite the obvious potential of its indigenous cotton textile industry – and to concentrate instead on a model of import substitution.[14]

**VI**

## Technology, Law and the Last Mile

> A political economy perspective is necessary to understand the triumph of markets over governments: governments themselves called for such a victory, in a historic death-wish. They did so to preserve/enhance the interests of their states, within the context of the emergence of a new economy, and in the new ideological environment that resulted from the collapse of statism, the crisis of welfarism and the contradictions of the developmental state. – Manuel Castells (ibid, 1996, 147)

This monograph provides a set of four case studies of the Indian state. It is my contention that this set of moves constituted a salvation of the Indian state, nothing less, for failure to do so might well have led to its demise. The case studies address four technologies, television, telecommunications, networked higher education and, most recently, the Unique Identity project. Each is associated with a specific legal strategy with which the State literally redefined itself and its purpose.

In brief, I attempt to track a gradual shift of the Indian state from a narrowly geopolitical definition into one couched within a new kind of techno-legal apparatus. In this short monograph I shall focus on the period that I think constitutes the transition: one that began with the early 1980s and continued into the present. I plan to look at four moments in this time when technology was deployed to address a specific problem of the state, and in the process defined

[13] Manuel Castells, *The Information Age: Economy, Society and Culture: V 1 The Rise of the Network Society*, Malden, MA: Bachwell Publishing, 1996, pg 99-100.
[14] Chibber, Vivek, 2003, *Locked in Place: State-Building and Late Industrialization in India*, Delhi: Tulika Books, pgs 3-29.

the state – as the state defines its technology – along ways that were characteristic of neither category. We will look at the Wireless-in-Local Loop (or WLL) technology that constituted the first revolution in telecommunications in the early 1990s, the arrival of satellite television also in the 1990s, the low-end IT 'device' with which the Ministry of Human Resource Development plans to use digitized distance education to increase enrolment of Indian students by 5% of the overall population, and lastly, the celebrated Adhaar or Unique Identity project of the present. On all these occasions, the technology arrived at odds with the way the State functioned, and on each of them it appeared that the State was able, for reasons that I hope to explore, to mediate the contradictions through various often unprecedented techno-legal strategies. Two of these technologies, the MHRD's device, and the Adhaar database, are very new, and so this will have to be very much a work-in-progress argument rather than anything remotely resembling a finished argument. The legal issues I expect to look at are among the early debates around telecom licensing (a very current issue, at the time of writing!), and most specifically the way the Universal Service Obligation translated a model of state subsidy into a very different market-friendly and profitable enterprise for the State. The second argument, on television, will take us back to the 1995 Supreme Court judgment on the broadcast bill. The third, on education, will explore some of the synergies between the draft National Council for Higher Education and Research (NCHER) Act of 2010 and the national Mission on Education using Information & Communication Technology announced in late 2008. The legality of the Adhaar project is, at the time of writing, very much an evolving issue, and I will engage with some of the debates in relation to conventional last mile perceptions of what the technology is believed to be doing.

The first move, with telecommunications, shows what we may call the first Leap of Rhodes – a kind of messianic use of technology to cut through a crisis of its definition as a territorially bound geographical entity. The second move, with television, constitutes also the first step into the virtualization of the State: its identification with processes that are seemingly uncontaminated by human frailty. The third move, with the national mission for education through ICT, is also the first time that the State foundationally redraws the Last Mile. And the fourth, as the State effectively merges into the Cloud, is also one where national boundaries completely disappear.

With these changes, we also gradually see the erosion of the Last Mile, from something that constituted the 'people, the elusive silent majority to whom the State had to reach out, and into something rendered far more elusive than ever before. It remains entirely unclear as to whether, and even now, the 'people' may now be reached, or whether techno-citizenship would on its own be capable of handling these new challenges.

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**Chapter 2.**

# THE WLL-M MIRACLE

**I**

## How Telecommunications Opened Up

This section is an example for a larger formulation. It examines in some critical detail a change that took place in telecommunications in India roughly between 1994 and the early 2000s, when India saw its major revolution in mobile telephony. Many have seen this revolution, coming on the heels of the STD-phone revolution associated with Sam Pitroda's Telecom Missions, as the quintessential example of India's successful bridging of the Last Mile. My sense is that the transition was not that easy, and that it was a larger and more complex transition of the Indian state than communication theory usually admits.

Let's start this by returning to what we may call the Ailawadi Paradox in the first Chapter: the curious stand-off in telecom between the irresistible force of *mobile corporate technologies* and the immovable object of *fixed state assets*. I have already proposed that there was more to the bizarre and inexplicable refusal of BSNL and MTNL to unbundle their local loop in 2007, or to make it available to mobile users, than either mere governmental pig-headedness or Mr. Ailawadi's neocon 'privatize all' anti-statism.

Through the late 1990s, the Indian State was gradually reinventing itself. In doing so it was also putting in place a new model of *communication theory* upon which to mount its self-redefinition. The historic role of communication theory in underpinning the self-identity of the modern state is a larger issue I deal with in more detail in Chapter 3. Suffice it now to say that Mr. Ailawadi's problem is perhaps best situated in the aftermath of a major development in telecom: the new Telecom Policies of 1994 and 99 (hereafter NTP 94 and NTP 99)[15], in direct conversation with major new bills and policy moves like the National Task Force on IT and Software Development (1998)[16] and the Communication Convergence Bill (2001) [17], to effectively transform the communications landscape of the country. All the above policy documents can be seen to have addressed more or less the same problem: to put it in a sentence, how to ensure that static conflicts between the *market* and the *state* get resolved, in a new formula by which to simultaneously overcome the *last mile* as well. To therefore kill three birds with one stone: to

- Find a common solution by which Corporate and State interests could be merged,
- Define a strategy of Convergence that could bring these interests together, and thus

[15] http://www.dot.gov.in/ntp/ntp1994.htm and http://www.dot.gov.in/ntp/ntp1999.htm
[16] http://it-taskforce.nic.in/govtnot.htm#annexe
[17] http://www.dot.gov.in/Acts/CCBill_of_pages_41.doc

- Repurpose technological delivery in a way as could include its critical benchmark: India's six lakh villages, and especially those in its remote, hilly, and tribal regions.

Not easy, we would say. How they went about this may well be a bit of a case-study of what was in fact going on at this critical moment in the reinvention of both the State and the Last Mile.

We start with the NTP 99: it begins by recognizing that 'provision of world class telecommunications infrastructure and information was the key to rapid economic and social development of the country' and that, in the immediate future, 'a major part of the GDP of the country would be contributed by this sector': so this wasn't mere aid to a marginal issue of development. NTP 99 then reviews the somewhat chequered process of the earlier and even more significant policy of 1994 that – overcoming the astounded disbelief of many – permitted the entry of private players into telecommunications for the first time in India. The 1994 Policy's objectives were to ensure *availability of telephone on demand*, provision of *world class services at reasonable prices*, ensuring India's emergence as *major manufacturing and export base of telecom equipment* and *universal availability of basic telecom services to all villages* – all new conditions, to say the least, to the primarily welfare purpose of such policies since at least Independence. What was crucial perhaps was not the delivery mechanism, but how the finances would be raised for it: the 1994 version recognised that this would have to happen mainly through market mechanisms and that private investment would have to provide a major component of the resource gap. How it went about doing this is what we need to closely track.

In 1994, then, the Government in a historic development invited, for the first time, phased private sector participation, initially for value-added services such as Paging Services and Cellular Mobile Telephone Services and thereafter for Fixed Telephone Services. After a competitive bidding process, licenses were awarded to 8 cellular operators in the four metros, 14 cellular operators in 18 state circles, 6 basic telecom services operators in 6 state circles and to paging operators in 27 cities and 18 state circles. VSAT services were liberalised for providing data services to closed user groups.

Crucially, all of these licensees were to achieve a series of specific social targets within a very short deadline of three years. By 1997 (the privatization move had effectively only kicked off in 1995), one Public Call office (PCO) had to be set up per 500 urban population and coverage completed of all 6 lakh villages in the country. In its 1999 review, the Department of Telecommunications claimed that India had achieved an urban PCO penetration of 1 per 522 and provided telephone coverage to only 3.1 lakh villages. While NTP 99 worried about this shortfall, I would imagine it was not bad going: they seemed to have exceeded their PCO target and while 3.1 lakh villages were well short of 6 lakh, it was at least something. The real worry was arguably elsewhere: of the 14 cellular licenses issued, only nine had gone operational. By 1999, basic telecom services by private operators had only just commenced in a limited way in two of the six circles where licenses had been awarded. While there was a rapid rollout of cellular mobile networks in the metros and states with over 1 million subscribers by 1999, most

projects were facing problems. The main reason, according to both the cellular and basic operators (as NTP 99 has it), has been that the actual revenues were short of projections and the operators were unable to arrange financing.

How then, were they to find financial remuneration in bridging the last mile? The problem recurs again and again. As the Communication Convergence Bill of 2001 shows, the last mile was now three bridges rolled into one: you had to *reach the villages*, the 'rural, remote, hilly and tribal areas', you had to do this through *technological convergence*, and such convergence had also to facilitate *convergence of the market with the state*. The 2001 Bill states the objectives of the proposed Communications Commission of India were these: the Commission shall see that the communication sector is 'developed in a competitive environment and in consumer interest', that communication services are 'made available at affordable cost to all, especially uncovered areas including the rural, remote, hilly and tribal areas', further that 'there is increasing access to information for greater empowerment of citizens and towards economic development', that 'quality, plurality, diversity and choice of services are promoted', and that a 'modern and effective communication infrastructure is established taking into account the convergence of information technology, media, telecommunication and consumer electronics'. This would require that 'introduction of new technologies, investment in services and infrastructure and maximization of communication facilities and services (including telephone density) are encouraged'.

The Convergence Bill now officially declared 'that an *open licensing policy allowing any number of new entrants.*… is promoted' and with it was also promoted 'the principle of a level playing field for all operators, including existing operators… so as to serve consumer interest'. Furthering pretty similar causes, as an analyst points out, the Internet Policy of 1998 too on its side

> was ideal as a consumer-oriented and company-unfriendly license. No entry fee, no revenue share; any number of licenses, licensing to provide service in a city, any cities, in one state, many states, entire country; licensee can set up his own satellite earth stations to connect to global Internet backbones; he can deploy wireless to connect customers to his point of presence (PoP) and can even build up his own intercity infrastructure to connect the PoPs… (T.H. Chowdary, 'Telecom: Migration to Unified Multiple-Service Licenses', *Economic & Political Weekly*, September 23, 2003).

This then was the backdrop for NTP 99, and its mediation between two components – the state, represented by BSNL and MTNL, and the private cellular players. NTP 99's objectives were therefore: first, provide access to telecommunications, make affordable and effective communications available for the citizens, but, secondly, in a way that would *balance the provision of universal service to all uncovered areas*, including rural areas, with high-level services capable of meeting the needs of the country's economy. Such privatization, which made the NTP 99 not only the fellow-traveller of the 1998 IT Task Force and the 2001 Convergence

Bill but also synergized with the infamous Birla-Ambani Report or the *Policy Framework for Reforms in Education* of 2000, would have a complicated career on the ground, and it was to be a complex negotiation.

Let us start with the Indian State: represented here by the Department of Telecommunications (DoT). T.H. Choudhury comments that the DoT may well have had a position that was globally unique: the 'liberalisation of Indian telecom has no precedent or parallel anywhere in the entire world', run as it is by a DoT that is 'policy-maker, licensor, arbitrator and operator all combined into one'. 'This composite player in the field of telecommunications was to bring into being its own competitors; it laid down the conditions of license; it decided which sectors of telecoms were to be opened to competition. In other words, the player became the rule-maker and referee' ('Telecom: Migration to Unified Multiple-Service Licenses', *EPW*, September 30, 2003).

In short, the old DoT was a classic representative of the old leaking-sieve model. This DoT was now to ensure that private telecom bodies had to meet the extraordinarily stiff demands that the government was putting on all private networks: private telephone licensees (P-Telcos) were required to put up Village Public Telephones (VPTs), and to give 10% of their connections in rural areas. In doing so, they were being supervised by the very DoT that, despite far superior infrastructure, had been unable to meet any of its *own* deadlines in overcoming the last mile. Chowdary, who has commented on this entire saga in pithy detail in the pages of *EPW* (see his 'Sense and Nonsense on Village Public Telephones', *EPW* April 6, 2002, 'Rural and Village Public Telephones: A Sensible Solution', *EPW* Sept 28, 2002, and 'Rural Teledensity', *EPW* Feb 24, 2006), asks whether it is at all possible or even financially advisable that the P-Telco could give rural telephones and VPT over such distances, given that an average distance of an un-telephoned village to the nearest BSNL exchange is approximately 25 kilometers while it is almost certainly several hundred kilometers away from the nearest private exchange.

> And this, when the DoT itself was defaulting year after year to the extent of thousands of VPTs on numbers solemnly committed by the DoT and the government to parliament. *The P-Telcos were to compete not with even a government-owned company but the government department itself.* If there are any delays or disabilities encountered by the P-Telcos (for example, in securing interconnection), the P-Telcos were to appeal to the very DoT which was causing the delay and the difficulty ('Telecom: Migration to Unified Multiple-Service Licenses', *EPW*, September 30, 2003).

Adding to the problem was a curious set of issues, all of which are of vital interest to my argument, as I track the shift of the Indian State's self-definition. The licenses were split up statewise, again something that Chowdary says was unique in India. This prevented private operators (P-Telcos) from economies of scale, so that, writes Chowdary, 'a P-Telco may have cellular mobile service licenses in two adjacent states. But it was not allowed to interconnect its own two networks. The traffic has to be routed through the DoT, thus causing extra expenditure

to the cell Telcos and to that extent making the service costlier for consumers'. And so, says Chowdary,

> An STD call in Visakhapatnam to Chennai has to be handed over by the P-Telco to the DoT's TAX (Trunk Automatic Exchange) in Visakhapatnam; the DoT will carry it over 600 kms to Chennai, charging the P-Telco for 600 kms and this is happening while the P-Telco has its own long distance network up to the border of Tamil Nadu all over the 600 long kilometre distance. It could have handed over the Visakhapatnam to Chennai call to the TAX in Nellore and pay for only 100 kms instead of 600 kms.

The problem, I think, was not just that the private operators – the new messiahs of the last mile – had to go *physically* all the way round the blockage: they had to make something of a *discursive* detour as well, around a gigantic barrier in the shape of the Department of Telecommunications. I don't think we can understand it as anything but a discursive detour since, as Chowdary again shows, the cheapest and best solution for overcoming the Last Mile was precisely to get the government to do it but, according to me, the government – more precisely, an older avatar of government – was the one agency that had disqualified itself, being resolutely committed to the idea that government was a part of the problem and not part of the solution.

> The least subsidy and least capital would be involved if the VPT obligation is placed only on the BSNL. It does not mean that the private telephone companies are to be compulsorily excluded from the provision of VPTs. They can provide VPTs at their choice. (The way forward is to) not obligate the incumbent to provide the VPTs. We may make a list of the VPTs to be provided districtwise… That means the provision of the customer premises equipment (CPE), the PT or a Public Tele-Information Centre (PTIC) comprising a PC, a telephone, a scanner and a fax machine and the connection of the CPE to the nearest network point, maybe an exchange or the point of presence (POP) of an Internet service provider. *This connection could be by radio (that is, wireless), by Optical Fibre or copper conductor cables or satellite. It is for the access provider to choose the least costly system. Invite bids for the provision of the CPE and the access link to the nearest network or POP and their maintenance for, say, a 10-year period* ('Sense and Nonsense of Village Public Telephones', *EPW* April 6, 2002).

In a sense Chowdary's solution was close to what the NTP 99 had already proposed: the problem was not the idea but how it could be implemented, given strange and unexpected hurdles. Pradeep Baijal ('Telecomminications: Regulatory Wild West?' *Economic & Political Weekly*, February 21, 2004) takes us usefully through what we may already see as the pre-history of telecom, the regulatory moves determining the earliest history of the mobile phone in India. Following the 1994 Policy, we have seen, India liberalised its telecom network and for the first time permitted private players to enter. At that time, the license fee for private mobile operators was so high that they had introduced initial peak tariffs at more than Rs. 16 per minute for both incoming and out- going calls. Very soon, says Baijal, it was realised that such tariffs would lead

to no growth and so, after considerable debate, the government decided to reduce mobile operator's licence fee from Rs 20,000 crore to Rs 5,000 crore and converted the regime into revenue sharing.[18]

**II**

## The WLL-M Revolution

This was understandable and to that extent, implementable. What next happened – and how the government pulled itself up from becoming the hurdle to be overcome, and produced its own solution – was a totally unexpected interruption to the stable assumption that only the private cellular payers with their mobile phones could solve the last mile problem. This was the technology of the Mobile Wireless-in-Local-Loop (WLL-M). WLL-M was an astonishing innovation in deploying CDMA (Code Division Multiple Access) capability: Baijal says that it was first introduced by BSNL when it began connecting its customers to their landline services using radio frequency signals instead of conventional copper wires and examines the compulsions before the government at the time of introduction of WLL-M. Around 1995, he says, there was a broad recognition within government circles that the last mile, even if it was of 25 kilometers (Chowdary's average distance to a BSNL exchange in India), the costly digging requirements and so forth made it much more convenient and cheaper to connect the last mile to fixed telephones through wireless.

It may be simple enough to comprehend, but this kind of technological leapfrogging has remained a characteristic of modern Indian state functioning for decades: a move that really needs independent discussion and analysis as a typical game-changer strategy that the Indian state has used more than once. WLL-M was for example a worthy successor to the legendary use of chicken-mesh antennae originally invented during the Kheda Communications Project in Gujarat, a field laboratory that ran between 1975 and 1990 with hardware that consisted of one low-power transmitter located in the Pij village, about 50 kilometers south of Ahmedabad, which was connected to a local studio, the local Doordarshan station, and to a satellite earth station in Ahmedabad. At Kheda, the Space Application Center (SAC) had experimented with cheap aluminum antennae and primary TV sets in 2,400 villages receiving direct television signals from the ATS-6 satellite. The antennae had a 3-meter diameter and cost Rs 1,500, could be installed in a village in a few hours, and the mesh allowed strong winds to pass through, thus eliminating the need to build a strong support structure for the antenna. This went alongside ruggedised television sets that could withstand wide variations in voltage, vibration during transportation, and extreme conditions of heat, dust, and moisture. The SAC would use these for some years under the Satellite Instructional Television Experiment (SITE) before discontinuing the system for, yes, similar reasons that WLL-M would now face: the tension with market forces as represented, in SITE's case, by commercial television and with WLL-M by the private mobile phone licensees.

[18] Add footnote on the 2G controversy

It may be worth a small detour to understand WLL-M technology a little, the better to comprehend why it played such a key role in marking a discursive shift in the very definition of the Indian state. By the mid-1990s, as Mugo Kibati and Donyaprueth Krairit show in their work on Kenya and Thailand,[19] a global consensus had been arrived on the role of WLL as a leapfrogging device: wireless was the only really feasible solution to the severe dearth of communications infrastructure in developing countries, and that in the short term wireless networks were the only means by which the information infrastructure gap in developing countries could be overcome. A 'loose formula' had been arrived at, of employing fixed cellular networks for local loops (in the form of wireless local loop) and satellite transmission for long distance and international communications. It is the purpose of Kibati and Krairit to show how, even with this technology, the dominance of voice-centric networks was systematically marginalizing data communications. Xia Gao et al's work at the Docomo Labs[20] draw attention to the challenges before telecom technology in reaching the 'Bottom of the Pyramid'. Their work showcases the Grameen Telecom (GTC), which has succeeded in providing wireless telecommunication services to 100 million rural inhabitants in 68,000 villages in Bangladesh, and works through strategic partnership with local banks that provide loans to, and collect payment from, village phone operators (VP). Each VP runs its own public call office in a village and derives its profit from the difference between the air time charges paid by villagers and the billing amount from GTC.

The Indian equivalent of the GTC was in Tamil Nadu: the pioneering and under-discussed SARI (Sustainable Access in Rural India) project of Ashok Jhunjhunwala at IIT Chennai, initiated in early 2001 with support from Harvard and MIT, and managed since November 2001 by n-Logue Communications. SARI, sometimes claimed as the moment when WLL took root in India, set up kiosks in Tamil Nadu villages providing telephone, Internet and other stand-alone computer services to villagers. Self-employed local entrepreneurs were supported to run kiosks in a manner similar to the Grameen model.[21]

THE DOT'S OWN ADOPTION OF THE WLL, OR WHY AND HOW IT CAME TO ENABLE LIMITED MOBILITY TO WLL, HAS NOT BEEN RESEARCHED YET: M.F. ANSARI'S BRIEF REPORT FOR THE ASIA PACIFIC TELECOMMUNITY STUDIES ON RURAL TELECOMMUNICATIONS SAYS THAT THE FIRST REVOLUTION BEGAN WITH TECHNOLOGIES USED FOR RURAL COVERAGE SAYS IT ALL BEGAN IN THE EARLY

[19] http://dspace.mit.edu/bitstream/handle/1721.1/1486/kibati_krairit.pdf;jsessionid=9B1396FE1FB25D8E92513C824FC39975?sequence=1. The purpose of the authors was primarily to show that 'holding out for poor economies to grow before installing data infrastructure is a sub-optimal solution which is dominated by the superior economic strategy of incorporating data communications as an integral part of the growth policies', and showed that 'data communications should be just as pressing a concern as voice communications and should inform the legal, regulatory, market and spectrum policies of developing countries'. Note that our argument has not even arrived at data processing so far.

[20] Xia Gao, Xiaohong Quan, Ravi Jain, Toshiro Kawahara and Ged Powell 'Wireless Local Loop at the Bottom of the Pyramid', Docomo Communications Lab USA, http://www.docomolabs-usa.com/pdf/PS2003-129.pdf.

[21] For more on the n-logue model developed in partnership with IIT, Chennai, see Nirvikar Singh, 'Information Technology and Rural Development in India, 2004. (http://www.idfresearch.org/pdf/singh.pdf). For a short statement by Ashok Jhunjhunwala on n-logue see http://www.tenet.res.in/News/NewsIndex/Press/digi_partners.php.

1980S WHEN DOT IMPORTED MULTI-ACCESS RURAL RADIO (MARR) SYSTEMS FROM JAPAN AND ITALY TO PROVIDE PUBLIC TELEPHONES IN VILLAGES. BY THE EARLY 1990S, THE DOT WAS LOOKING FOR A COMBINATION OF UNDERGROUND CABLE, SATELLITE AND FIXED WLL.[22]

By 2000-01, DoT was reporting that they planned to provide over 1 million telephone connections based on wireless local loop (WLL) technology, and that of the target of 5.3 million connections for the year (including MTNL targets), as many as a fifth would be provided through WLL systems. By this time private operators were opposing the launch of both this service and MTNL's low-cost CDMA service (launched in October 1999) mainly on the grounds of cross-subsidization.[23]

Was the technology violating the nature of the license? For the same reason that cellular operators working in two neighbouring networks had to use DoT to connect them when it could have been both cheaper and easier to have consolidated their own assets, WLL-M too now had a contractual problem: they had a fixed telephone that suddenly found that it could move. The telephone could move, but the *fixed licence norms said that it could not move*. Suddenly, also, evolving technology had gradually increased the last mile to become the last several miles, and the fixed instrument to become that much smaller: neither of which had been envisaged either by the licenses or by the already beleaguered private mobile operators.

Recognizing that all the telephones could not be monitored for not being moved, and since there was a demand for limited mobility, and also since some kind of strengthening of fixed services was needed, the government allowed limited mobility in 2001. But how limited was limited mobility to be, asks Baijal. Some countries have allowed limited mobility within a tower. But, he writes, 'everyone is aware that a tower of CDMA technology breathes, meaning that at times of maximum traffic the coverage radius is very small whereas at times of low traffic the radius is very large. Thus the telephone moves for a variable distance – not a very practical proposition'. And so in India, it was decided that the telephone should only move within an SDCA (or Short Distance Charging Area), which was a local call area. This too was easier said than done. Operators, through call forwarding (basically allowed for fixed telephones and also through multiple registration) converted this limited mobility to almost full mobility. Although technically not a violation of the license, it was widely perceived as a violation of its spirit, whatever that may be: the ironic situation of the government being the major breaker of its own law. The issue now was, should the regulator recommend that the service be banned, leading again to endless litigation, or should a full-scale cellular service be recovered permitting the licensee as good a cellular mobility as possible? Our Ailawadi paradox was all set to grow into full scale War.

[22] http://www.itu.int/ITU-D/pdf/fg7/apt004.doc

[23] See the International Telecommunications Union's India case study, 'The Fixed-Mobile Interconnection: The Case of India', http://www.itu.int/osg/spu/ni/fmi/casestudies/indiaFMI_final.pdf

The Government chose to give WLL-M operators virtually full cellular status, not only says Baijal because it reduced litigation but also because it *increased income to the government*. Obviously, the Cellular service providers were not liking this sudden development one bit, and to add to the WLL-M problem, several independent licensed services issued under NTP 1994 had stopped making sense due to yet other technological developments such as radio paging, auto text and video text, voice mail etc. The result, says Baijal, was that even before a service licensee could fully realise his investment, his activity was threatened or made redundant due to technological development in another area. The blurring of technologies led to further disputes and often to litigation with claims on government for providing compensation. Time was being wasted on litigation, he says, rather than on promoting growth in the sector. An *Economic & Political Weekly* editorial ('At the Root: Defective Policy', Jan 18, 2003) notes the unprecedented spectacle of 'an entire segment of any industry launching a public campaign against its regulator, accusing it of being partial to another segment'. The cellular industry formally held that WLL was an unfair transgression into their licensed realm of mobility. Their complaint to the Telecom Dispute Settlement and Appellate Tribunal (TDSAT) was first turned down, on the ground that WLL-based mobility was a function of technological progress and could not be stopped. When the cellular industry appealed to the Supreme Court, the Court asked the TDSAT to review their decision. Meanwhile, TRAI issued a directive to Bharti Telecom, the largest cellular player, and to the cellular industry in general, to stop blocking calls from WLL-based players routed through state-owned telecom companies BSNL and MTNL. The cellular industry refused to comply with this directive, accusing TRAI of favouring the basic service licensees who also offer limited mobility. The problem by this time had come down to tariffs: calls between cellular and fixed line phones had to bear an additional charge called the access charge, over and above the charge for use of the wireless network (airtime cost) that calls between WLL-M phones and fixed line phones did not need to pay. This made cellular phones appear expensive, whereas the difference in tariff structure was entirely a creation of the telecom regulator.

As the January 18, 2003 *EPW* editorialized:

> The government and the regulator may well bludgeon the cellular industry into quiescence, if the courts do not come to the industry's rescue. This will not solve the problem. *At the root of the controversy is the telecom policy's failure to appreciate that telecom services are now a seamless whole, thanks to technological and commercial changes, and that its segmentation into mobile, basic, Internet access, long distance, short distance, etc, is artificial*. The government's telecom policy segments the industry into separate services and awards licenses for the different segments under different terms and conditions. This is what pits the cellular industry against the WLL-mobility industry, each with its own pricing regime that makes sense in itself but creates asymmetry between the two segments.

<u>The Unified Access License and Universal Service Obligation</u>

The only way out of the current mess, said *EPW*, was to change policy to *accept the reality of convergence in communications and grant a unified communications license to all those who ask for it*, subject to the availability of the frequency spectrum, the only finite resource in telecom. Parallelly, the criterion for allocation/revocation of the spectrum **can be fixed as fulfillment of a commitment to extend networks to rural areas**. Repeating the very language of the 2001 Convergence Bill, *EPW* says that licensing, pricing and operating terms for all players must be the same and the regulator must ensure that interconnect agreements are fair, provided the above commitments are met.

The purpose of this argument, or my present understanding of the Ailawadi paradox, was not how the government mediated between two components of the telecom industry and effected a compromise. In fact, perhaps the most useful aspect of the Ailawadi paradox would be the way an older definition of government, despite having the capacity, *disqualifies itself* on various *other* grounds: one all too familiar, that older pre-convergence communications model has by now been politically discredited, but a second a brand new one: *that the state could not function if it were both a player and a referee* – a collector of license fee, and therefore with a direct interest in revenue generation (in a sector it has already described as capable of generating a 'major part of India's GDP'), at once a licensee as well as an adjudicator of licenses, in some hazy concept of the public good.

And so I come to what I consider perhaps the most significant move that WLL-M facilitated: the arrival of the concept of the Unified Access License. With NTP 99, Cellular Mobile Service Providers (CMSPs) were already able to provide mobile telephony services including permission to carry their own long distance traffic within their service area without seeking an additional license. Direct interconnectivity between licensed cellular service providers and any other type of service provider, including sharing of infrastructure with any other type of service provider, was supposed to have become official. CMSPs were, apparently, free to provide, in their service area of operation, *all types of mobile services including voice and non-voice messages, data services and PCOs utilizing any type of network equipment, including circuit and/or packet switches*, that met relevant International Telecommunication Union (ITU)/ Telecommunication Engineering Center (TEC) standards. Such licenses, it was said, would be valid for twenty years, incorporating any future changes in technology in this time.

What changed? Let us remember that all the controversy, and the War between the cellular companies and the DoT took place in the early 2000s *after* the Unified Access License had been announced in 1999, and may well be seen – as the *EPW* editorial suggests – as a different and perhaps much more complex negotiation than merely a war over tariffs. My contention is that any credible solution could only arise if, under the aegis of the Unified Access License, a considerably older set of antagonisms were first resolved, and the stated antagonists, the State and the private corporate players, or we might say state and market, were able to abolish their historical discord and sit on the same side of the table, the better to be able to address the Last Mile Problem. However, I further propose, this was an impossibility unless the public good was

itself redefined, and with it was transformed the character of the citizen-recipient as someone other than a unidirectional beneficiary of state aid.

One way out was a further innovation: the equating of the Unified Access License with a new definition of the public good to which *all* would be equally committed: a new concept of the Universal Service Obligation (USO).[24] All licenses under the USO would be subject to a new kind of tax, or rather the creation of a market subsidy, which would then be used then to pay for the costs of all fixed service providers supplying services to rural and remote areas *regardless of whether they were private or government*. All service providers were encouraged to provide projects for remote, hilly and tribal areas under the USO, for which they would be reimbursed from the funds from the universal access levy. This now was the way by which the NTP 99 promised that by 2002 the remaining 2.9 lakh uncovered villages in the country would receive voice and low speed data service, and internet access would be provided to all district head quarters by the year 2000 and telephone on demand in all urban and rural areas by 2002 – and the last mile finally bridged.

The USO levy is today a major source in funding the Last Mile in telecommunications. Ch. Sambasiva Rao ( 'Universalisation of Telecom Services: The Way Forward', *EPW* October 27, 2007) says that as on February 2007, the government had collected Rs 14,276 crore till the end of February 2007 through the USL, of which amount, the USO fund has spent Rs 4,556 crore. So what qualifies under the concept of a Universal Service Obligation? A useful study on the USO and its issues by students of IIM-Ahmedabad (*Universal Service Obligation: A Critique of the Consultation Paper by the Telecom Regulatory Authority of India*, 2001) points to the issues.[25]

Firstly, the Obligation benefits from a specific telecom variant of the 'all-together-now' definition of the community: because it is a *technical* fact that the larger the number of users in a telecom network, and the larger the extent of usage, the better for all. So the first shift was to encourage overall usage of telecom, especially in rural areas. The second, more complex, was to get users to pay: a politically contentious issue that needed to overcome the very definition of subsidy into something else – into a catalyst for capability. The IIM recommendations therefore go as follows: firstly, subsidies would need to be built into the nature of usage, and eventually paid for by subscribers. However, since usage tends to vary from person to person and from region to region, in the absence of any obligations imposed for providing universal service, an operator could on purely commercial considerations deny service to lower-revenue yielding customers even in urban areas, giving rise to cream skimming behaviour. Since the Universal Service provision has been based on cross-subsidies from long distance to local service and from urban to rural areas, it becomes vital that licensees find *internal* ways to subsidise their less-paying sectors rather than be subsidized by an external agency. And so it was vital that new

[24] Footnote the global history of the USO

[25] *Universal Service Obligation: A Critique of the Consultation Paper by the Telecom Regulatory Authority of India* (Arunima Patel, Bhavya Sharma, Ritu Khandelia, Roshan PF, Sandhya Chandrasekhar, 24th August 2001), http://www.iitk.ac.in/3inetwork/html/reports/IIMStudReport2001/A4.pdf

private players exist in both the basic service as well as long distance service, and further that a relatively simple procedure be found where all fixed access providers should have to tie in their universal service contribution (USC) to the interconnection charge. Anyone who buys interconnection services should have to pay the USC.

More complicatedly, since the cost of operation of a Village Public Telephone (VPT) includes a fixed cost associated with running the telephone, the amount incurred in training the individual to operate the VPT, maintenance of the systems for regular billing, etc., and a variable cost associated with a telephone call alone, it was necessary, according to the IIM group, that fixed or wireless lines be offered to specific villages after taking into consideration the fixed costs of setting up each of them as well as the operational costs that would be incurred, which would be dependent on the distance of the village from the nearest Service Provider as well as on the expected caller revenue. This in turn would depend on the extent of affluence of the village. The group recommends that the USO subsidy should vary based on the mode of communication offered (Fixed line or Wireless) and the prosperity of the village. They recommend the introduction of a Slab rate system of payment where, whenever the number of calls exceeds the stipulated amount, *all* the calls would be charged at a higher rate. This would ensure that only those people who can pay are charged higher.

**III**

## Taking the Neoliberal Turn: or The Market that may not have Failed

> The suffusion of both the state and the subject with economic rationality has the effect of radically transforming and narrowing the criteria for good social policy *vis a vis* classical liberal democracy. Not only must social policy meet profitability tests, incite and unblock competition, and produce rational subjects, it obeys the entrepreneurial principle of "equal inequality for all" as it "multiplies and expands entrepreneurial forms within the body social"... This is the principle that links the neo-liberal governmentalization of the state with the development of a neo-liberal social sphere and neo-liberal subjects – Wendy Brown, 'Neoliberalism and the End of Liberal Democracy' (2003)

Let me now come to my main contention on the Ailawadi paradox. I am suggesting that the telecom policies of the 2000s realized much of what he had wanted, but on a rationale quite different from what he had in mind. His position was more or less that of the old-time neocon: the state cannot deliver benefits, and is becoming an obstacle to private delivery, therefore roll back the state and *disinvest*. Disinvestment of major state enterprises was, of course, one of the great mantras of India's first pass at globalization: the era of Arun Shourie and the privatization of steel, automobiles and natural gas. And my point *was* going to be that such disinvestment – requiring private players to take over and better deliver state welfare through the market – would never work, because the problem was not the *state* but the uni-linear hyper-centralized sender-

receiver model of delivery that the state had derived from an older form of communications theory.

The Great Divide: A First Definition: We have arrived, finally, at the first of several moments when we will look across the great chasm of modern India: the divide that it was apparently the business of the Last Mile to overcome. Put one way, and refracted through a particular kind of developmental lens, the last mile is almost always a 'problem': an unbridgeable gap, a chasm between India and Bharat, with solutions only found either through going round the problem or sneaking through some kind of cavity. In its most conventional definition, this has been seen as an urban-rural problem; less conventionally, perhaps, as a class divide between the tired categories of 'haves' and 'have-nots'.

By the mid-1990s, however, the nature of the economic divide was gradually becoming more complex, as also the role that communications theory could play in overcoming such a divide. C.P. Chandrasekhar and Jayati Ghosh's classic *The Market That Failed: Neoliberal Economic Reforms in India* (2002) proposes that the real divide was not so much a divide as an economic *contradiction*: between two very different roles that the Indian state was playing, which were in the long run incompatible. These were, on one side, that historically the primary means by which India has kept its domestic markets going was through state expenditure: 'continuous growth in state spending was essential for the growth of the market since it was a key element in whatever overall dynamism that the state displayed'. On the other hand, the state was also playing the historic role of being the conduit by which large scale transfers of capital could be made to proto-capitalist groups which included 'corruption, cronyism and arbitrariness', and doing so effectively at the cost of the market's ability to develop. While the state wasn't the only means to make this happen, it was nevertheless true that the state exchequer was the most significant via media for such transfer of capital into private hands through tolerance of tax evasion, subsidies and contracts and procurement policies. The arrival of the financial boom of the 1980s, say Chandrasekhar and Ghosh, in fact facilitated several developing governments that wanted to be integrated into the world economy without necessarily destabilizing their entrenched landed and industrial interests (such as India) found a new opportunity to do so. The period of the 1980s saw in many developing countries soaring budget deficits financed by international borrowing, aided and abetted by the new lending policies of the international banking system. Chandrasekhar and Ghosh therefore see the divide that was emerging in India as follows: on the one side, a market that can only survive through direct government expenditure. On this side, such stimulus, financed through borrowing, was leading to a surge of demand in the system – including a demand for imported goods – that was not being matched by any rise of export productivity, and could only lead to inflation and the soaring of current account deficit.

The great divide here is not any simple urban-rural or have-have-not divide: it is a divide between two *conflicting responsibilities of the State*. On the one hand, the State is more or less singlehandedly propping up domestic markets, but on the other hand, its other purpose, of facilitating transfers of capital for a political class prevents such markets from ever developing

into a truly effective means of disciplining economic activity. What they would have liked the Indian state to do was to widen its domestic market through structural change, use land reform and direct taxation to control revenue deficits, and implement stringent import controls. What the government did in fact do was, firstly, to significantly reduce controls on capacity creation, production and prices, and let market forces influence all operational decisions by domestic and international agencies. Secondly, to reduce the presence of state agencies in production and trade except where market failure necessitated State intervention, and finally of course by liberalizing the financial sector and allowing the entry of global financial institutions into the country.

We need to note that the market itself isn't by itself the problem here, but that it has morphed into something more subtle: and this addresses the capacity of the market to become something more than itself. Neoliberalism, the communication systems for which I think we are seeing telecom assemble in India today, has been a confusing concept for many, and I further suspect that India may have its own take on neoliberal functioning somewhat different from its West European or American model. Most historians of the concept speak of the rise of economic rationality as the dominating principle for everything: as Wendy Brown has it, a moment when *homo oeconomicus* would reduce, or elevate perhaps, all aspects of human life to market rationality. This may well not be old-time anti-statism but rather the difference between what Prabhat Patnaik has called a 'transcendental marketism' as against a 'contextual marketism'.[26] If the old idea was to roll back the state, the new seems to involve, Brown says, a normative rather than ontological claim about the pervasiveness of economic rationality. What the state needs to do is to build institutions, policies, and discourses around development appropriate to such a claim. Neoliberalism is therefore a 'constructivist project', one that takes as its task the development, dissemination, and institutionalization of such a rationality.

[26] Patnaik defines 'transcendental marketism as one that makes its case 'on general principles… One can distinguish at least three separate strands (in the argument): the standard neoclassical argument of efficiency of resource-use, from which follows the prescription that 'prices should be got right' (and carries the) implicit assumption that the economic universe is characterised by all-round linearities. State intervention distorts prices and causes inefficiency of resource-use, from which it follows that 'liberalisation', both external and internal, is essential for promoting efficiency and making economic growth viable… The second strand emphasises the intrinsic limitations of the state as an agency for economic intervention. As a fiscal authority the state tends to appease different interest groups through lower taxes and larger implicit or explicit transfers. As a producing authority the state, i e, the state sector, is itself subject to no discipline and therefore feels no need for imposing any internal discipline. This lack of discipline in turn is bound up with the absence of accountability: there is no agent that can be held accountable in state enterprises; there are no criteria of accountability; and there is no impersonal entity that enforces accountability. The result of all this inter alia is a growing fiscal deficit, i e, the economy is forced to live beyond its means because a major segment of it experiences a perpetual and growing deficit. The market by contrast is essentially a disciplining device. It not only gives signals on the basis of which appropriate choices can be made, but ensures that participants who flout its discipline fall by the wayside. The third strand emphasizes… the stifling of enterprise and innovativeness that an economy with pervasive state intervention and ownership entails. The market, on this view, apart from being a purveyor of appropriate signals, and a disciplining device, is also a mechanism for unleashing enterprise, in the absence of which there is bound to be economic atrophy'. The 'contextual marketists' on the other hand recognize that 'there is no alternative to a market regime based on external and internal 'liberalisation' (since) the scope for any autonomous national economic policy has been attenuated because of the tremendous internationalisation of capital' (Prabhat Patnaik, 'International Capital and National Economic Policy: A Critique of India's Economic Reforms', *Economic and Political Weekly*, Vol. 29, No. 12, Mar. 19, 1994, pp. 683-689).

The question before us what this new formulation does to our leaky sieve theory. It is probably too early to tell, but I think that both the Unified Access License and the Universal Service Obligation were probably game-changers, the consequences of which we can only now understand and explore. I think that the telecommunications imbroglio gives us a ringside seat on a somewhat foundational change that seems to be going on in India, where the very concept of the Last Mile got transformed. The gun that would shoot the 'message' had a very different target now. It doesn't of course mean it can deliver any better.

Clearly such a rationality was being attempted in my telecom example, most directly in the way the Unified Access License made State PSUs tow the same economic line as their corporate cousins: downgrading the DoT into being a player rather than the referee and at the same time upscaling it into becoming a full-scale cellular player. It was also evident in the way both state and private operators were being asked to adjust their subsidies within their overall revenue model and receive subsidies under the USO only for specific activities under their delivery mechanism to Indian villages. Sambasiva Rao (2007) points out that a major service listed under the USO is provision of broadband facilities in rural areas. However, he says, mere provision of broadband connectivity does not enable people to obtain full potential benefits through the USO, since such benefits require that *applications*, especially income-generating ones, and *services* that lead to empowerment of rural people are provided over broadband, and these are still missing or only minimally there. The play of market forces in this aspect is limited owing to the projected limited business opportunity initially offered by rural areas, as compared to urban areas. Since the USO only pays for infrastructure costs in the areas where traffic is low, the strategy would be to pay for specific infrastructural support that would deliver the most recent technologies – 3G being the current flavour – to remote areas, and then leave it to operators spilling over the saturating urban market to meet the growing rural demand with specific kinds of applications and services.

Among the most important changes in all this was the conversion of the poor rural beneficiary into a now not-so-poor *homo oeconomicus*. The single consolidated revenue model, within the cellular operator's own financial commitment as well as within the USO fund as a whole, was now coupled with the government for the very first time in independent India no longer spending money to bridge the Last Mile but *making* money, significant money, out of the process.

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**Chapter 3.**

# THE TELEVISION REVOLUTION AND THE BULLET THEORY

> '…the model in their minds was that of the 'bullet' theory' – have a message, fire it, and expect the target to be hit' – Robin Jeffery ('The Mahatma Didn't Like the Movies and Why it Matters', in Arvind Rajagopal ed. The *Indian Public Sphere: Readings in Media History*, New Delhi: OUP, 2009, pg 177-8)

**I**

## Technology, Information Processing and Governmentality: The Broadcasting Debate

In February 1995, a scant few months after the first 1994 National Telecom Policy was announced, India's Supreme Court passed judgment in the case of the Cricket Association of Bengal versus Ministry of Information & Broadcasting and Doordarshan. The issue, some may recall, was around the CAB'S sale of telecast rights of the Hero Cup to TWI Sports, when Videsh Sanchar Nigam Ltd – not yet acquired by the Tatas but nevertheless considered to be purely a commercial organization with services available to anyone willing to pay for them – suddenly took on a further, national-protectionist identity. There was some similarity to this role and the one we saw the Department of Telecommunications play in previous chapter at the very beginning of the cellular revolution.

The licensing mess: The story probably merits a detailed telling.[27] In March 1993, the CAB first wrote to the Director General of Doordarshan (DD) saying that a six-nation international cricket tournament would be held in November 1993 as a part of its diamond jubilee celebrations, and asked how they would like to be involved. They proposed two ways: one, where DD would create 'Host Broadcaster Signal' and also undertake live telecast of all the matches in the tournament, or, secondly, where someone else could be commissioned to be host broadcaster and DD would only purchase non-exclusive rights to telecast in India. In either case, CAB emphasized, they would retain world rights for the telecasts. If DD wanted to host, they would have to pay US $800,000 for non-exclusive Indian rights. DD offered a maximum counter-bid of Rs 1 crore, but demanded exclusive domestic rights for this amount. Meanwhile – some say this was done covertly, others that DD was fully aware – the CAB entered into talks with the World

[27] The following account has been summarized from Siddharth Narrain's very useful account of the judgment: http://www.nwmindia.org/resources/Online/pdf/The_airwaves_as_a_public_good_Review_of_a_landmark_judgement.pdf

Production Establishment (WPE), representing the interests of Trans World International (TWI Sports), and in June announced that they had sold telecast rights to all the matches to them. This was before they had even acquired permission to telecast at all from the government, usually a formality with DD involved but which acquired new significance given the sale of uplinking rights to a private agency that was not even based in India.

The CAB's deal with WPE was basically this: they would grant sole and exclusive rights to them to sell/licence or otherwise exploit throughout the world the exhibition rights in the tournament. CAB only retained radio rights for the territory of India. Under the agreement CAB would receive not less than US $550,000 as a guaranteed sum. If income from the rights fee exceeded the guaranteed amount, it could be wholly retained by WPE until it was eventually split into 70:30 per cent as per the agreement. If the rights fee/income received was less than guaranteed sum, WPE was to pay the difference to CAB. Importantly, WPE would pay the television license fee in advance of the start of the tournament.

Shortly after they came to know about this (by one account, DD only came to know of this deal in the newspapers), DD sent a fax to CAB stating that they had decided after all not to telecast the tournament, since India's national broadcaster considered it seriously *infra dig* to be a sub-licensee of a non-Indian commercial organization for a cricket tournament happening in India. This of course had some validity: imagine BBC being a sub-contractee for a cricket match played in England! Nevertheless, despite this snub, the government gave their no-objection to the tournament. This brought in a second state biggie into the picture: the Videsh Sanchar Nigam Limited (VSNL), at the time the sole uplinking facility in the country and considered to be something of a purely commercial new-generation government institution. When CAB applied for VSNL participation to uplink the broadcasts they had sold to WPE, they were given an in-principle okay but told to approach the respective Ministries, as well as the Telecom Commission, for (a) approval of import of earth station and transmission equipment, and (b) frequency clearance from the Telecom Commission. VSNL on its side even asked CAB which satellite they planned to use (it was to be INTELSAT) so they could go ahead and book it. It was also generally agreed that VSNL would extend to TWI-Sports the necessary coordination channels and DD the phone facility covering each location.

Meanwhile, CAB was continuing its efforts to bring DD back to the table, to get them to telecast the tournament as a sub-licensee and to negotiate some kind of shared arrangement with TWI-Sports. It appeared that some kind of compromise had been reached along the following lines: TWI-Sports and Doordarshan would split the tournament in half, cover 9 matches each with their own independent equipment, crew and commentators. Each could use the other's feed but have their own commentators for matches produced by the other. TWI would not charge Doordarshan anything to pick up the signal and telecast live within India, and Doordarshan on its side would permit TWI to have a free signal for live/recorded/highlights telecast abroad. Lastly,

Doordarshan would not pay access fees to CAB, but would allow 4 minutes advertising time per hour (i.e., 28 minutes in 7 hours) which CAB could sell to advertisers.

Just when the deal appeared all signed, the last mile watchdog kicked in. DD suddenly told the Cricket Board that they would not take signals from TWI, a foreign organization, or do any joint production with TWI. *Indeed, far from paying DD paying CAB anything, if the CAB wanted DD to telecast the matches live, CAB would now have to pay DD technical charges/production fee at Rs.5 lakh per match*. In such a case DD would automatically get exclusive rights for the signal generated and the parties interested in taking the signals would have to negotiate directly with the DD.

Classic state-puts-barrier-on-last-mile stuff. Since no broadcasting was possible without the last mile problem being overcome, and since DD owned this mile, they were lowering the boom.

We return to VSNL. In October 1993 TWI wrote to VSNL seeking frequency clearance from the Ministry of Communications, and was soon given permission by the Ministry of Home Affairs both for filming the cricket matches and for using walkie-talkie sets on the grounds. Shortly thereafter, VSNL wrote to INTELSAT at Washington seeking information on uplinking timings for the TV transmission requested by CAB/TWI. Also that October, the Telecommunications Department sent a letter to the Central Board
of Excise and Customs on the question of temporarily importing electronic production equipment required for transmission of one-day matches. On 2 November TWI paid US $29,640 to VSNL as fees for INTELSAT charges. On the same day, the Finance Ministry permitted TWI's equipment to be imported on
certain conditions by waiving the customs and additional duties of customs.

Meanwhile on the Doordarshan front, a flabbergasted CAB wanted to know if, having asked for fees for the production and telecast of matches, DD would at least agree to let CAB keep all revenue generated from the matches, and the entire time slot for advertisements, and whether they would have the right to charge access fees, including other charges from parties abroad, if DD did indeed telecast those matches for which CAB would be paying these technical/production fees. Doordarshan summarily rejected these terms.

Three days later, the CAB filed a writ petition in the Calcutta High Court: they said their deal with Doordarshan had fallen though, but in order to telecast at all they needed key Doordarshan facilities. They asked the court to direct Doordarshan to provide arrangements and facilities for telecasting and broadcasting of the matches by TWI. What was finally decided by the High Court's interim order was this: Doordarshan would be host broadcaster, and CAB would pay a sum of Rs 5 lakh per match for these facilities. The contentious revenue being collected by DD from sponsorships would be kept in a separate account until the question of how it should be

divided up could be decided. Meanwhile, the Court asked the Ministry of Telecommunication to decide within three days whether it should issue a license to TWI under the Telegraphs Act.

It didn't take three days. The very next day, the momentous November 12th, the Film Facilities Officer of the Ministry of Information and Broadcasting informed the Customs Department at New Delhi, Bombay and Calcutta airports that, since TWI had not obtained the required clearances from the Government for coverage of the tournament, they should not be permitted to take exposed film out of India till it was cleared by the Government. That very day, DD asked CAB to provide various facilities at each match venue as this was a prerequisite for creating host broadcaster signals in India. CAB sent an immediate reply calling upon DD to telecast matches within India pursuant to the High Court's order. Also on the same day the Collector of Customs, Bombay called upon CAB to pay customs duty on the equipment as there was a breach in the terms of the exemption order.

As though that was not enough for one day, the Committee of Secretaries met and took the epic decision that henceforth *the telecast of all sporting events in India would be within the exclusive purview of DD and the MIB.* They also decided that for the purposes of obtaining necessary clearances for telecasting different types of events for the country, a Single Window service would be followed where the concerned administrative Ministry would be the 'Nodal' Ministry (NM) to which the application would be submitted. It would thereafter be the function of the 'Nodal' Ministry to obtain permissions from all the concerned Ministry/Agencies.

On November 14th, the High Court, clarifying its order of November 12th order, directed that in case the signal is required to be generated by TWI separately, necessary permission should be given by DD and/or other competent authorities. If both DD and TWI were simultaneously telecasting the same match, and differences arose with regard to the placement of cameras, etc., such differences should be mutually worked out or, at worst, the Head of the Police in the place where the match was being played should decide the dispute. TWI's equipment, which had been seized by the Customs authorities, should be released upon an undertaking that the same would not be used for any other purpose. VSNL should take proper steps for uplinking, and should not take any steps to defeat the orders of the Court. For its part, TWI should comply with all financial commitments to VSNL.

On November 15th, CAB filed the present Writ Petition No. 836 of 1993. And on that very day the Supreme Court passed an order directing the Secretary, Ministry of Communications, to hold a meeting by 4.30 pm that day itself and to communicate their decision by 7.30 p.m. The Customs authorities were directed to release the equipment. Later that night another order was passed partly staying the orders of the Chairman, Telecommunications and Secretary, DoT. TWI was permitted to generate its own signals and the Customs authorities were directed to release the goods forthwith. Also on the same day DD filed a Contempt Petition in the High Court

against CAB and another, for non-compliance with the orders of the High Court. It also filed the present Special Leave Petitions in the Supreme Court on the same day.

Overturning the 'Act

This, then, is the background to the 'landmark' Supreme Court judgment to which we shall now turn.

Sounds a little like gory pre-history? Inconceivable today? In adhering to its gatekeeping self-image as the only agency that can bridge the last mile, the Indian state was taking a position consistent with its welfarist legacy. Historically, the state has been the only agency that has had the capability of enabling nationwide communications access, and with the *Special Plan for Expansion of Television* of the early 1980s, Doordarshan had reiterated its central role in being the only agency for delivering audio-visual terrestrial signals. But the stakes here were clearly different: other agencies were now challenging this role, claiming that they could do this better than Doordarshan, and that the barrier it was posing was in fact a barrier to the growth of the market. I think the judgment now allows us to enter, more precisely than any other recent event in India's rapidly changing communications landscape, the embattled category of the recipient of the last mile. It certainly helps us explain why a dispute over contractual obligations could be come the basis for overturning an Act that had been in existence for over a hundred and ten years in India.

The issues have direct similarity to those that faced telecom during the WLL brouhaha, but even more to the point than with WLL, here the broadcasting debate would be directed almost entirely on normative grounds: around the term 'public', the intended beneficiaries – the people of India – on whose behalf the battle was being fought out in Court. Interestingly, the aggrieved party here was not the TWI whose equipment was confiscated, whose contract torn up. It was Bengal Cricket Association, and the issue was whether they had the right to sell cricket telecast rights to anyone they chose or whether Doordarshan had something of a mandatory right of first refusal, as national broadcaster, on anything that was bring uplinked from India. The CAB, backed by the Cricket Board, filed a legal suit that – had they won it – would have finally released them of the tyrannical hold of Doordarshan (and VSNL) of both broadcasting and uplinking rights of anything emanating from Indian soil.

A relatively limited issue featuring sponsorship arrangements (and reported predominantly in the sports pages of newspapers) thus took on an entire new dimension when the Supreme Court chose this of all issues to deliver a judgment that opened up a new era in the definition of Indian citizenship. Abbreviated in most popular reportage into its operative five words, 'Air waves are public property', that judgment overturned an Act that had been written in 1885. The Indian Telegraph Act, 1885 modeled as the name suggests on the new technology of telegraphy, had given the Central Government 'exclusive privilege' with regard to licenses over 'any appliance,

instrument, material or apparatus used or capable of use for transmission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, visual or other electro-magnetic emissions, Radio waves or Hertzian waves, galvanic, electric or magnetic means'.

Overturning such an Act must require us to see it as overturning the foundational assumptions of the Act as well: these assumptions being that communications constituted a movement of a message from a sender to a receiver. As with the telecom mess, here too the issue was to primarily become a worry over licenses rather than the question of whether the law was at all capable of comprehending the technology. When in May 1997 the Judgment was transformed into a draft Bill, the proposed Broadcast Bill of May 1997, key sections included 12/3 that 'no person shall be granted license for more than one category of service' – dividing terrestrial cable from DTH, and again opening a major can of worms as to whether Indian policy was ever going to comprehend convergence. 15/2 insisted that 'the licensee shall carry out the uplinking of satellite broadcast services ... from India only', a major issue at the time when such uplinking was happening mainly from Hong Kong. Part III prevented existing print news services from applying for licenses, some said mainly with the effort to target the *Times of India*'s TV ambitions, 1/d of the restrictions list disqualified foreign equity from exceeding 49%. All of these issues opened up divides that had been absent in the debate around the judgment itself.

Further Definitions for the Great 'Divide'

Overturning the Telegraph Act, I have suggested, meant overturning the basic assumption of the technology – foundational to one model of the democratic state – that communication constituted mainly of two categories, a sender and a receiver: furthermore, a centralized sender (located, we may say for discursive purposes, in New Delhi) and a receiver in the rural areas. I want to track the nature of change in these categories through a close reading of some key commentaries on just what public opinion thought the problem was.

As we have already seen, concerns have been expressed in India since at least Independence on how the 'other' public – primarily characterized as 'rural', though this characterization would jostle with others driven more by class inequality than the bland division of the country into urban and rural – could be accessed by centralized states through centralized communications media. As far back as in 1966, the Chanda Committee[28] had criticized India's policies on radio. As Victoria Farmer (2003) outlines it, the report's assessments arose mainly from the adequacy of coverage for India's plural society. The report forcefully argued for the need for local level-program production and broadcasting if any developmental or educational messages were to be effective. It recommended that linguistic minorities and special audiences would be better served if each region was given at least two channels, and that single-channel national programming would not close the airwaves to regional broadcasting. On the other hand, reproducing statist

[28] *Radio and Television: Report of the Committee on Broadcasting and Information Media*. New Delhi: Ministry of Information and Broadcasting. A.K. Chanda (Chair), 1966.

anxieties as to whether market-driven benefits would ever reach the people, the Chanda report contended that consumerism-driven strategies were likely to fail mainly because they would overlook the importance of providing development programming to local audiences. All in all, the main problem was that the existing nature of developmental programming was compromising All India Radio into a 'psychology of conformity'. There has been, said the report

> the failure to realize that human resources are decisive in all progress and that without an informed and cooperative people, plans for social and economic development cannot be sustained and implemented. Today 82 per cent of our people live in villages and 76 per cent of them are illiterate. Any worthwhile planning effort should inevitably be directed to bring progress and prosperity to the rural community, but the effort cannot succeed until we have established effective communion with them...

Twenty years later, and a decade before the Supreme Court judgment, the P.C. Joshi report commissioned by the Ministry of Information & Broadcasting and titled *An Indian Personality for Television* (DATE) reprised several of the Chanda criticisms, savaging the MIB for what it now called the 'Delhi-centric' ideology of hyper-centralized broadcasting. It went on however to make a more specific point in relation to the role that *technology* may be playing in overcoming India's Last Mile: that

> having drawn attention to the vast potential of *new technologies* as *humanizing, integrating* and *activizing* agents, we must draw attention to the vast gap between the potentialities and the actual results. *While new technologies are potentially capable of vastly reducing the rural-urban cleavage, the hiatus between the elite and the masses,* and the disparity between ethic groups and regions, their actual utilization *is often in the opposite direction of widening and accentuating the class, regional and rural- urban disparities*. While new technologies are potentially capable of building up national cohesion and identity, *their actual utilization is quite often in the opposite direction* of opening up Indian society to the forces of neo-colonialism and of erosion of national identity (emphases mine).

So unless we read the technology afresh, however many last miles we bridged we would almost certainly be reinforcing old divides. Overcoming the *technological divide* didn't necessarily mean overcoming the *social divide*.

**II**

## Abolishing the Divide: Responses to the Judgment

Let us with this background revisit the Supreme Court judgment in its key paragraphs. The first, iconic, much quoted line was that

> monopoly over broadcasting, whether by government or by anybody else, is inconsistent with the free speech-right of citizens.

This is perhaps simple enough. To that was a second attachment:

> State control really means governmental control, which, in turn, means control of the political party or parties in power for the time being. Such control is bound to colour the views, information and opinions conveyed by the media.

Once again, there is nothing here that is not already implicit in either Chanda or Joshi. But then comes the key turn:

> The Broadcasting media should be *under the control of the public* as distinct from *the government*... It should be operated by a public statutory corporation or corporations, as the case may be, whose constitution and composition must be such as to ensure its/ their impartiality in political, economic and social matters and on all other public issues. It/they must be required by law to present news, views and opinions in a balanced way, ensuring pluralism and diversity of opinions and views. It/they must provide equal access to all the citizens and groups to avail of this medium (emphases mine).

This was decisive. It was, I think, decisive in a way that the Court itself may not have intended. While the Supreme Court was itself perhaps no more than envisaging the creation what came to be known as the Broadcasting Association of India, the ethical issue – of how a *public as distinct from the government* could demand a public interest that separated it from market forces – was foundational. As debate grew around how to translate that judgment into a Parliamentary act, both concepts - 'State control' and 'public' - were mobilised by different commentators to mean very different things.

In one sense it appeared that a brand new concept of newly energized 'public' capable of various kinds of action was bring put in place. This public, a 'property-owning public', was different from what we had seen so far over nearly five decades of the old 'citizen' of the independent Indian state. If the issue was at once both technological and political, what we were getting here was therefore a broadcast policy considering new ways of incarnating a new 'addressee' of its public policy, and everyone was wondering how to introduce new political attributions to the transmission systems as instruments being placed at the service of *this* public, and what the new contractual arrangements could be by which this public could access the services geared for its new self-identity.

What interests me in the furore that followed was not so much the fury of the argument re-enacting the various ends of the standard ideological political spectrum, but rather how opponents, while vehemently opposed on what the new public could stand for, were nevertheless

curiously agreed on *how* this public could be accessed. I propose that the general consensus on how the people should be reached was founded on what I could call the Telegraph Act imagination, or what Robin Jeffery has called the 'bullet' model of state: find a target, fire at it. There was little comprehension of the possibilities of technological convergence that were causing the debate to take place at all.

Let us do a quick sampling. Pro-Left constitutional authority and columnist Rajeev Dhawan, while welcoming the judgment, clearly set down what he understood by these categories:

> If regulation is not an invitation to censorship and control, commercialisation of TV is not a substitute for democracy. Selling space or channels to TV companies and regulating what they do did not quite meet the Supreme Court's declaration that the 'air waves are public property'. Institutionally this means that control must be with a truly independent body, with government intervention limited to extreme situations of national necessity. Juristically this distinction gets back to *shastric* notions that all property (other than that which is privately owned or specifically delineated for some purpose) belongs to the people. Democratically, the 'public' does not mean powerful allowing media companies - still less a 49% foreign-owned media. It means the people ('Whose TV Is It Anyway?', *The Hindu*, Bangalore, 14 February 1997)

On the other hand, and equally persuasively perhaps in its adspeak, the pro-market National Workshop on the Broadcast Bill, 1997 hosted earlier in the year by the Advertising Club, Bombay, also welcomed the judgment, but assumed that the Bill was a straightforward attempt at privatizing television in India. Like Dhawan, this document too advocated indigenism, quoting from a UNESCO Commission on communication that 'a nation whose mass media is under foreign domination cannot claim to be a nation'. It then went on to say,

> In the ruthless, aggressive, highly competitive and cut-throat environment of the knowledge-led integrated world marketplaces, a people's very survival will be qualified by a global and fast, an efficient and accessible-to-all at low cost-to-consumer, communications/information infrastructure.[29]

In all this, the key issue the one to which the Radio & Television Advertising Professionals Association (RAPA) was drawing the National Workshop's attention to was the fact that future battles would not be *political* as much as over *technology*: In the coming years, the 'beyond-the-access-of-competition' limited supply of frequencies will fuel intense battles for the control of airwaves. The limitation, they said in their Telegraph-Act mode, will also lead to

[29] National Workshop on the Broadcast Bill, 1997, RAPA, IDPA, Advertising Club, Bombay, IAA (Indian Chapter), Background paper prepared by Ashok Vaishnavi, Amit Dev and Kavitha Kumar.

amazing technology developments allowing the pumping through of more and still more 'bytes' in increasingly narrow band-width.

Yet a third and very different interpretation was proposed by the Bangalore-based NGO journal *Voices*, that 'the public' should be seen, and addressed, as a community.[30] This was to be through exploiting a specific provision in the Broadcast Bill for 'terrestrial radio licenses to be granted for developmental purposes'. At the moment proposed for radio, but also extendable, as the Declaration made clear, to local LPT television, the proposal envisaged the active participation of the community in the process of creating news, information, entertainment and culturally relevant material, with an emphasis on local issues and concerns. With training, local producers can create local programmes using local voices. The community can also actively participate in the management of the station and have a say in the scheduling and content of the programmes.

The **people**, the **consumer**, and the **community** – three very different interpretations of 'the public' and, either directly or by implication, of 'the state': each radical in itself. The first, making a democratic argument for the people, attempting to ensure that the rights of the actual people are not hijacked by some mediating agency speaking in their name. The second, making a technological argument that the real challenge was to explore the properties of the bandwidth channel since the needs of the people would be fundamentally linked to the disseminative properties of the communication systems at hand. And third, a communitarian argument: translating the physical community into a broadcasting network. All three, despite their seeming differences across the Left-Right political spectrum, appeared strangely agreed on the assumption that the judgment's assertion that 'broadcasting media should be under the control of the public as distinct from the government' – 'government' really meaning 'State' since 'State control is really government control' – and that this would be something immediately comprehensible and locally translatable.

At one level, the comprehensibility of the judgment was not an issue to any of the positions taken: it was widely comprehended as a privatization argument, where 'control of the public' was nothing but a euphemism for 'corporate control of the market'. In many ways, the judgment was also widely understood in classic bourgeois public-sphere terms: a civil society 'governed by the laws of the free market', as Habermas writes[31], with the new 'human being' now

[30] *Voices For Change*, Bangalore, I:2 (1997). The statement follows the 'Bangalore Declaration on Radio', a collective statement signed by 60 NGOs during the Bangalore Consultation on Community Radio, Sept 11-14, 1996. See *Voices* 4:3 (1996) for the earlier statement.

[31] Such a public sphere 'presented itself not only as a sphere free from domination but as one free from any kind of coercion.... Such a society remained subordinate to the market's nonviolent decisions, being the anonymous and, in a certain way, autonomous outcome of the exchange process'. However, it assumes, importantly for our Judgment, that 'the public that might be considered the subject of the bourgeois constitutional state ... anticipate [i]n principle that all human beings belong to it', that each member of this public is, individually, a 'human being, that is, a moral person': in our instance symbolically enacted by the members of the BAI and clearly an important criterion for appointing people to that body, and lastly that such human beings had basically a 'private existence' which they by no means have to abandon in order to 'exercise their public role. For the private person, there was no break between *homme* and *citoyen*, as long as the homme was simultaneously an owner of private property who as *citoyen* was simultaneously to protect the stability of the property order as a private one'. Jurgen

normalized by virtue of having access to television broadcasting. But what would this category of 'moral human being' do to the process of communication? Just two years after these debates, speaking in Bangalore in 1999 not of broadcasting but IT, Kenneth Kenniston would propose that in fact the divide was not only increasing but in fact *proliferating*: it was now not one but four divides (*The Four Digital Divides*, forthcoming).[32] What we may be seeing were divides - in the plural – between those who are rich, educated, and powerful, and those who are not; the linguistic divide mapped onto the class one, between those who know English and those who don't, given that all widely-used operating systems require some knowledge of English or one of the 'Northern' languages. Two further digital divides further map the first two onto global inequalities, as 80% of the world has telephone connectivity of less than 3%, home computer ownership between 1-2% and Internet connectivity less than half of that. To all these can be added the divide of the emergence of a new elite group, the 'digerati', beneficiaries of the enormous successful information technology industry and the other knowledge-based sectors of the economy such as biotechnology and pharmacology.

Among the key lessons Kenniston now required us to learn were that ICT should be only introduced to overcome the digital divide when it indeed constituted the most effective available way of meeting basic human needs and fulfilling fundamental human rights. It was not prima facie self-evident that ICT was the best way of overcoming a social divide. In fact, introducing complex, expensive ICT equipment and infrastructure could merely reproduce the irrational bias that ICT possesses some magic not otherwise available. Secondly, says Kenniston, the most creative uses of ICT's in development may not entail computers, e-mail, or Internet access, but rather the use of other computer-based technologies, including embedded chips, satellite based information, etc. in order better to meet local needs. What was needed, he argued, was first an understanding of local needs and whether ICT could at all address them. Thirdly, ICT projects needed to build on an assessment of local needs as locally defined by local people. There was a frequent tendency of well-wishing government officials, officers of international aid agencies, and workers in NGOs to assume that they know what is needed at the grassroots. Kenniston took on the trickle-down effect, proposing that a flourishing IT sector *does not necessarily trickle down to the rest of the people*; that the connection between a flourishing IT industry and bridging a digital divide was, he said, *complex and problematic*.

**III**

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Habermas, *The Structural Transformation of the Public Sphere: An Inquiry into the Category of Bourgeois Society*, Mass: MIT (1991), pp. 79-87.

[32] Workshop on "Equity, Diversity, and Information Technology", held at the National Institute of Advanced Studies, 1999. Kenniston and Deepak Kumar ed., *The Four Digital Divides* (forthcoming), http://www.mit.edu/people/kken/PAPERS/Intro_Sage.html

## The Public

Let me assume for purposes of argument that a change in the definition of the 'public' was happening, and let me further assume that this change was as epochal as the one in the late 19th Century that saw the first birth of the public sphere. So who then is *this* new public, in whose name the battle was being waged? If this was not the same old recipient of state aid but something *new*, a category capable of action – then what were its new properties? Its new rights?

The term, I suggest, was being used in at least four usually independent and even conflicting ways: as

- **being 'in the public interest'**. In contrast to relatively more familiar legal definitions of the term, such as those surrounding the debates on Public Interest litigation, here the concept split up into two further categories. One invoked the language of classical democracy: then-I&B Minister S. Jaipal Reddy's preface to the Bill argued that it is 'our great democratic traditions' which make it 'imperative that our citizens are well informed and given wider choice in matters of information, education and entertainment', or by the Asian Media & Communication Centre's (AMIC) suggested basic guidelines for transnational programming and advertising, which went further in equating 'concepts of democracy, peace and cooperation' with 'recognising and projecting the *family* as the basic unit of society'[33]. A second use, in bureaucratic shorthand, seemed to imply that the term 'public interest' simply meant 'non-commercial', for which the best example at that time was the UGC-sponsored educational TV service in the afternoons on Doordarshan. The question, non-commercial for whom?, extended the logic to suggest that anything that was not explicitly pay-TV – anything that the *public* didn't have to actually pay for, anything that did not make them homo oeconomicus – could well be characterised as non-commercial, i.e. state-subsidized. Inevitably, democracy clashed with commerce on just how suppliers of 'public interest' material could reap financial benefits, or at least incentives, from this service.
- **having 'access to the public'**. In terms of providing a representation for the public, translated into Indian conditions this meant all political parties having access to television. But having access meant what? Having access to television to express their views, as they can on readers' pages and letters to the editor in newspapers, or having the right to *receive* television? Although explicitly stated as an important function of broadcast media by the Supreme Court judgment and touted by most commentators as an important criterion of all future broadcasting law, just how – in what form – the public

[33] 'Suggested Basic Guidelines for Programming and Advertising Content of Transnational Broadcasts', formulated at a Seminar on Legal and Regulatory Aspects of Satellite Broadcasting (New Delhi Oct 1993), AMIC/Broadcast Engineering Society of India. Repr. in V.S. Gupta/Vir Bala Aggarwal, *Media Policy and Nation Building: Select Issues and Themes*. New Delhi: Concept Publishing (1996), pp 126-127.

will have access to television was simply never raised as an issue.[34] More commonly, therefore - but in an important category shift - this concept came to mean the rights to receive electronic media, sort of in the sense in which the Special Plan for Expansion of Television envisaged in the 7th Five Year Plan promised to make television available to 70% of the Indian population within five years.

- **'public property', and therefore 'in the service of what the public wants'**. Given the virtual impossibility by now of even assuming, as homo oeconomicus began to take root, that 'the public' could ever want anything from television but entertainment, this definition clearly clashed with the first: if we shall restrict software to what the public actually wants, then why on earth should it remain non-commercial? This issue would be further mired with the following slippage:
- **a 'public service', meaning 'not necessarily what the public wants but what the state thinks the public has to have in its own interest'**. By this time it was fundamentally assumed that what the public actually wants and what the state thinks is good for the public had – as posed in the debate of the time – no choice but to be foundationally in conflict. There was no way that public good could ethically synergize with private desire, and so inevitably both in the judgment and the Bill, the concept of 'public service' clashed with that of 'public property'. While Jaipal Reddy's preface acknowledged that 'It is felt that the public service broadcaster alone will not be able to meet the needs and urges of the people in terms of variety and plurality', the Bill nevertheless explicitly exempted a 'public service broadcaster' from being subject to the licensing process – a major concession – while offering no new clarification as to what such a service should do in these times given its acknowledged limitations.[35] This issue of course has a long history in broadcasting policy itself, within the concept of public service broadcasting originating with a British concept attributed to Lord Reith, the first Director General of the BBC and enshrined in the BBC's Royal Charter. In India's broadcasting controversy at this time, the ethical question of public service, and whether Doordarshan was solely capable of fulfilling such a service, extended into economics as the very process of licensing that the Broadcast Bill had sought to introduce would not only grant licenses but confer certain rights to the recipients of these licenses: the rights of these private channels to be considered as public services. Further, the question of whether

[34] An important legal intervention in this is Indira Jaising's writ petition at the Bombay High Court (Writ petition No. 1980 of 1986, Indira Jaising Petitioner V/s The Union of India & Ors. Respondents), where she had argued that the censoring of her statements on the Doordarshan programme *Sach Ki Parchaiyan* on the Muslim Women's (Protection of Rights on Divorce) Bill 1986 violated her constitutional right to freedom of speech. According to the petition, 'the purpose of television is to serve public good. The government therefore runs and holds the television on behalf of the public and as a trustee of the public. It is the medium which provides the maximum access to views for the public at large. In order to effectively exercise the right under Article 19(l)(a) of the Constitution, i.e. freedom of speech and expression it is necessary for members of the public to free access to at least Government controlled media subject only to the Constitutional safeguards of public order decency or morality. This right to express one's views is all the more important when the topic on which views are sought to be expressed a contemporary and widely debated topic and the person desirous of having such access is known to be closely connected with the subject.'

[35] Section 35/zc of the Bill defines a public service broadcaster as simply 'any body created by an Act of Parliament for the purpose of public service broadcasting'.

Doordarshan, as India's sole 'public service broadcaster', was exempted from licensing requirements (sec 9/3 of the Bill) was a problematic issue in itself. In fact, through the debate it remained unclear as to just what the status of Doordarshan could now be in the eyes of the proposed Broadcast Authority of India (BAI), and the already-existing Telecom Regulatory Authority of India (TRAI) if the Prasar Bharati Bill had been rushed through parliament as the then-government wanted.[36] If Doordarshan were corporatized as an autonomous entity the question of whether it could validly claim a status significantly different from any of the other competing channels was not one that had been adequately raised and has turned out since then as a considerably more negotiable issue than one might have thought.

To add to the social complexities rarely evidenced in the debate on whether new technology was going to forge new approaches to communication theory itself, was the question of whether any but a nation-state was capable of bridging the divide. What would it mean, really, to say that control of the media should be *in the hands of the public as distinct from the government* in a situation where, as Prabhat Patnaik would argue, there was almost no possibility – whether on the right or left – of the 'emergence of an agency beyond the nation state (f]or intervention in the interests of the people... at least in the Third World', and where the proposed BAI would itself be appointed by the government, and where its 'functions of authority' (laid out in Chapter 3 Of the Bill) would be clearly constrained, especially by the system of licensing that was fully laid out in the Bill itself.

What was nevertheless evident however, in all the debate around creating a new public, was the need felt across the political spectrum for creating such a 'moral human being', at the service of a privatisation governed by 'the laws of the free market' – even if symbolically to represent the true face of public interest. If the judgment was read as a straightforward privatisation argument, then the manufacture of a largely fictitious 'public' was clearly required mainly to autonomize commercial institutions from governmental control in the name of this public – as representing, in some ways, an alternate concept of the State to which private institutions could declare their allegiance.[37]

**IV**

[36] The Act set in place the Prasar Bharati Corporation as an autonomous Corporation, to whom the assets of both Doordarshan and All India Radio were to be leased in perpetuity. This Corporation would now look after 'public service broadcasting', while the BAI would become a regulator of the rest of the media environment. See the *Economic & Political Weekly* editorial, 'Hurdles to Cross' (32:44/45, Nov 8-14 1997, p. 2840), which points out that the Charter of the Prasar Bharati makes it the 'custodian of all the air waves' and asks where that leaves the BAI as licensing authority of those very waves.

[37] Conceptually this shift is very much present in what Habermas calls the 'contradictory institutionalization of the public sphere in the bourgeois constitutional state', where eventually the 'public' equates with the private, the home with the citizen. Habermas, already cited, p. 87.

## The 'Message' Theory of Communication: Governance, Technology, Social Science

In many ways, the rights of this new public were being framed within the mandate first put together during the Universal Declaration of Human Rights of 1948. Let us take a small detour here, and focus on the technology of communications and how, it relates to the theory of both *rights* and of *government*. For many histories, the origins of the term, the 'last mile', go back to when information processing became a key concept of communication, and it was mainly derived from the telegraph. In 1927, Harry Nyquist provided perhaps the earliest use of the term, when he showed that the independent pulses that could be put through a telegraph channel per unit time was limited by bandwidth, to which Ralph Hartley would show in the same year, that the information so passed could be quantified by the number of distinct pulses that can be transmitted and received reliably over a particular communications channel, given that that number is limited both by the range of amplitude and the precision with which the receiver can distinguish amplitude levels.

The model of information however received its key definition in the year 1948, when specific breakthroughs took place in the theory of information processing, and were thence fused into new theories of the social sciences. That year, Claude Shannon published his landmark essay, *A Mathematical Theory of Communication*, in the July-October issue of *The Bell System Technical Journal*, proposing that the signal disturbances that impede the efficient communication of messages were not a handicap, since 'noise' itself produced significant, decodable data. The year also saw Harold Lasswell's epochal definition of communication research as providing answers to the five questions: '*Who*, says *what*, in *which channel*, to *whom*, and with what *effects*', a definition furthered by Berelson and Lazarsfeld's (1948) redescription of content analysis as an 'objective, systematic, and quantitative description of the manifest content of communication' promising scientific accounts of what messages carry to everyone capable of accessing them.

It may be useful for us to also bring in the Universal Declaration of Human Rights as the fourth, less obvious but for us equally crucial, text to this. The Declaration was also announced in that same year by the General Assembly of the United Nations, in fact only a scant few months after Shannon published his seminal essay. Reading these documents together is useful for a number of reasons: for one, it gives a much-needed historical perspective to our own present-day effort to bring together technology and governmentality theory. Yet more importantly perhaps, it provides us with the beginnings of a methodology to overcome a shifting divide that, we have seen, could well be otherwise unbridgeable. The Universal Declaration famously announced that 'everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, *receive and impart information and ideas* through any media and regardless of frontiers' (Article 19). The assumption also follows that there must be a link between such reception and the imparting of information and ideas within the democratic process

itself, and that it must also follow, as night follows day, that if people have the right of information they must also have 'the right to freedom of peaceful assembly and association', where 'no one may be compelled to belong to an association, everyone has the right to take part in the government of his country, directly or through freely chosen representatives', and everyone have the right of equal access to public service in his country', and lastly, that the 'will of the people shall be the basis of the authority of government'. What remains crucial to our Broadcasting example above is this key link: how does the first right, the right to information, enable the second, the right to a governance of your choice? *Does* it? Are the two rights autonomous, or is one a consequence of the other?

The Universal Declaration's emphasis on the right to information was primarily defined in the context of the history of communication propaganda through the Second World War, for which of course Goebbels' Ministry of Public Enlightenment and Propaganda remains the best example, but Britain's own Wartime Ministry of Information was probably not all that far behind.[38] The 1948 Declaration has as direct background the 1936 League of Nations Convention titled *Modern Means of Spreading Information Utilized in the Cause of Peace*, with specific reference to both cinema and broadcasting, and the more specific *Convention on the Use of Broadcasting in the Cause of Peace* that same year. By the late 1940s, the discipline primarily in the USA firmly linked the technology of communication to a virulently anti-Communist theory of development and freedom (e.g. Wilbur Schramm's *Communications in Modern Society*, 1948), with a specific branch even dealing with the role of communication in traditional societies (Schramm's *Mass Media and National Development: The Role of Information in the Developing Countries*, 1964, and Daniel Lerner's landmark work *The Passing of Traditional Society: Modernizing the Middle East*, 1958).

Before we bring this debate to India, however, let me continue my technological detour with a further exploration of what the original model of information could and could not do. Through the 1920s, the communications model had drawn attention to what came to be known as the 'mass mind', and with it the 'hypodermic needle theory' of communications: the fact that the mass mind was easy prey to propaganda.[39] Supposing a set of new *state* functions as having emerged primarily from their communication origins, it was inevitable that an entirely new

[38] See Philip M. Taylor's classic *The Projection of Britain: British Overseas Publicity and Propaganda 1919-1939* (Cambridge/New York/Melbourne, CUP, 1981)

[39] Jeffery L. Bineham ('A Historical Account of the Hypodermic Model in Mass Communication') defines it as a widespread agreement through the 1920s and 30s, that "that the mass media exercised a powerful and persuasive influence." This agreement was premised on four related concepts. First, early researchers thought that technological innovations, coupled with "the mass production of communications," had created a "mass audience": a conglomerate of millions who could now attend to the same message. This audience, secondly, was believed to exist in an urbanized and industrialized society "that was volatile, unstable, rootless, alienated and inherently susceptible to manipulation." These first two concepts were conflated to form the third: The susceptible mass audience was viewed as "easy prey to mass communication." Finally, the idea that people had been "brainwashed" by mass mediated messages during World War I served to validate the first three tenets. This view of the media as an all-powerful and direct influence is commonly titled the hypodermic model of mass communication. (http://web.stcloudstate.edu/jbineham/publications/Hypodermic_Model.pdf).

democratic strategy would be hinged on a new communications strategy that Shannon heralded in the second paragraph of his seminal essay:

> The fundamental problem of communication is that of reproducing at one point either exactly or approximately a message selected at another point. Frequently the messages have *meaning*; that is they refer to or are correlated according to some system with certain physical or conceptual entities. These semantic aspects of communication are irrelevant to the engineering problem. The significant aspect is that the actual message is one *selected from a set* of possible messages. The system must be designed to operate for each possible selection, not just the one which will actually be chosen since this is unknown at the time of design. If the number of messages in the set is finite then this number or any monotonic function of this number can be regarded as a measure of the information produced when one message is chosen from the set, all choices being equally likely.

Shannon's intervention is considered the breakthrough upon which information technology has since been based. Let us now revisit it as the basis of democracy theory as well. Messages, he suggests, have *meaning*, not merely data. The recipient interprets and makes sense of the message by selecting from a set of interpretations: in the process, the meaning also selects its recipient. Since the sender cannot be sure that the receiver will select only the message that makes sense, the sending process should function without assuming that the receiver will either *choose* the right message, which means receive it in already-interpreted form, or perform the actual state's task of interpreting the message correctly.

Now, on the one side, a measure of information was the capacity of computing, first, the number of messages the receiver has available for choice, and second, the receiver's capacity to choose the right one. This would immediately raise, in the Shannon theory, the parallel question: what happens to the plethora of messages provided, if only one of them is 'right'? Do the others carry no value at all, or if they do, how can *they* be interpreted, and to what end?

As Erico Marui Guizzo (1999) describes it, Shannon showed for the first time that 'every channel has a maximum rate for transmitting electronic data reliably, which he called the channel capacity. Try to send information at a rate greater than this threshold and you will always lose part of your message. This ultimate limit, measured in bits per second, became an essential benchmark for communication engineers. Before, they developed systems without knowing the physical limitations. Now they were not working in the dark anymore; with the channel capacity they knew where they could go – and where they couldn't'. *First principle, the capacity of a channel could be measured: send more information than that and you start losing something of value.*

But, says Guizzo, the paper contained a further astounding revelation.

> Shannon demonstrated, contrary to what was commonly believed that engineers could beat their worst enemy ever: transmission errors – or in their technical jargon, 'noise'. Noise is anything that disturbs communication. It can be an electric signal in a telephone wire that causes crosstalk in an adjacent wire, a thunderstorm static that perturbs TV signals distorting the image on the screen, or a failure in network equipment that corrupts Internet data. At that time, the usual way to overcome noise was to increase the energy of the transmission signals or send the same message repeatedly – much as when, in a crowded pub, you have to shout for a beer several times. Shannon showed a better way to avoid errors without wasting so much energy and time: coding.

Shannon's theory of coding, Guizzo shows, is premised upon his radical contention that noise in communication is not wasteful, mainly because *noise contains potentially interpretable meaning*. The trick in coding is, firstly, to reduce the redundancy in the message. Secondly, to use the transmittable energy available to open up multiple interpretative possibilities, rather than to send the same message over and over again. So, instead of trying to overcome the noisy pub by shouting louder and louder for a beer, the customer holds up three fingers and communicates to the waiter that s/he wants three items of something (three beers? three glasses of water?). *Useless energy from shouting gets translated into multiple interpretative possibilities*. And thirdly, perhaps most innovatively, to recognize the *difference between useless and useful redundancy*. Useless when you keep repeating the same message again and again hoping that it would go through (like Englishmen who often think that foreigners will understand them only if they spoke louder or more slowly). Useful redundancy is one that *signals which of the many interpretations is the right one* without eliminating the 'wrong' signals as useless or redundant.

William F. Harms (2006) indicates how this works: if, for instance, someone raises a brick over my head, the question of what this means to me is inclusive of the physical knowledge – that energy has changed in the brick from chemical to kinetic to potential, that there is information in the brick's new altitude – alongside the question of whether my characterization of the situation is consistent with physics. Does physics already have a vocabulary adequate to the situation I am confronted with, or do I need some explanation other than physics? If information can be given a precise characterization in physical terms, then we can proceed to determine whether or not there is any important or necessary relationship between this sort of information and statistical and semantic/conventional information. Such redundant information is, he says, crucial in working out *probability*, since it 'grounds' other kinds of information. *Less likely events typically generate more information*, or are intuitively more informative than more common events. The tools of information theory allow one to quantify such notions.

Shannon, says Guizzo, estimated the standard redundancy of English to be roughly 50 percent: 'The redundancy of English', Shannon wrote in an article for the *Encyclopaedia Britannica*, 'is… exhibited by the fact that a great many letters can be deleted without making it impossible

for a reader to fill the gaps and determine the original meaning. For example, in the following sentence the vowels have been deleted: MST PPL HV LTTL DFFCLTY N RDNG THS SNTNC'. What needed to be done was to replace this redundancy with 'error-correcting code', replacing useless data with information most likely to allow the end-user to fill in gaps and errors. And so it was that a theory that, apparently, started with World War II concerns like, how probability would allow you to shoot down zigzagging enemy aircraft, and was the ancestor to the technology that can today allow a 50-mb music file to be reduced to a 5-mb MP3 file. Both function on how errors can be overcome through providing significance to interpretation.

What was of course crucial was that communication theory, in technologically resolving one issue – of efficient transmission – had only moved from the frying pan into the fire of social theory. Who decides what interpretation is correct? And that is only the beginning of the problem as communication theory struggles to define something like S/N (Signal-to-noise ratio) in democratic terms. Human society clearly produces enormous amounts of noise. Despite such noise (or perhaps because of it), society is also an incredibly efficient transmitter of signals, as we see with rumours, or cataclysmic news, which can travel through society's jungle telegraph with astonishing speed and rapidity. How much of the noise is useless redundancy? Mapping these concerns onto the Universal Declaration, the first question: if the 'right to freedom of opinion and expression' arises from our *capacity* to '*receive and impart information and ideas* through any media and regardless of frontiers', then despite their evident redundancy (do we really need fifty television news channels telling us the same thing?), are democratic media in fact realizing this very aim in a different way with their proliferation? Media functioning democratically under, say, totalitarian regimes susceptible to censorship would have a distinctly different signal-to-noise ratio than, for example, a surfeit of media generating enormous amounts of information redundancy. Or is there something similar to the two conditions, in terms of the way both situations converge upon the citizen-recipients, forcing them to develop several covert interpretative abilities to interpret what they receive? If, as the Universal Declaration seems to suggest, the only way to assess whether citizens have correctly interpreted what they receive in the way they put this the information into the right government to choose, or the right association to belong, in what way would communication theory possibly interpret the bewildering, and irrational, choices that people often make in democracies?

Examining the Recipient

In an important critique of communication theory from a democracy perspective, titled 'The Past of Communication's Hoped-For Future', Klaus Krippendorff (1993) acknowledges the importance of Shannon's mathematically founded concept of communication, including the mass media. However, he says, Shannon's statistical and relativist measure of information quickly became equated with news and other stuff of the kind that messages 'objectively' contain. The dominance of all communication as message-driven meant an increasing focus on 'studies correlating message variables and effects, inquiries into the effectiveness of different message

designs, use of mathematical theories to predict attitude changes from media exposure, and so forth'. None of these, he says, 'regard the human participants in the progress as capable of making up their own meanings, negotiating relationships among themselves, and reflecting on their own realities'.

Where message-driven conceptions of communication entered serious empirical tests, they turned out to be of limited explanatory value. For example, the ineffectual replacement of the 'hypodermic needle conception of mass media effects' with a two-step flow model: first step, exposure to the media, the second, an informal opinion-creating process mediated by opinion leaders. Subsequently, the equally ineffectual 'uses and gratifications' approach traceable to propaganda effects studies during World War II, which also had trouble with the basic problem of message-determinism: why people who may have received the same message tend to put the same information to use in ways that are far from uniform. Its further modification, the *information-seeking paradigm*, has explored the idea that 'objective' contents of any message are largely irrelevant, since individuals are actively engaged in diverse forms of information-seeking, avoiding, and processing strategies, which turn out to be explainable in terms of their 'image of reality', their 'goals, beliefs, and knowledge', and so forth, *as information becomes no longer explainable from the properties of the message alone, and senders or producers no longer play the central role that message-driven explanations had assigned to them*. Krippendorff explores two further variations, the *interpretive approach* which has become increasingly appealing to organizational communication research, which centers on the way individuals make sense of their world through communicative behaviors, and attempts to explain choices in terms of prevailing 'organizational cultures' or working climates to which members of an organization come to be committed.

The systematic failure of all these options is for him the resolute blind spot in all message-driven theories of communication: *the refusal to recognize that communicated meanings are created and negotiated, neither objectively given nor assignable by a scientific authority*. For Krippendorff, this can happen when we become aware of the reality in telling our story of communication: produce what he calls a 'new constructionism' that can

> challenge the privileged role of disembodied knowledge and reveals its complicity in the emergence of hierarchical forms of social and political authority and its attendant requirement of submission.

He wants a radically new synthesis, seeing humans first as cognitively autonomous beings; second, as reflexive practitioners of communication with others and third, as morally responsible interveners in, if not creators of, the very social realities in which they end up living. Respecting this autonomy, he says, prevents abstract and disembodied communication theory constructions and encourages explanations of communication phenomena (and of other social constructions) from the bottom up, from the knowledge and practices embodied in its participants. This

contrasts with top-down explanations that attribute determining forces to someone else's (usually the observing scientists') super-individual constructions – for example, ideologies, hegemonic forces, cultural determinisms, rules, or objective meanings. Respecting this autonomy would now mean *abandoning the idea of creating general theories without obtaining, as far as possible, the consent of those theorized.*

If we can pull this off, he says, we could be in a revolution of a Copernican magnitude. In fact, even more significant than that, for while Copernicus's theory challenged only the location of the center of the then known astronomical universe while leaving the hierarchical organization of social and religious life and the objectivist construction of the universe intact, the epistemology of this new constructivism could challenge the privileged role of disembodied knowledge and thus *reveal its complicity in the emergence of hierarchical forms of social and political authority* and its attendant requirement of submission. For him, the first step is for communication research to first acknowledge the breakdown in the message-driven explanation that most other disciplines have already dismissed. The next step is for communications to learn from anthropology, and to focus on how anthropology – in historically explaining the encounters of people with others from different cultures – has forced analysts to invent and interlocutors to co-construct *their own culture.*

The Recipient and Governance

Was the Supreme Court judgment's construction of a new public capable of accommodating such a radical shift? It is evident that, through the 1990s, we have seen in India an opening up of the kind of multidisciplinary space that Krippendorff gestures to, one converging natural language philosophy, ethnography and cognitivism in linguistics together with second-order cybernetics and reflexive sociology, along with efforts to understand new interactive media (computer interfaces, hyper-media, virtual reality). Can the judgment be seen as a landmark in this area as well? Specifically, can we define a **political** legacy for the shift in the modern citizen-subject as the no-longer silent recipient of media, but as someone else, someone capable of action?

We may need to first contextualize the social sciences' frenzied search for new disciplinary approaches within the crisis that the failure of the 'message' – or 'hypodermic needle' or 'bullet' theory of communications, take your pick - creates for state structures, given its capacity to destabilize the hierarchies of social and political authority. The question of whether the consent of those being theorized has been obtained or not is politically more complicated than Krippendorff acknowledges: the *complicity* of citizen-subjects in the process that makes them recipients of the state's message is perhaps the most complicated grey-area there is in state totalitarianism. The further question that, when aid to Tsunami victims is hived off by middlemen, the message is, scientifically speaking, *not* distorted – middlemen may have always

meant to have been the recipients – says something more devious about state investment into intentionality than Krippendorff realizes.

What we may need to do here is then to track a prior route: the link between the message theory of communication and strategies of governance. In fact, it is the Wikipedia entry on the Last Mile[40] that makes this point most effectively. Today, last-mile conduit theory has a precise set of widely-accepted criteria: it should (1) deliver adequate signal power capacity, (2) do so through ensure *as low a loss as possible into unusable energy forms*, (3) be able to support as wide a transmission bandwidth as possible, (4) and through all the above deliver high signal-to-noise ratio. Beyond this, to paraphrase David Harvey on the limits of neoliberal intervention, *the state should not go.*

Availability, reliability, capacity for nomadic use (known now as roaming), low latency, high per-use capacity and affordability have been some recent additions to the list of requirements of the conduit. Again, on the connections between effective conduits of this kind, and systems of *governance*, the Wiki entry is interesting: it starts by drawing analogies from nature, such as blood distribution to a large number of cells over a system of veins, arteries and capillaries, or nourishment to a plants leaves through roots, trunks and branches. From these, it suggests that the *best conduits are the ones that carry a relatively small amount of a resource a short distance to a very large number of physically separated endpoints*. Shorter, lower-volume conduits, which individually serve only one or a small fraction of endpoints, may have far greater combined length than larger capacity ones. On the other hand, conduits that are located closer to the endpoint, or end-user, do not individually have as many users supporting them. Even though they are smaller, each has the overhead of an installation, or, the need to first acquire and then maintain a suitable path over which the resource can flow. While localization has its obvious benefits, the downside is often a lower operating efficiency and relatively greater installation expenses, compared with the transfer capacities, which can cause smaller conduits, as a whole, to be the most expensive and difficult-to-maintain part of the distribution system: issues we have already encountered in our telecom example.

*It is evident that in speaking of all these issues, we are already speaking governance*: of efficient 'small-government' structures where the management and resources for conduits is provided by local entities and therefore can be optimized to achieve the best solutions in the immediate environment and also to make best use of local resources, as against the 'big-government' alternatives of masterminding distribution conduits with some kind of national grid.

**V**

[40] http://en.wikipedia.org/wiki/Last_mile

## Noise and Democracy

> The state (and so, the ruling party) has become the arbiter of expression through an increasingly technologically sophisticated and omnipresent forum. Laws regarding broadcasting are constitutionally reserved for the Centre. Despite the expansion of Indian television to larger and more regionally diverse audiences, policy, administration and programming decisions remain centralized in Delhi, and 'all attempts at control at the state level have been stoutly resisted' (P.C. Chatterji). The prime-time National Programme emanating from Delhi (begun in 1982) is received throughout the national television system. Other hours are given to regional broadcasting in those areas with the technical capability to do so, but again programming and administrative decisions are subject to directives from Delhi. *Early development communications theories not only underestimated difficulties posed by state centralization; they also underestimated the burgeoning of media devoted to entertainment and advertising*. The Indian case is also fruitful for examination of these trends, because its reliance on the rhetoric of development and resistance to Western consumerist media messages was coupled with the advent of commercial sponsorship of Doordarshan programming – Victoria Farmer (2003).

> A letter always arrives at its destination. One can even say that the only letter which fully and effectively arrives at its destination is the unsent letter - its true addressee are not flesh-and-blood others, but the big Other itself – Slavoj Zizek[41]

We come to India. I begin with reading Partha Chatterjee's theory of the purpose that big government originally defined for itself in India as, also, a potential theory of communications. In his classic essay, 'Beyond The Nation? Or Within?' (1997)[42], Chatterjee says that in India, even as 'the associational principles of secular bourgeois civil institutions were adopted in the new civil society of the nationalist elite', a very different possibility of mediation had already been imagined between the population and the state, 'one that would not ground itself on a modernized civil society'. It was, in his argument, part of the cultural politics of nationalism to provide an 'adequate strategic response' to prevent its restriction to 'the confines of the 'properly constituted' civil society of the urban elites'. This response was effectively found in the way the nation itself was characterized as one that could 'mediate politically between the population and the nation-state of the future'. Elsewhere Chatterjee defines the process as follows:

> The aim is to form a politically independent nation-state. The means involve creation of a series of alliances, within the organizational structure of a national movement… The project is a reorganization of the political order, but it is moderated in two quite fundamental ways. *On the one hand it does not attempt to break up or transform in any radical way the*

[41] Zizek, 'How to Read Lacan 2. Empty Gestures and Performatives: Lacan Confronts the CIA Plot', http://www.lacan.com/zizciap.html

[42] *Economic & Political Weekly*, 32:1/2 Jan 4-11 1997, pp. 30-34

> *institutional structures of 'rational' authority* set up in the period of colonial rule, whether in the domain of administration and law or in the realm of economic institutions or in the structure of education, scientific research and cultural organization. *On the other hand, it also does not undertake a full-scale assault* on all pre-capitalist dominant classes: rather, it seeks to limit their former power, neutralize them when necessary, attack them only selectively, and in general to bring them round to a position of subsidiary allies within a reformed state structure.[43]

Chatterjee characterizes the 'nation state of the future' as one where newly formed states would set themselves up as a 'precondition for further capitalist development', and would represent themselves as the 'national-popular', sharing their work with other governing groups and limiting their specific role to *reformist and molecular changes*.

Such 'gradualism', to use the phrase with which B.D. Dhawan characterized the All India Radio's work, had become very much a part of India's communications strategy. By the mid-1960s, molecular transformations through creating a national grid of multiple regional circuits was part of the All India Radio's 'master plan' for the country.[44] By this time, the main issue faced by AIR was how to adhere to its national mandate and at the same time accommodate new technology in the shape of television.
Farmer shows how communication theories determines development strategy in this time, in the forms of educational radio or as television for maximizing agricultural benefit through new seed strains. For her such moves towards developmental communications should be distinguished between two disparate types of development, although the standard paradigm often collapses the two. She defines the two as *material* versus *national*. The former includes 'those indicators of development which, through the exigencies of implementation and ease of empirical validation, became the substance of specific development projects, including programs for *agricultural extension*, *public health*, and *local-level literacy* and *educational campaigns*. On the other hand, national development refers to the 'the supersession of supposedly primordial social relations on the part of individuals to identification with a broader notion of the 'modern', as represented by a conflation of the nation, the state, and the *civitas*, with attendant assumptions of secularization, individuation, and democratic processes'.

Let us further the divide of 'material' and 'national' as follows: 'material' constitutes functional technology – health, telecommunications, literacy, meteorology and the like. Despite, or perhaps because of, this functionality, it also has the possibility of accommodating new technology. On the other hand, the 'national' component – which takes on Chatterjee's contention of the 'mediation' between the soon-to-be nation-state and its intended population – is negotiated through acts of limiting, neutralization and transformation into subsidiary allies and has very

[43] *Nationalist Thought and the Colonial World*, London: Zed Books, 1986, pg 49.
[44] Radio & Television report of the Committee on Broadscasting and Informaiton Media (Ministry of Information & Broadcasting, 1066).

different technological needs. What was crucial here, as we would go through the 1960s, was that television would play the former, the *material* role – and have an unlikely champion here, in the Department of Atomic Energy (DAE), and the India's new space programme – while the latter role, of *national* responsibility, would be played by a far more cautious All India Radio. AIR's work here was to see how centralized communication signals could be sent out by the state-to-be and how these could be received by its citizenry. Such a communication would, we have seen, need the negotiation to have achieved at least the following: it would *firstly* have addressed the ways by which signal power capacity is delivered adequately – in state terms, we may say, where the state's governance capacity was being adequately spread on the ground. *Secondly*, it would have found ways to limit, and eventually to eliminate, loss into unusable energy forms, not so much by cutting down signals but as by *harvesting noise for meaning*: perhaps through ensuring how the political needs of the state apparatus could mediate the needs of capital, such as transparency, rationality and efficiency. *Thirdly*, and perhaps most significantly of all, how a high signal-to-noise ratio could be *delivered*: which, again in state terms, might mean how the raucous babble of an inefficient, but nevertheless free democratic state could offer sites for both generating information and for political negotiation.

As we turn to television's extraordinary and impatient capacity to 'leapfrog' over these limits, we need to remind ourselves of what was at stake: the manner in which the modern Indian state (and we may well, with Chatterjee, take the plunge and say all modern postcolonial states) had defined itself till then: it existed as authentic because of its capacity to *authenticate*: in the end to be the arbiter on which interpretation of the signal was the 'correct' one. This did not mean sending out the right signals: it meant becoming gatekeeper for their interpretation. Such authentication can be easily comprehended as a primary requirement of sovereignity, but also in the Shannon mode as the primary means by which signals are correctly selected from *a plethora of possibilities*. The right to define an interpretation as correct is patterened onto the premier production of such an exercise in correct interpretation: the production, firstly, of national authenticity – latter-day version of imperial paraphernalia – and secondly the production of the standpoint of the *one who can rightfully speak for the state*. This authentication has conventionally extended in India in the way the state further disseminates this right to independent agencies to enable them to make authorized representations in the name of the people, or be valid constituents of public interest. This has been the central mode by which the state has been able to disburse to other governing groups the right to their own systems of self-representation.

The question now was, how would television reproduce these facilities? It has been the concern of this argument to see the possible role that technological change may have in enabling complex political change. In the rest of this argument, I am going to locate the judgment onto two trajectories: a political change in the character of the Indian state, and a technological change brought about mainly by satellite television.

Television and Signal-To-Noise, or, the surfeit of information and what it could mean

> 'Recently there have been changes in (India's) society of households. A new flood has swept into its domain. Its name is the public. It is a new thing with a new name. It is impossible to translate it into Bengali' – Rabindranath Tagore, quoted in Partha Chatterjee[45]

As we have seen, the 1995 Supreme Court judgment on broadcasting overturned the 1885 Indian Telegraph Act. If nothing else, this alone should make it a landmark in communications history. Television would clearly update, and perhaps radically, a communication model that the Indian state effectively suggests had only been preceded by the telegraph.

Let us start with the technology itself: and rewind to the late 1960s and 1970s, when television was first revealing glimpses of what the future could hold. The period to which I refer is of course the mid-1970s technological experiment, the Satellite Instructional Television Experiment (SITE), that I think played the kind of technological role here that Wireless-in-Local Loop would later play in the career of telecommunications. This would be the culmination of moves inaugurated a decade earlier by the Department of Atomic Energy (DAE), which was forcefully pushing for a communications satellite for television, and the Ministry of Information & Broadcasting, which did not see the need for one.

We may ponder for a moment: why would *atomic energy* want television, and Information & Broadcasting argue against it? It appears that significant issues hang on this point. The conventional answer given is that Vikram Sarabhai, then India's leading advocate for a communications satellite, was with the DAE and was pushing for the argument that India's peaceful exploration of outer space for its 'next generation' turn had to accommodate educational television. He was glimpsing the technological possibilities, the ones that B.D. Dhawan says were gripping the imagination of 'upcoming young scientists and engineers who are by nature an impatient segment of any society', and wanted to eliminate the global gap between rich and poor through 'leapfrogging', that is, 'taking recourse to the latest world'. 'Under the aegis of the prestigious and power-wielding DAE', these scientists 'swung into action' to 'scuttle the AIR's plan'. They did this through 'enlisting support from foreign experts to vanquish foes at home': ISRO did joint studies with Hughes Aircraft and General Electric, and the DAE-NASA study which would give birth to SITE was accompanied by agreements between ISRO and Lincoln Labs of MIT 'for further studies on satellite TV in India'. 'The triumph of the modernists over the conventionalists appeared total, and it was a moment of glory within the short annals of ISRO'.[46]

[45] , 'Two Poets and a Death: On Civil and Political Society in a Non-Christian World', in Timothy Mitchell ed. *Questions of Modernity*, University of Minnesota, 2000, pg 37).

[46] B.D. Dhawan, *Economics of Television in India* (New Delhi: S. Chand & Co, 1974), pg 166-167, quoted in Sanjay, 1989, pg 57.

And so it was that perhaps the most landmark of television programmes India has ever seen came about: *Krishi Darshan*. The programme itself, started in 1967, targeted farmers around Delhi, and was commissioned mainly as a study with an accompanying pilot project. The project required 80 community sets to be installed in villages around Delhi, which was at the time India's sole television station, and broadcast news, information and interviews with farmers once a week.

The relatively modest study would nevertheless provide a rationale for a major link: between the DAE and NASA, who would sign, on the basis of the *Krishi Darshan* experiment, a memorandum of understanding to use NASA's ATS-F satellite for direct broadcasts to rural community receivers and 'limited rediffusion through VHF transmitters of Indian-developed instructional television programme material'. The programme, to be shortly named the Satellite Instructional Television Experiment, was a direct outcome of NASA's Application Technology Satellites (ATS), as was the first INSAT. The ATS was inaugurated in 1965, at a particularly critical moment in NASA's own career straddling commercial interests, and the increasing role of private industry in the development of communication satellites on the one hand, and the American government's need, as represented by the Federal Communications Commission (FCC), to globalize American state dominance over satellite communications on the other. Such in internal tension, within the USA, between state and corporate interests both looking to the technology to globalize, would affect several decisions: among them, whether private international communications carriers could participate in a satellite system on an 'equitable and nondiscriminatory basis',[47] the disputes between terrestrial communications versus satellite communications, etc.

But the key tension, in all this, was television. Interestingly, even NASA – viewed at the time as being largely on the corporate-friendly side of the equation – did not in the early days of SAC view television as especially central to its plans. NASA's own vision for multipurpose advanced satellite systems – realized in the seven ATS systems that were operationalized – was to emphasise 'social service applications' and the 'participation of the end user in the design, implementation and evaluation of individual satellite demonstrations within the ATS programme'. Initially, ATS 1,3 and 5 were used for scientific and technical developments sponsored by the US Federal Government and various Universities. In 1969, after completing those experiments, NASA announced that the still operational satellites could be made available to 'public and private sector users who could fund the cost of their ground segment and software requirements'. It was in this climate, says Sanjay, that ATS-6 was launched 1974, and after a year of experiments, was moved to a convenient location for the Indian government to start SITE.

[47] Sanjay points to the tensions within the response to a 1961 FCC initiative asking for how 'international communications carriers could participate in a satellite system on an equitable and nondiscriminatory basis': AT&T wanted to limit ownership in the system to international common carriers, while Lockheed, GT&E and Western Union all preferred broader-based ownership by common carriers, manufacturers and possibly the public at large.

The career of the SITE experiment, inaugurated in 1974, both before and after its brief career in India remains a remarkable case in point here. B.P. Sanjay's fascinating study of both SITE and INSAT within the larger context of technology transfer locates satellite communications within a history that also includes the Green Revolution and the UP Agricultural University, and the birth of Hindustan Machine Tools (HMT). Sanjay advocates a direct comparison of the Green Revolution problem with that of satellite communications, and especially the assumption that 'the extension of new agricultural practices and technologies should be implemented first by rich farmers and that it would subsequently 'trickle-down' to the subsistence farmers': something that 'did not occur'. He proposes that since technologies rise as an 'outcome of institutional relationships at all stages of technology design, development and deployment', it was necessary that we study – along with the transfer of the technology itself – the way a transfer took place in the 'accompanying institutional arrangement for the production and dissemination of information… that makes the full use of the satellite system possible' (Sanjay, 1989, pg 19-23).

How Sarabhai came to be such an advocate for television, and for the DAE to set up a communications satellite, is an interesting question beyond the scope of this monograph: but it does include, among other factors, the impact that Daniel Lerner's thinking may have had on Sarabhai. This led Lerner, to be, for a while, a Consultant on the ATS-6 programme which would be the launchpad for the SITE experiment. Lerner would later describe SITE as a 'brilliant example of the leapfrogging process which communications technology makes possible. Given the problems raised by India's acceleration of history and its instant mobilization of the periphery, this type of leapfrogging over the long Western experience is what India needs most'.[48]

In many ways this has been almost the quintessential instance of technological leapfrogging. The purpose of the rest of our argument is to now see how, having made the material leap, the *nation* would redefine its purpose to make the corresponding *narrative* leap, use the 'air waves' now to produce the new 'public'. Although both the radio and the cinema do provide important precedents to television, television and telegraph enable a much more diverse symbolic siting of citizen-audiences, in their ability to deliver their 'message' to people at their doorstep.[49] Television, like the telegraph before it, is at once diffuse and concrete, constituting an amalgam of all previous technologies of communication. As Raymond Williams, in his remarkable book on television, was one of the first to point out, just as quantifying an evening's entertainment on television was difficult for viewers to assemble in the sense in which pay-per-view systems (as in cinema or theatre) allow - for it would then be equivalent to reading a few magazines, attending the theatre, going to a film and a soccer match all in one evening - so it was also difficult, from the other end, to quantify who 'saw' television in the sense of the imagined audience of any

[48] Quoted in Sanjay, B.P., *The Role of Institutional Relationships in Communication Technology Transfer: A Case Study of the Indian National Satellite System (INSAT)*, Ph.D. Dissertation, Simon Fraser University, 1989, pg 54.

[49] Note on telegraph

specific product.[50] Over the years, this difficulty has called for innovative solutions, some of the more familiar ones rendering the viewer of television concrete within the diegetic image itself – in things like canned laughter, or the diegetic audiences of reality television – precisely to overcome the extreme ambiguity involved in signalling to actual viewers that something has been made, so to say, *explicitly for them*.

Given the formally unprecedented nature of single telecast-infinitely multiplied reception systems that classical television puts in place, the 'viewer' – as a diffuse, amorphous amalgam – requires, in a very technical sense, first, a prior assembly of a set of enumerative categories of 'who the viewer is', usually seen as what sort of empirically investigable behavioural practices the viewer answers to (for instance in questions like 'when do members of the public sleep at night?' and other questions, eternally striving for greater methodological sophistication, of who watches/does what at what hour of day).[51] And second, once these categories are in place, to make television itself the major carrier of such attributes of the public: to make the individual members of a diffusely defined but nevertheless 'actual' audience transform themselves to actually approximate to their market-research taxonomy. Elsewhere, speaking more specifically about the cinema but in a way that seems to me relevant to this argument about TV audiences, I have suggested that film narratives concretely work out, through their management of spectatorial practices, what Althusser once called the 'double constitution' involved in interpellation, and what I think one can read into Partha Chatterjee's essay as a twofold move of State functioning: one, 'naming' people as citizens in the way they are 'classified, described, enumerated', paralleled by a second move where people are invited, sometimes coerced, to transform themselves and gradually, over time, made to approximate to the codes of the abstract 'national' subject.

Without getting into the technicalities of this issue, it is possible now to see, as Geoffrey Nowell-Smith shows,[52] a defining category of public service television as being one where 'the audience is defined as the nation, bounded territorially by national frontiers and then subdivided regionally or by other recognized forms of difference'. As built into the very concept of a 'public service', the audience of television can only be arrived at via the nation and, with surprising consistency thereafter, the dominant television audience steadfastly remains what Balibar once called the *homo nationalis*. This is in part demonstrable with the evidence of television programming itself: in India, for instance, none of the now hundreds of channels putting out programming specially for Indian audiences (excluding material that we receive but which is not explicitly made for us)

[50] Raymond Williams, *Television: Technology and Cultural Form*, London: Routledge (1990). See also *Raymond Williams on Television, Selected Writings*, London: Routledge (1989).

[51] This interminable dilemma between the textually sited viewer and-the 'actual' viewer described in terms like the 'uses and gratifications model' almost never addresses the crucial issue of how television actually transforms habits, converts people into 'ideal viewers'. The problem is inevitably perceived, as for instance by David Morley, as 'an empirical question', and the challenge one of developing appropriate methods of empirical investigation. *The 'Nationwide' Audience: Structure and Decoding*, London: BFI (1980).

[52] Geoffrey Nowell-Smith, 'Broadcasting: National Cultures/International Business', *New Formations* 13 (1991).

can be said to have carved out for itself an alternate audience profile from that of 'the national' (Hindi/English) or 'regional' (as with Sun, Udaya, Eenadu etc)[53] either with niche marketing alternatives or with the kinds of closed groups recently being served, for instance, by 'special-interest' websites. Indeed, once these categories of viewership are in place, rarely can television seriously deviate from them, as has been debated extensively in Britain around the possibilities of regional television.[54] For once this conduit is in place, television itself becomes a major carrier of the very category/categories of citizenship.

In its turn, the State further underscores this perception of the 'audience as nation' with its own claims to be the valid representative of the public gaze, and further translates this into cultural terms of determining what is shown and how it is read. What Prasad has called, in a different context, the prohibition placed upon the invention of the zone of the private, or in other words the public gaze in its sanctioned fullness,[55] clearly dominates not only the more conventional modes of public service broadcasting but also, and as one of the major entities that justify such a representation, precisely the concept of the 'local' as mobilised by the model of community broadcasting that *Voices* advocates. While one could feasibly extend what the Broadcast Bill calls 'education, community service environment protection or health awareness' to actually include what *Voices* terms 'local issues and concerns', or even to 'culturally relevant material' assembled by 'local producers' using 'local voices', which can 'influence public opinion, create consensus, strengthen democracy',[56] one only needs to imagine what would happen if these local voices were to so shift their named sites as to include programming that could, if made truly local in the sense in which print media can often become, deal with proscribed, censored, politically inflammatory, or even simply pornographic issues – all presumably 'local concerns' in one sense at least – to recognise how strong the State-endorsed public gaze, literally the nation as audience, could dominate so avowedly local a process of dissemination/reception.

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[53] This became a particularly contentious issue when Star TV aggressively sought a position as India's official channel, taking on Doordarshan in its very bastion, so to say. Its bid to be the official broadcaster of the 1997 Republic Day parade, its hiring of former Information & Broadcasting Ministry Secretary Rathikant Basu as its Chief Executive Officer, and most directly perhaps, its anniversary celebration on the lawns of the (former) Prime Minister I.K. Gujral's official residence clearly threatened Doordarshan's very existence. The divide between a public service and commercial broadcaster has now gravitated, by default, to 'terrestrial versus satellite' broadcasting which is again contentious but at least a more straightforward battle for control over the market. Similar battles are in evidence in the Southern states between Sun and Eenadu versus local DD channels for national or sub-national authority.

[54] See Sylvia Harvey and Kevin Robins eds. *The Regions, The Nations and the BBC*, London: BFI (1993).

[55] Madhava Prasad has argued how, in certain film genres, 'the private is only invented in and through (the) relationship of family to State ... whereas in the old family, which is at once a family and an authoritarian regime, the private does not exist. As such, the unspoken ... alliance between the State (which is only formally in place) and the numerous pre-modern points of power and authority ... prohibits the invention of the private'. Prasad, 'Cinema and the Desire for Modernity', *Journal of Arts & Ideas* 25-26 (1993). http://dsal.uchicago.edu/books/artsandideas/pager.html?issue=25-26&objectid=HN681.S597_25-26_075.gif

[56] In the words of the Broadcasting Bill to which *Voices* draws attention, 'the Authority may grant licenses to ... institutions ... for terrestrial broadcasting services ... provided ... the object of such institution is to provide education, community service, environment protection or health awareness' (section 16/2).

Let us, with this argument, return to the categories of 'public' and 'State', to the career of television twenty years after the initial SITE experiment. I want to revisit my contention that the judgment's declaration that 'State control is really government control' (to be represented through a 'public statutory corporation') was epochal. All the commentators quoted recognize, I suggest, that at stake are predominantly symbolic categories, which have to do with: (A) The siting of a new category of the public which is not, let us say, the 'governmentalized' version of the 'audience as nation', but one that represents something new: an updated authority; (B) The recognition that this category can most palpably be assembled in its symbolic fullness through the devising of a mode of address that could site it as the possessor of authority and as capable of acting upon that authority. (How actual people will respond to such interpellation is not directly the issue at this moment: what is at issue is how people should be trained to 'look' as they incarnate a public gaze that is 'independent of State control').

I have already suggested that in this newly refurbished concept of the 'public' is an entity to which a (symbolic) capacity can be attributed: the capacity for taking certain kinds of *action*. If it is to be capable of action, it also now must possess an *a priori* gaze that is seemingly independent of the State, a seminal new faculty crucial for liberalisation-era TV.

What sort of *action* was this public capable of?, was now the real question that the Judgment asks and the Broadcast Bill sees to elaborate. With the conduit audience/nation/ government/public charted out above, a new category of 'government' emerges which, as the lowest and most degraded version of 'audience as nation', extended to State-domination over the public gaze, and finally to governmental committees like the proposed BAI which are supposed to incarnate these virtues and responsibilities, was now presented as something of an agent acting on behalf of the public, who in turn had to be presented as pre-existing it, and who could invent it on their terms. (The State is no longer Man Objectified, but Man Objectifying).[57] It appears possible therefore, in the judgment itself and in all three propositions presented in its context above, to indict the State-as-government as a poor agent, a bad mediator, and to suggest that 'the public' possesses the possibility of hiring alternative agents who could perform the same functions better, just as one would fire an unsatisfactory service and hire another (or perhaps simply zap a channel). In a direct inversion of what Partha Chatterjee calls the democratic activity of State functioning, where people living in a nation are 'named' as citizens in the way they are 'classified, described, enumerated' as a 'population', here the public could in their turn,

[57] Karl Marx, 'Democracy starts from man and makes the state objectified man ... whereas in other forms of state man is a legal manifestation, to democracy ... it is a human manifestation'. 'Contribution to the Critique of Hegel's Philosophy of Law', *Collected Works* vol 3, pp. 29-30. See also Sudipta Kaviraj's chronicling of a particularly Indian-nationalist variation upon this concept of the 'state as objectified man', in his statement that 'the liberal argument that the rationality of man must be construed to mean that each human being is the best judge of his own interests and therefore deserved the right to individual autonomy was simply transferred, to the considerable embarrassment of utilitarian theorists, to the national community ... (and meant) primarily the collective freedom of the Indian people from British rule, a translation of the question of liberty entirely, unproblematically, into the question of national sovereignty'. Kaviraj, 'Democracy and Development in India', in Amiya K. Bagchi ed. *Democracy and Development*, NY: St Martin's Press (1995), pp. 92-136.

reverse this entire relationship and enumerate on their own a set of responsibilities, or at least a list of adjectives, that this mediating agent should answer to. According to the Supreme Court, therefore, a 'public statutory corporation' should be 'impartial' in 'political, economic and social matters', 'balanced' in its presentation of views and opinions, ensure 'pluralism' and 'diversity', provide 'equal access to all citizens ... to avail of this medium'.

To qualify as a proper representative of this 'public', then, requires an agency that is

- ✓ Impartial
- ✓ Balanced
- ✓ Pluralistic
- ✓ Diverse
- ✓ Equally accessible

and we could perhaps add:

- ✓ Efficient
- ✓ Incorruptible

For Rajeev Dhawan, for instance, the 'government by stealth' - a government making secret deals with 'grasping Indian and foreign interests in ways that belie the importance of the freedom of speech and expression' - is contrasted with a 'publicly funded public channel which will give the commercial havenots an effective say'. How it will do that is really not so much the issue for him: the *symbolic demonstrability of public-ness seems clearly for him a more important issue than its practicability*. The National Workshop, in contrast, but also more pragmatically perhaps, designates this 'public' straightforwardly as the consumer: to keep, at all times, the 'interest of the consumer' at heart what it wants is a 'fair and level playing field', a 'most friendly business environment for accelerated national and international participation and investment'.

To categorise *this* public it was necessary on the one hand to speak of them as specific sets of people, with specific problems, 'local issues and concerns', as *Voices* puts it. On the other hand, however, this specificity could only be realized – actualized – in the way it was translated into representation in the new public domain (the right of all 'citizens and groups to avail of this medium' as the judgment states), within what is otherwise a 'global and fast, efficient and accessible-to-all at low cost-to-consumer, communications/information infrastructure' on which 'a people's very survival depends' (in the conclusion of the Ad. Club Workshop).

*This* public is no longer an 'emergent bourgeoisie (lacking) the social conditions for establishing complete hegemony over the nation ... and (attempting) a 'molecular transformation' of the old dominant classes into partners' (Chatterjee),[58] but rather a newer entity seemingly capable of installing powerful agents equipped to look after its interests – such as Dhawan's 'public trust',

[58] *Nationalist Thought and the Colonial World: A Derivative Discourse*, OUP/Zed Books, 1986, p. 30.

the Ad. Club's 'newly independent autonomous public authority', or *Voices*' techno-savvy 'community'. The government, the most obvious agent on hire, is, by definition, incapable of playing that role: indeed, the government's declared incapacity in playing that role is a definitive factor in identifying the role itself. The government, precisely, is the one agency excluded from the 'public statutory corporation'; hence the judgment's explicit 'control of the public as distinct from the government'.

By the mid-1990s, the damsel-in-distress Indian state was once again on the lookout of a utopian technology: a technology that not only carried no stains of past failures, but could arrive, as if on a white charger, and rescue the damsel with its impeccable, 'impartial, balanced, pluralistic, diverse, equally accessible, efficient, incorruptible' manners.

Let us now make our final pass at that statement, 'Air waves are public property'. What 'air waves' usually mean are electromagnetic wave spectra, discovered in the late 19th C. as a new 'natural' resource by which information could be converted into units and transmitted either terrestrially, through the sky (and get 'bent' in the ionosphere), or in space where they are bounced off either natural or man-made satellites.[59] Air waves have not been public property in any of the above categories for the last 60 years: initially the property of defense establishments, they have been strictly controlled by international and national agencies and allocated for different functions, initially for radar and radio, later for television alongside a host of other technologies. Necessarily, when they were discovered, their very system of transmission (air/sky/space) transcended national boundaries, but for several decades there was no real problem over this. The International Telecommunications Union, established in 1932, later set in place the International Frequency Regulation Board (in 1947) where it was agreed that certain 'global' frequencies be reserved for global activity, such as telephone systems, while other bands be reserved for specifically national priorities, usually to do with defense, transport, the police, weather forecasting etc.

Despite major, and celebrated, differences between 'first' and 'third' world nations over frequency allocation, overall national dominance over this area was not really contested until commercial satellite systems came up. It was the INTELSAT-1, put up in 1964 by a consortium of nations and commercial organizations, that led throughout the decade to disputes over boundary rights, extending to copyright disputes that often emerged from the problems involved in making the national boundary compatible with the satellite 'footprint'. To this day, private corporations are not eligible for allocation of 'parking slots' for satellites in Geo-Stationary Orbit, leading to extraordinary situations where major 1990s companies like the Hughes Corporation, Motorola or Hutchison-Whampoa, or indeed even some nations, were forced to work with some pliable government or other (for instance the Asiasat, which made STAR-TV possible, was put up by Hutchison with the Chinese government), and Tonga had exploited its

[59] The following information is drawn mainly from G.N. Sharma's *Satellite Communications and Outer Space: Regulatory Aspects*, Ahmedabad: Academic Book Centre (1988).

position on the equator to co-sponsor the RIMSAT-1 (130-degrees east of GSO) and another one jointly with Indonesia (134-degrees east), and, in addition, 'booked' ten more parking slots in GSO with obviously commercial intentions.

Two changes in recent times would affect the traditional national dominance over wave spectra: 1. The spread, indeed the explosion, of the technologies that used airwaves to precisely local function: in satellite technology itself with the arrival of 'Smallsats' weighing less than 450 kg, and then with cellular phones, pagers, local-area networks, neighbourhood cable systems which were already by the mid-1990s giving the telephone department a run for its money on their capacity to carry the Internet. In tandem with each other, these developments effectively transformed the very way broadband technologies that the judgment refers to by the term 'air waves' could present their possibilities and enter local 'public' discourses, while also transforming the relationship between the technologies themselves, the resources they could demand, and the extent to which governments could retain control over these resources. Among the claims being made were:

**First**: the claim that digitalized transmission is efficient, and capable of truly servicing the 'greatest good': the maximum number of users. Efficiency here means something rather particular: there is no loss of generation, every end-result of any kind of information transmission is like an original and therefore not corrupted in the way that something 'analogous', therefore already mediated, as analogue systems produce, would be.[60] Here the 'original' defines itself as such in its capacity for both endless duplication and endless distribution of original material, whatever it might be.

**Second**, the claim of compatibility of such transmission with all forms of language, whether visual, verbal or any other kind of abstraction. Originating, as a textbook on digital electronics writes, 'with man using his fingers - digits - as counting devices', the technology repeatedly presents both its diversity and plurality in the following claim: whatever your information, we can encode it for you better than anyone.[61]

**Third**, the claim of being a purely natural resource, as explicitly therefore not the product of human labour. As one ideologue claimed, the airwaves have been present from the beginning of time, and although they remain every day a finite natural resource, it is endlessly regenerable:

[60] 31. See, in a related area, Prabhat Patnaik's 'On the Concept of Efficiency', where he mentions a possible and far more practically relevant form of 'efficiency' arising from the 'forced idleness, or involuntary unemployment, of resources', a category not recognized by neo-classical economics in its policy prescriptions. *Economic & Political Weekly*, 32:43 (Oct 25-31, 1997), p. 2808.

[61] See Timothy Binkley, 'Refiguring Culture', in Philip Hayward/Tana Wollen ed. *Future Visions: New Technologies of the Screen*, London: BFI (1993).

'Spectrum not used today is gone forever'.[62] Natural, therefore accessible to all, 'allocatable for the greatest good'.

**Fourth**, the most ubiquitous of all, the claim of interactivity: you can decide what to receive, you can transform what you receive to your choice. This concept really is the only one that bring any sort of coherence to the otherwise hopelessly dispersed demand for what the judgment calls 'access to all citizens and groups', and to the otherwise entirely incompatible categories of access to representation as against access to the media itself that Dhawan, for instance, so unproblematically brings together in his 'publicly funded channel which will give the commercial havenots an effective say'.

Clearly much of the rhetoric of Utopian virtue evidently springs from perceptions that do not concern specific technologies (which can and cannot do certain things) as much as they do 'technology' in its broad amalgam – as the term 'air waves' would indicate – which is presented mainly in terms of a set of future possibilities into which we, the public, can invest for the purposes of our self-actualization. This entity, amorphous, but both labour- and ideology-free, is what the 'public statutory corporation' is expected to stand in for, and to represent in all its efficiency, balance, plurality and incorruptibility. The conduit characterizing the television viewer is now complete. The state that defines the 'amorphous' viewer is reduced to the government of the day: viewers, correspondingly elevated to a kind of supervisory 'public', demand that this new entity - the new representative of his/her gaze - now mediate on their behalf. But mediate between whom? Mediate, once again, not simply between the conditions of local existence and transnational media, but rather mediate the way a politically signified specificity, the symbolic 'local' of people apparently possessing a 'cultural voice' that has to be imagined as still intact, would demand mediation with a transnationalism that ought to be subordinate to the local, and more, at its service.

What if the hiving off of food and clothing for Tsunami victims by middlemen, and all the other instances where intended beneficiaries do not receive the message, constitutes a *true* interpretation of the message? More complicatedly, can *mis*interpretations also be correct?

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[62] Maj. Gen. Pran Nath, 'Radio Frequency Spectrum: Securing their Rights', *The Economic Times*, Bombay, Sept 7, 1994.

**Chapter 4**

# THE EXPANSION OF HIGHER EDUCATION AND THE DEVICE

**I**

## The GER, or Gross Enrolment Ratio: Bringing ICT to Higher Education

In February 2009, the Ministry of Human Resource Development, Government of India, announced a major initiative, the National Mission on Education through Information & Communication Technology (NME-ICT). The purpose of the mission was to use digital resources to arrive at the 11$^{th}$ Five Year Plan target of enhancing the Gross Enrolment Ratio, or GER, in Higher Education by 5%, i.e. from 11% to 16%. What this meant was that by the end of this programme, 16% of the total Indian population qualifying to be in University would be in University.

Before we move to the IT-fication of the Higher Education (HE) sector, I want to spend a little time on the GER itself, since it was a relatively new indicator for the Government of India. As Veerappa Moily, Union Law Minister, had it in a speech in early 2010 in Bangalore, despite the fact that India had over 500 universities and 25,000 colleges, we are 'far behind the developed countries' average of 45% and even countries like China (22%),' and the GER for Dalits, educationally backward minorities and other socially and educationally backward minorities and other socially backward classes was even lower than the national GER.

Gross Enrolment Ratio (GER) Among Total Population and SC Population

(In % age)

| Age Group | Total | | | SC | | |
|---|---|---|---|---|---|---|
| | Boys | Girls | Total | Boys | Girls | Total |
| 6-11 (Classes I-V) | 112.6 | 105.8 | 109.4 | 126.1 | 110.0 | 118.4 |
| 11-14 (Classes VI-VII) | 75.4 | 66.5 | 71.1 | 81.0 | 64.9 | 73.4 |
| 6-14 (Classes I-VIII) | 98.5 | 91.0 | 94.9 | 109.3 | 93.6 | 101.8 |
| 14-16 (Classes IX-X) | 57.7 | 46.2 | 52.2 | 54.8 | 40.3 | 48.1 |
| 16-18 (Classes XI-XII) | 31.5 | 25.1 | 28.5 | 27.9 | 20.7 | 24.6 |
| 14-16 (Classes IX-XII) | 44.7 | 35.8 | 40.4 | 41.7 | 30.8 | 36.6 |
| 6-18 (Classes I-XII) | 80.6 | 73.1 | 77.0 | 87.8 | 74.5 | 81.5 |
| 18-24 (Higher Edn.) | 13.6 | 9.3 | 11.6 | 10.1 | 6.4 | 8.3 |

**Source:** Abstract of Selected Educational Statistics -2005-2006
Dept. of Higher Education, Ministry of Human Resource Development, March 2008

The problem of low enrolment was itself not new. The MHRD's chart indicating the steady dropping out of students as a whole, and especially among India's Scheduled Castes cannot surprise too many people.

What *was* perhaps new was the heavy emphasis on *ICT* as the means by which to address the problem. Was this techno-utopia? A phantasy of new technologies miraculously performing existing tasks better than they could? Or was is there any likelihood of awareness that new technologies could pose new problems, or at least cause new situations to arise that were not always comprehensible to older definitions? Even by Indian standards of technological delivery – even with the radio miracle, the Special Plan for Television and the telecom revolution – nothing came bigger than this giant claim. As with the UID project, it is perhaps too early to say what will happen – and like all colossal initiatives this one too runs the risk of being a colossal disaster. Yet, an initiative of such a scale needs attention because, succeed or fail, its ramifications cannot but be massive. What was widely acknowledged was that if the Government of India's target of reaching a GER of 30% by 2020 had to be reached, a number of things needed doing: the number of universities and colleges would have to increase manifold, and trained faculty had to be produced somehow to man these new institutions. In March 2010, D. D. Purandeswari, Minister of State for Human Resource Development, while noting that the prime limitation the government faced was the adequacy of teachers, and that 'failure to redress the faculty shortage would hamper the achievement of the targets for increase in GER set out by Government', remained nevertheless optimistic that the GER in higher education could reach 15% of the population in the age group of 18-24 years by as soon as 2011-12.

So what is the salience of Gross Enrolment Ratio? The concept is sometimes attributed to American sociologist Martin Trow, who tried to analyze the progression of Higher Education from elite to mass and finally to universal access.[63] Recognizing that historically higher education was by definition an elite occupation, and that universal access to such a thing was a new development to the very concept of higher education, Trow proposed a simple arithmetic: that HE systems that enrolled up to 15% of the relevant age group should be described as elite systems, those who enrolled between 15% and 50% of the age group were mass systems; and those that enrolled more than 50% were universal systems. The key to HE reform and development was precisely one of how to negotiate the increase the gross enrolment rate (GER) of the HE age group, i.e. negotiate elite requirements with massification.

Let us now define our Ailawadi Paradox as it pertains to HE as follows: (1) Making higher education available to all people of society is ideally a good thing, but this is difficult to achieve under present conditions. (2) The problems as they present themselves to State structures are twofold: (i) Because States have trouble making access to HE (as against primary education) into a *right*, and (ii) Because making HE available to all is sure to make *quality* HE go down the tube, (3) and finally, because quality HE can only be delivered by private, or at least autonomous institutions, who will certainly accept no restrictions on either fee structures or on who they choose to admit.

Is massification of higher education at all desirable? Should HE be maintained as an elite category if it has to adhere to quality of education? By 2008, however, most Asian countries had declared their commitment to the 'mass' alternative, and GER became an index of human development alongside venerable economic criteria such as standard of living, development of the industrial base and per capita income. Applying Trow's formulations to ASEAN, Jianxin Zhang (2008) showed that although no ASEAN countries has entered into the universal stage, and nobody compared to for example the Swedish standard of a GER of 82%, by 2004 at least 7 ASEAN countries (Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam) had reached a GER of about 15%, so that at least mass if not Universal HE was imminently possible. The most spectacular rise among these was Thailand, whose GER in 1960 was only 3.3%, went down to 2% in 1965, rose to 11% in 1979, 20% in 1985 and 44% in 2004.

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**[63] TROW, MARTIN, 'FROM MASS HIGHER EDUCATION TO UNIVERSAL ACCESS: THE AMERICAN ADVANTAGE', IN PHILIP G. ALTBACH, PATRICIA J. GUMPORT AND DONALD BRUCE JOHNSTONE (ED.) *IN DEFENSE OF AMERICAN HIGHER EDUCATION*, BALTIMORE: THE JOHNS HOPKINS UNIVERSITY PRESS, 2001, PG 110-143.**

Prof. Zhang has a nuanced position on whether this is or is not a good thing. While it is true that at its 'elite' stage, HE typically reproduces social position (reinforcing social strata, for example), by the time Universities reach the 'mass' HE stage – from the typical symbol of a 'university city' with a student base of 2-3,000 to comprehensive multiversities made up of 30-40,000 students and teachers and where a diversified system of full-time, part-time, distance and open systems co-exist – the 'originally clear boundary between HEIs and society gradually disappears', she claims. Higher Education then increasingly becomes a *right*, and in the process also links up to the employability of students (as against possessing stand-alone research relevance) and students from mass HEIs end up in a 'massification employment' era, where a large number of graduates compete for limited employment opportunities. While elite HE can guarantee high research and teaching quality, mass HE is forced to adopt the fixed educational expense, big classes, limited teachers and embarrassing teaching conditions, and relationships between teacher and student going cold. Despite the risk of stereotyping here, Prof. Zhang's contention perhaps stands that countries *should not choose between elite and mass*, but that both have their uses and both should exist in comfortable harmony.

By the mid-2000s, the Thailand alternative, which had effectively become the only way to go, was being seen as offering a third alternative to the two commonest means of massifying education: the free HE system, as in Singapore, or privatization, as in Indonesia, Philippines and Malaysia where private HEIs covered 88% of the system in 2007. Thailand was doing this through IT: through two open universities, especially the benchmarking Sukhothai Thammathirat Open University (STOU), started as recently as 1978, but whose deployment of the Open and Distance Learning (ODL) strategy is credited with singlehandedly bringing Thailand into the 'mass' stage. By the mid-2000s, the Thailand experiment was dictating the agenda: already at UNESCO's Beijing Declaration of the E-9 countries, adopted by the E-9 Ministerial Review Meeting in August, 2001, GER had become primarily a tool for introducing ICT into higher education, as both free- and- private Universities were being replaced by their online open variant. According to the Beijing Declaration, ICTs needed to be used in all fields of basic education, especially to reach the unreached; secondly, networks of ICTs should be used to foster interactions and experiences and sharing of resources; thirdly, teachers should be trained in the use of ICTs; and finally there should be a process of identifying and documenting best practices in ICT. According to the Education for All (EFA) Monitoring Report 2002, the greatest EFA challenge lay in South Asia. The focus here would be on the development of ICT-based literacy materials and mobilization of partners for implementation in Bangladesh, India and Pakistan, to be coordinated within the United Nations Literacy Decade (UNLD).

**II**

## India

Making Higher Education a Right

> India's enrolment rate for Higher Education, which has risen from 0.7% in 1950-51, 1.4% in 1960-61, and 8% in early 2000, is still very low (about 10%) compared to the world average of 23.2%, and an average of 54.6% for developed countries, 36.3% for countries in transition, and 11.3 % for developing countries. Even the existing EER of some 60% indicates that 40% of students who complete their higher secondary programs do not enter the realm of tertiary education. *Even if we increase enrolment rate by 5% every plan period, it would take more than a quarter century to come close to the level of developed countries*. (World Bank Country report on India's Higher Education, 2006)[64]

As on 31.03.2009, India had 471 Universities: 268 State, 40 Central, 125 Deemed, 5 institutions established under various State legislations and 33 institutions of national importance established by Central Legislation. In addition, it had 22,604 colleges including around 2,260 colleges for women.

Not only is this one of the largest national educational systems anywhere, but it also has some of the most tension-ridden conflicts in Asia on the question of massification. A key issue, that has bedevilled the Indian education system from Independence has been the question of whether education is or is not a Right, and in particular, can access to education be included within the social justice initiatives with which independent India has fitfully engaged?

Quoting one of the most vociferous opponents of the contentious 'reservations' policy India has followed since Independence, former IIT-Chennai Director P.V. Indiresan ('W(h)ither IITs?' in *Unviable Universities, Seminar* #494, October 2000)[65] asks whether higher education is a 'non-merit good' deserving little or no subsidy as some finance experts make it out to be. He recognizes that back of it is a political question: should higher education be a democratic right open to all, or should it be confined to a few? And if it is to be only a few, should that few be confined to the competent, or should it be the preserve of the politically privileged, or should it

[64] http://siteresources.worldbank.org/EDUCATION/Resources/278200-1121703274255/1439264-1193249163062/India_CountrySummary.pdf
[65] http://www.india-seminar.com/2000/494/494%20p.v.%20indiresan.htm

be purchasable by the rich? (Ailawadi would not have been able to tell the difference, I guess). The argument that higher education was a non-merit good was that since college education enabled a student to get better paid, and qualify for more prestigious and more secure jobs – if, in the end, it only benefitted the student – then how was it a public good, and why should taxpayer money be used to benefit this social climber? Should we not give the guy a loan instead that he could pay back when he got his cushy job? On the other hand, asked Indiresan, is the benefit entirely individual? Do graduates not also contribute to the economy?

Indiresan then says that if the government restricts itself to educating only the numbers that it considered were essential for the economy, substantial funds could certainly be released and the financial burden made manageable. Many wasteful and unnecessary courses could, for example, fade away. On the other hand, if this happened, higher education would become selective and cease to be a democratic right.

> If the numbers admitted to colleges is limited to the number supported by the economy (and affordable by the government), increasing numbers of meritorious students from upper castes will be denied higher education. On the other hand, if colleges are forced to go private and self-supporting, the rich will benefit and the poor will be left out. If it is decided to sacrifice quality, the problem may be resolved without much difficulty. On the other hand, if the country wants at least a few institutions like IITs to be internationally competitive, the issue becomes complex. Either way, it is a matter of political choice.

In 2005, the 93rd amendment to the Constitution only poured fuel into the fire by adding a new section 5 to Article 15 (affirming that nobody can be discriminated against on religion, race, caste, sex, place of birth etc), by bringing into the elite-mass fray a third category: the *private* educational institution. It stated that the core of Article 15 did not prevent the State from making a special provision for the advancement of socially and educationally backward classes of citizens or for the Scheduled Castes or the Scheduled Tribes that might ensure their *admission to educational institutions including private educational institutions, whether aided or unaided by the State*. The exceptions were minority educational institutions. Such an amendment led, as Sudhir Krishnaswamy and Madhav Khosla show in their very useful summary of the consequences of this amendment[66], to a whole slew of debates, including: was the amendment at all legally valid?, Could it really allow the government to dictate admissions policy to private unaided educational institutions?, Should such a reservations policy include OBCs? What about the notorious 'creamy layer'? and so on.

The two most crucial issues around massification – the ones that cut to the bone on the very purpose of the educational system – were, in Indian debates, to do with whether education

[66] 'Reading *A K Thakur vs Union of India*: Legal Effect and Significance', *Economic & Political Weekly* v 43 N 29 July 19 - July 25, 2008

needed to be a stand-alone right, or whether it needed to be linked to employability. Should Article 15(5) (non-discrimination) be read along with Article 16, which emphasizes equality in the area of *public employment* and which, say Krishnaswamy and Khosla, has been the standard way of reading higher education reservations since the State of Madras vs. Champakam Dorairajan case of 1951?[67] Such a definition directly affects the 'skill-versus-knowledge' question that would divide higher education into the 'professions' (law, architecture etc), governed either by the All India Council of Technical Education (AICTE) and the professional Councils (the Bar Council, the Council of Architects) as against the 'academic' institutions: the former define their *raison d'être* along the lines of employability, the latter provide stand-alone definitions for why they exist. The second was around whether the Government could issue diktats to private educational institutions: something that would cut to the bone, both in the area of undergraduate education, as well as the impending Private Universities Bill which would open higher education to global players. As Indiresan asked, if quality education is expensive, should the Government spread itself so thin as to support any and every undergraduate college? There are, says Indiresan, 8000 colleges in the country (over 500 of them are in engineering) and a new college is started every other day; most of these are heavily subsidised, proportionately even more than the IITs. How does the subsidy model square with the concept of the University as an institution of research?

By 2006, several of these old issues were being revamped under a new, game-changing, vision for the system. The Department of Higher Education planned to have at least one Central University of national character in each state, eight new IITs and eight IIMs, 20 Indian Institutes of Information Technology and 10 National Institutes of Technology, 5 Indian Institutes of Science Education (IISERs) and two Schools of Planning and Architecture. This was (using a popular advertising term) massclusivization with a vengeance. The Department of Higher Education would additionally assist State Governments in establishing 374 new Degree colleges, one each in educationally backward district of the country and 1000 new Polytechincs.[68]

This was by any standards a huge expansion. Several documents from this time refer to the major upheavals in the field of higher education in India. No document more completely captures the challenges before India's higher education system as a whole than the 2006 National Knowledge Commission's Recommendations on Higher Education. Claiming that 'Higher education has made a significant contribution to economic development, social progress and political democracy in independent India' the report nevertheless says that there is 'serious cause for concern at this juncture'. The main concern is that the *proportion of our population, in the relevant age group, that enters the world of higher education is about 7 per cent*. This is mainly because the opportunities for higher education in terms of the number of places in universities are simply not adequate in relation to our needs since *large segments of our population just do*

[67] Insert note on this epochal case

[68] Result-Framework Document (RFD) of the Department of Higher Education For the Year 2010-2011: http://education.nic.in/HigherEdu/RFD-2010-11.pdf

*not have access to higher education*. And finally, *the quality of higher education in most of our universities leaves much to be desired*. 'Higher education needs a systematic overhaul, so that we can educate much larger numbers without diluting academic standards'. This is 'essential because the transformation of economy and society in the twenty-first century would depend, in significant part, on the… foundations for a knowledge society'.

The goal for the 11th Five Year plan for 2007-2012, if successful, was then to ensure an increase in the enrolment rate of higher education equivalent to the *creation of approximately 8 million new seats in Indian higher and technical education*. Further, all institutions would parallelly be asked to make higher education more inclusive, more responsive to economic needs, and raise quality. Therefore, the public and the government are likely to increase investment in higher education, and in return demand accelerated change in the higher education sector.[69]

While these recommendations have been a matter of debate, they have been in principle widely accepted as desirable. The larger question was, were they *feasible*?

**III**

## Revisiting the Paradox: and What ICT was now expected to do for India's Higher Education

Virtualizing Authority

This then was the background to the National Mission on Education using ICT (NME-ICT). Once again, technology was meant to wave its wand and get things right.

As with previous instances, technology (the NME-ICT) and the law (the proposed NCHER Bill) would somehow come together to address hitherto impossible-to-resolve contradictions. This section takes a little time off to elaborate on the Paradox that bedevils all HE, and which takes specific turns in India. I want to examine it with regard to three disparate documents: the National Knowledge Commission's recommendations,[70] the famous Yashpal Committee appointed in 2009 by the MHRD to 'Advise on Renovation and Rejuvenation of Higher Education'[71] and the proposed 2010 NCHER Bill that arose from the two documents.[72]

[69] http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/KFDLP/0,,contentMDK:21812442~isCURL:Y~pagePK:64156158~piPK:64152884~theSitePK:461198,00.html
[70] http://www.knowledgecommission.gov.in/recommendations/higher.asp
[71] http://www.academics-india.com/Yashpal-committee-report.pdf
[72] HTTP://WWW.ACADEMICS-INDIA.COM/NCHER_BILL.HTM

The key problems that the National Knowledge Commission effectively summarized are four: reform of governance, need for new faculty, need for curricular reform and need to revitalize a research tradition. Let me bring the NKC, NME-ICT and the NCHER Bill together to see how the Gordian knot would now be cut.

For the most part, it appeared that all four problems could be coalesced into the key problem that was being identified: the one of *governance*. The specific overarching umbrella issue was: can governance reform at all take place in the University, Research centre and Undergraduate college? What kind of governance could we now have, that might permit clearly the conflicting components of higher education – of excellence and massification – to come together? The Indian Higher Education system is opening up to global competition, with significant transformation of its governance mechanisms.[73] Academic autonomy has been a major challenge to Indian institutions, both at the undergraduate and post-graduate level, for colleges (many of whom are seeking to upgrade into full-scale University level) as well as Universities. Could *autonomy* – and its default equation with *excellence* on the one hand and *privatization* on the other, and the absolute assumption that the three were inseparable, or more, that each somehow guaranteed the other – now be a way by which education could at once become accessible as well as rid itself of any stain of caste-based reservations?

The Knowledge Commission's recommendations were drastic. On the Ailawadi Paradox, it appeared that the Knowledge Commission both wanted to have its cake and eat it: and there lay the conviction that governance, if properly worked out, could give it to them. On the one hand, they wanted India to expand to around 1500 universities nationwide, which would enable India to attain a gross enrolment ratio of at least 15 per cent by 2015. The focus would have to be on new universities, but *some clusters of affiliated colleges could also become universities*. This was clearly a headlong move into massification. On the other hand, the NKC wanted to *establish 50 National Universities* that could provide education of the highest standard. Clearly, these would not be run-of-the mill but special institutions of a kind.

[73] As the 2006 World Bank Report says, 'the education system is gradually being opened up for change and decentralization. In particular, the federal and state governments are gradually giving higher education institutions more decision and spending power. This represents a move away from detailed government control over spending, teaching, and curriculum decisions, which required frequent approval from federal or state government officials. Besides the 11th Five Year Plan, several facts pay witness to this movement:
- Many institutions have become autonomous during the 10th plan Five Year plan through an increase in the number of autonomous institutions: Central Universities (2), State Universities (39), "deemed-to-be" Universities (50), and Private Universities (10).
- Two recent reports from the Central Advisory board of Education (CABE) on respectively the 'autonomy of higher education institutions" and 'financing of higher and technical education' recommend changes to governance of the higher education institutions.
- The Oversight Committee on the Implementation of the New Reservation Policy in Higher Educational Institution equally recommends increased autonomy to institutions within recruitment and remuneration of faculty and admission policies to find the right balance between equity and excellence for each institution.

While we have agreed that Jianxin Zhang's point with ASEAN that the choice need not be made between two kinds of systems, questions nevertheless remain as to the social consequences of an unabashedly elitist two-tier system. The NKC said it wanted to create 'fundamental changes in the system of regulation for higher education', mainly because at present the 'barriers to entry are too high' and the 'system of authorising entry is cumbersome'. To do this, the NKC recommended the forming of an Independent Regulatory Authority for Higher Education, or IRAHE, to be an autonomous organization 'at an arm's-length from the government and independent of all stakeholders including the concerned Ministries of the Government'. It would be the only agency that would be authorized to accord degree granting power to higher education institutions, responsible for monitoring standards and settling disputes, whether private or public.

The NKC also wants to bump up public spending and diversification of finance sources, and for Government to increase support for higher education to at least 1.5% of the GDP, out of a total of at least 6 per cent of GDP for education as a whole. As a norm, fees should meet at least 20% of the total expenditure in universities.

As we can see, most of these requirements were classic neoliberal demands in the way we have outlined them: keep the new structure market-rational, pump up state investment but restrict the state to being no more than a *facilitation agency* guaranteeing the *quality and integrity of the investment*, and develop from all this a **new definition of the public good**. Historically speaking, it is unclear as to whether it was the NKC's IRAHE that first mooted the idea of an autonomous regulator that has now become the controversial National Commission for Higher Education and Research (NCHER). Whether it was or not, the NKC's Ailawadi position of seeing autonomy from Government as a panacea – a position that clearly echoes the Supreme Court's Cricket judgment examined in the previous chapter, of 'public' as against 'government' – clearly outlines one trajectory to the draft NCHER Bill that is soon to appear in Parliament.

The other trajectory, the more authorized originator of the NCHER concept was the 2009 Yashpal Committee Report. While Yashpal appears to arrive at the same conclusions as the NKC, favouring autonomy, he does so through a very different argument. Yashpal's imagination is unashamedly romantic: he wants

> a university to be a place where new ideas germinate, strike roots and grow tall and sturdy... a unique space, which covers the entire universe of knowledge… a place where creative minds converge, interact with each other and construct visions of new realities. Established notions of truth are challenged in the pursuit of knowledge.

This then is not, or not necessarily, an *employability* argument. Yashpal too wants his University to be an autonomous space, since Universities are 'diverse in their design and organization, reflecting the unique historical and socio-cultural settings in which they have grown'.

> This diversity reflects the organic links that they have with their surroundings, which are not only physical but cultural as well. Through research and teaching, they create, evaluate and bring about advances in knowledge and culture. The principle of moral and intellectual autonomy from political authority and economic power is ingrained in the very idea of the university. This autonomy ensures freedom in research and training and it is expected that the governments and the society would respect this fundamental principle. Teaching and research have to be inseparable, because the task of the university is not only to impart knowledge to young people but also to give them opportunities to create their own knowledge. Active and constant engagement with the young minds and hearts of the society also implies that the universities are to serve the society as a whole, and in order to achieve this, considerable investment in continuing education is essential.

On the one side Yashpal does acknowledge the 'slow but increasing democratization of higher education in India', but chooses not to look at it within what most people would understand democratization, namely as a shorthand for the bitter and contentious reservations debate in Higher Education. Yashpal simply speaks of it as 'no longer the preserve of the children of the elite, or of the educated/professional middle-class'. While the Report does also recognize that 'university education is no longer viewed as a good in itself, but also as the stepping-stone into a higher orbit of the job market, where the student expects a concrete monetary return, and consequently in this perception' – it does not see through the consequences we have explored, of reading Article 15 (5) with Article 16, or providing an 'applied' as against a stand-alone justification for its existence – the report nevertheless, and at the same time, reproduces a fully Humboldtian ideal: 'The university has also been regarded as

> the trustee of the humanist traditions of the world and it constantly endeavors to fulfill its mission by attaining universal knowledge, which can be done only by transcending geographical, cultural and political boundaries. By doing so, it affirms the need for all cultures to know each other and keeps alive the possibilities of dialogue among them. It is also important to remember that the university aims to develop a scholarly and scientific outlook. This outlook involves the ability to set aside special interests for the sake of impartial analysis. Standing for more than specific factual knowledge, a scientific outlook calls for an analytical and questioning attitude and the continuous exercise of reason. All this requires us to go beyond specialized knowledge and competence. This universal approach to knowledge demands that boundaries of disciplines be porous and scholars be constantly on guard against the tendency towards 'cubicalization' of knowledge. Apart from resisting fragmentation of knowledge, the idea of a university should at the same time aspire to encompass the world of work in all its forms. Work constitutes the human sphere where knowledge and skills are born, and where new knowledge takes shape in response to social and personal needs. Indeed, the experience and culture of work represents that core space where the humanities and the sciences meet.

In any case, independently of whether the NKC and Yashpal were speaking of the same issue, or how they were seeking to mediate the contradictory demands of elitism/excellence versus democracy, they reached the same conclusion. Or, we may say, found two very different routes to address the Paradox. Without taking sides on this matter, the Government of India, betraying an almost unseemly haste and in the teeth of opposition from various state governments,[74] has gone full-tilt for autonomy. Their NCHER would now be run by an autonomous Commission, which would, as per the proposed Bill,

> take measures to promote the autonomy of higher educational institutions for the free pursuit of knowledge and innovation, and for facilitating access, inclusion and opportunities to all, and providing for comprehensive and holistic growth of higher education and research in a competitive global environment, through reforms and renovation.

Such measures would include specifying norms and standards for *authorization to a university to award any degree or diploma*; develop a *national curriculum framework* with specific reference to new or emerging or inter-disciplinary fields of knowledge and to provide a vision and guide universities in recognizing and revising course curricula; specify *norms of academic quality* for accreditation and benchmarking of higher educational institutions; specify *norms and mechanisms to measure the productivity of research programmes* funded by the Commission; encourage *joint and cross-disciplinary programmes* between and amongst Universities and other higher educational institutions; promote *synergy of research* in universities and higher educational institutions with research in other agencies or laboratories. The Vice Chancellors of all Indian Universities would only be selected from a National Registry of eligible persons compiled by the Commission.

Among the criticisms mounted by State Governments have been the one by Kerala's Education Minister, M.A. Baby, that NCHER actually *takes away* autonomy, in that it intrudes into rights traditionally held by States. In all probability, then, the original Paradox – elite versus mass – has only proliferated into further divides, of public-private, aided-autonomous/unaided and now central-federal.

Virtualizing the Paradox

Put directly, the NMEICT constituted the technologization of autonomous governance. This has been the classic purpose of the deployment of good and benevolent technology of Indian states for some decades, and to that extent the idea of a distance education programme ridding the Indian university system of the political filth of its student movements and its reservation politics

[74] See *The Hindu*, June 8, 2010, 'Unease over revised draft of NCHER Bill', (http://www.hindu.com/edu/2010/06/08/stories/2010060850030100.htm)

fits directly with e-governance or the role of broadcasting to produce the exemplary citizen-subject. As we now turn to the NMEICT's ambitions, we also have the context for the autonomy – the pure, uncontaminated autonomy that only the future can have, and only something as unpolluted as technology can have – that ICT was now expected to provide. The NMEICT begins with a strong Mission Statement: it would convert 'our demographic advantage into a knowledge powerhouse by nurturing and honing our working population into a knowledge or knowledge enabled working population' and thus 'enable India to emerge as a knowledge super power of the world in the shortest possible time'.[75] How would it do that?

Let's agree that in the uniquely Indian way of addressing the Last Mile, such a mission requires at least two layers: first, a layer on a purely symbolic plane, to produce a new kind of State authority and, second, to create a technologized system of delivery to its named beneficiaries that at least seems to work. I hope we can see a pattern here: this model clearly echoes the e-governance ambition that Balaji Parthasarathy had outlined as 'the defining characteristic [of] the use of computers, and sometimes connectivity', which was to reorganize 'both the functioning of the government and service delivery to citizens' – and the underlying presumption that 'increases in transaction speeds [and] ease of data storage and retrieval' *automatically signals 'transparency and accountability'* (quoted in Chapter 1). It also recalls the television model that the Supreme Court had identified that required a 'public statutory corporation' to be 'impartial' in 'political, economic and social matters', 'balanced' in its presentation of views and opinions, ensure 'pluralism' and 'diversity', and provide 'equal access to all citizens ... to avail of this medium' (quoted in Chapter 3).

In the present instance, the impartial, balanced etc. authority was clearly the autonomous Commission of the NCHER. That such a balanced Commission would clearly have quite a balancing act to perform if it did everything that the NKC wanted it to do at the same time as it adhered to Yashpal's Humboldtian model was somehow beside the point, since Last Mile technological utopia seems to have the astonishing ability to bridge all such symbolic contradictions. And this was now what the technology itself was going to do:

(a) It would develop and field test **knowledge modules** that have 'the right content' to take care of the aspirations and to address to the **personalized needs of the learners**;

(b) It would generate **research in the field of pedagogy** for development of efficient learning modules for disparate groups of learners;

(c) It would standardize and ensure **quality of contents** to make them world class;

[75] http://www.sakshat.ac.in/PDF/Missiondocument.pdf

(d) It would build connectivity and knowledge network within institutions of higher learning in the country with a view of **achieving critical mass of researchers** in any given field;

(e) It would make available **e-knowledge contents, free of cost** to al Indians;

(f) It will spread **digital literacy for teacher empowerment**;

(g) It would experiment and conduct field trials in the area of performance optimization of **low cost access/devices** for use of ICT in education;

(h) It would provide support for the creation of **virtual technological universities**;

(i) It would identify and nurture talent;

(j) It would certify competencies of the human resources acquired either through formal or non-formal means and to evolve a legal framework.

These then were, at least, among the more significant of the Mission's ambitions.

Effectively, the NMEICT would claim to try and reach the target of 8 million new entrants into Higher Education within a determined time-span. It would do so through developing new knowledge modules, generating research in pedagogy, ensure quality of content, and support virtual technological Universities. Through such acts, the anonymous virtual University – in this instance, the seven IITs, the Indian Institute of Science and the Indira Gandhi National Open University (IGNOU) – would create an entirely new National programme for Technologically Enhanced Learning (NPTEL). The NPTEL (http://nptel.iitm.ac.in) originated as a collaboration between the IITs, IIMs and the Carnegie Mellon University between 1999 and 2003. The original idea was to create contents for 100 courses as web based supplements and 100 complete video courses, for forty hours of duration per course. Five engineering branches (Civil, Computer Science, Electrical, Electronics and Communication and Mechanical) and all core science programmes in engineering for undergraduates were to be covered. The main objective was to enhance the quality of engineering education in the country by developing curriculum based video and web courses.

In the first phase of the project, supplementary content was put together for 129 web courses in engineering/science and humanities have been developed and 110 courses were been developed in video format, with each course comprising of approximately 40 or more one-hour lectures. The result was an astonishing body of (I say this not being an engineer myself, but I have seen them, and have spoken to students who have taken them) perhaps the most unimaginative dry-as-

dust courses ever taught on a virtual platform, but that getting good courses up was clearly not the only – or even main – purpose of the programme. In all the *Hic Rhodus Hic Salta* leaps that this book has tried to chronicle, nothing came larger than this one.

Once virtualized, the technology attributed the conditions of a new kind of benevolent apparatus, it is astonishing how much benevolent authority would be heaped onto the apparatus in short order. It is, for example, entirely open source: I am told not only open source platforms, but open source *content*. Although the NPTEL presently has a fee of some kind, I am also told that the new NPTEL-2 programme expects to be entirely open, and this includes textbooks. It expects to work with what has been dubbed the 'four-quadrant' model, in which the e-tutor combines with a course wiki, an animated module for instruction, and a student self-assessment format. The NPTEL claim is that Phase 2 objectives are

> to create contents for science and engineering courses in all major disciplines as well as specialized and newly developing interdisciplinary subjects for which there is very little academic expertise in private colleges. In addition, helping colleges through workshops and discussion boards for implementing NPTEL content in their curriculum. This is the most significant difference between open educational resources developed worldwide and NPTEL. *It is one of the fundamental goals of the project to bring in all the best teachers in the country under the umbrella of NPTEL and record their lectures/seek their collaboration with IITs/IISc and make their courses available for the community under free and open sources agreement*. There is already a *move to create open virtual laboratories in the Internet for engineering subjects* initiated by IIT Delhi which is extremely important for our country. Another primary objective is to forge strong ties with major academic initiatives worldwide such as MIT OCW, Commonwealth of Learning, British Open University, Australian Open Universities and Digital Library initiatives (to mention a few) and with industry for developing new technological tools for learning and dissemination.[76]

At the time of writing, the NMEICT standing committee has processed a number of applications, from institutions far and near, small and large. It has doled out money, and approved many proposals. Among its more stand-out achievements has been the INFLIBNET's extraordinary n-list programme, which has so far connected 6,000 government and government-aided colleges covered under the 12b section of ugc act and now gives them selected electronic resources including electronic journals, electronic books and bibliographic databases. These resources include more than 2,100 e-journals, 51,000 e-books and a bibliographic database called mathscinet containing more than two million reviews of research articles in mathematics.[77] for

[76] http://nptel.iitm.ac.in/faq.php
[77] http://nlist.inflibnet.ac.in/N_LIST%20Brochure.pdf

the most part however, month after month the standing committee hears proposals to convert this or that curriculum into a virtual platform. I have attended two, and have to confess that i stand humbled and awed at the range of material that goes in the name of curriculum building in india. To give just one instance, here is a gentleman named t.v. Thulasidharan who wants to assemble an 'e-learning package on sociological concepts prescribed for teacher education programmes'. He justifies his project by describing sociological concepts as 'a broad and abstract phenomenon about human motor-actions and inter-relations of man's behavior in groups'. He says such concepts are difficult for students to understand completely, and therefore the 'e-learning packages investigator' will 'concretize these abstract sociological principles'. Mainly his procedure will constitute identification and selection of concepts, preparing a story board, developing 'learning packages with ample provisions for multimedia animation, hypertext, interactivity etc.', developing the appropriate scaffolding software and making these softwares available on ignou's sakshat site. A second proposal by the psg college of technology, coimbatore, also presented on the same day, wants mainly to convert its courses on automobile engineering, textile technology, metallurgical engineering, computer science, biomedical engineering and humanities – the last simply defined as 'soft skills for professionalism'.

As the NMEICT soldiers on, it appears that the following predictions may well be safely be made: first, that over the next few years it will be inundating the country with online courses. Second, that this material would be entirely in the public domain. Third, to be read with the second point, that it is highly unlikely that any *new* research would emerge out of this: either research in the sectors whose courses are being so industriously virtualized, or research in the field of pedagogy. Scary thought: if we were to only use public domain material, without original new research, chances are that we will only be using third-rate 'digests' and 'guides' that bypass copyright laws as they summarize original (and copyrighted) material.

The problems such a headlong plunge into virtual massification could pose are immense, and some of them potentially insurmountable: apart from the ubiquitous claim to 'open source' it remains entirely unclear as to whether there is any strategy for assembling and disseminating this material on any scalable platform, or clutch of platforms. It remains even more unclear as to how this material can be perpetuated beyond its initial assembly. There is not, even now, even a sample course indicating the 'four quadrant' methodology (the combination of e-tutor/course wiki/student self assessment and learning aids) hat is being touted so assiduously.

**IV**

## The Utopian Device

Just as the diagnosis was gradually setting in, however, came the most extraordinary of new developments of the programme, and, symbolically, its most spectacular leap yet. This was its

claim on the item that the programme would 'experiment and conduct field trials in the area of performance optimization of *low cost access/devices* for use of ICT in education', and the Rs. 1,500 laptop. On July 21st, 2010, the Minister of HRD, Shri Kapil Sibal, said that the Government of India was going to introduce a laptop for Rs 1,500, of $ 35. Claiming that within a year all college-going students would own a laptop, Mr. Sibal said the ultimate target was to bring the laptop price down to $ 10. The device, developed by a research team comprising IIT professors and experts from IISc, does not have a hard disc and uses Linux. It has support for video web conferencing, a multimedia content viewer, Open Office, SciLab and internet browsing with flash plug-in. It also has wireless communication for audio/video, a cloud computing option, remote device management capability, and multi-media input output interface option. It also works with solar panels.

The Rs. 1,500 laptop bids fair to join chicken mesh antennae and the WLL-M to become yet another glittering example of a breakthrough technology as India leapfrogs yet again. This device would now be the way by which the National Mission would deliver its 'high-quality and high-definition interactive video courses and e-content' for various undergraduate and postgraduate courses to 504 universities and 25,000 colleges across the country.

Was this now Game-changer II, or perhaps III (after the first move to massify, and then to autonomize, higher education)? It becomes vital to be able to understand the consequences of both the widespread and, some might say, uncritical unloading of free-and-open source courses upon an unsuspecting new eight million students making up the numbers to massify higher education into its 16% GER in ways *other than* what the state perceives. In defining itself as the ultimate agency capable of crossing the Last Mile, the State has also copyrighted its own definition of the gap.

There has been, in some IT hardware quarters, an awe-inspired gasp of admiration at this somewhat audacious move, but for most people in IT, the government's move lacks credibility. Part of the problem is the lack of credibility of the IITs in handling industry-level demands. The larger problem, it appears, is precisely that we haven't yet figured out what is actually needed, or what the 'form factor' of this miracle device should be. I conclude with a short summary of a survey conducted by K. Sravanthi of CSCS of the industry's view on this sector, and what their plans are to meet it.

It is clear that the 8 million new users, or the HE sector, are widely seen as a whopping new frontier for the industry. As far back as 2007, shortly after India's Education Ministry rejected the MIT Media Lab's One Laptop Per Child project proposal, which had aimed to provide kids in developing countries with a simple $100 machine, under the claim that the country needed classrooms and teachers more than computers for children, *PCs & Chips* reported that Microsoft was planning to launch an educational channel on its MSN portal in India as the next step in a worldwide 'Unlimited Potential' program that aims to get PC access for 1 billion people worldwide by 2015 (the same target year as the United Nations' eight Millennium Development

Goals).[78] The IQ PC was a remarkably innovative collaboration between Microsoft, AMD and Wipro, with Microsoft providing the software stacks, AMD the hardware and Wipro marketing the PC. According to available reports on the internet, Zenith is the designated Original Equipment Manufacturer (OEM) for the device. The uniqueness of the IQ PC appeared to have been not as much in the design or the utilities in the device itself (as against Connoisseur's Classmate PC to which we will shortly turn) but in MSN's IQ Beta Education Channel, the internet educational channel to which the device enables access. Microsoft India chairman Ravi Venkatesan was quoted as saying that 'The task that we have today is to make technology pervasive and useful in the everyday lives of more and more people', and so the IQ Channel would feature tutoring, exam coaching, and tutorial content developed by companies such as Brilliant Tutorials and included lessons on developing English speaking skills. Access to the device was only to be initiated by the parent/guardian who would switch on the device and enter the grades that two children are studying in (the device provides access only for 2 children per family), following which the device would load software relevant to those two grades. Online content appeared largely limited to lessons in Mathematics and Science. Planned at Rs 21,000 ($514), the PCs would include Windows, Office, Encarta and specialized educational programs such as tutorials for competitive exams and homework helpers. India, says *PCs & Chips*, ranks as 'one of the largest emerging markets in the world, but Microsoft is eager to whip that Indian pony into a gallop. Best to get 'em while they're young'.

Apart from Microsoft, there was AMD, which had an initiative called 50x15 attempting to 'enable affordable, accessible Internet connectivity and computing capabilities for 50 percent of the world's population by the year 2015',[79] with schools again the key target groups. Intel has a variety of initiatives in education including the Intel International Science and Engineering Fair and the World Ahead Program, Wipro's 'Applying Thought in Schools' initiative intends to transform pedagogic practices at the school level by working with a cross-section of people and organizations.

For most IT hardware companies, the education sector intersects with existing customer bases with similar demands (traveling professionals and first time users). Sambit Misra, sales representative for Asus, describes the education sector as integrating two sets of customers – first time users and students, so it was possible to design a device that would cater to both sections. Some features considered extremely essential in a device for students, such as ruggedization, would also be of immediate use for e.g. traveling professionals or field workers. Additionally, the targeting of students as a market by themselves appeared largely driven by the kind of expenditure that parents made on education: a software vendor for Microsoft's IQ PC said that Indians spent close to Rs. 15,000 crores on just tuitions and remedial classes every year,[80]

[78] Austin Modine. 'Microsoft to hawk PCs to India's kids: Will it sell? That's the 40,875,000 rupee question'. *PCs and Chips*. 27th June 2007. http://www.theregister.co.uk/2007/06/27/microsoft_sells_iq_pc_india/

[79] http://50x15.amd.com/en-us/about.aspx

[80] Kushan Mitra, 'Connecting the Next Billion'. *Business Today*. August 30th 2007. http://businesstoday.intoday.in/index.php?option=com_content&task=view&id=1338

without counting the expenditure on regular schooling. The readiness of parents to spend on education and the need for qualitative additions and sometimes changes to regular schooling make the need for innovative devices for education quite apparent.

To a great extent education's enormous techno-friendliness has been driven, in the view of the industry, by an imagination of technologies as 'neutral', and thus as intrinsically beneficial. The assumption here, powered by the NMEICT, has been to view students as primarily availing themselves of distance education, living in non-urban settings with major shortages of electricity, and without access to technical assistance etc. These have defined the need for devices as needing power back-up and can be charged in easy and accessible ways.[81] Such a definition has further consequences in that it usually structures the ways in which these technologies are put to use. On the other hand, despite the low exposure, the larger issue is that students are no longer seen as passive recipients of knowledge (as in the traditional one-to-many classroom) but also as creators and disseminators of knowledge. 'Authorities', including teachers and text books, are no longer a primary source of knowledge and learning. Peer-to-peer, affiliated to social networking, is defining the transformations happening at the level of learning in the classroom.

Of the devices surveyed, only the Classmate PC appeared to have been *designed* for educational use (the Rs 1,500 miracle included). Launched in the Indian market in November 2009, manufactured by Intel and marketed by Connoisseur, the Classmate was apparently the result of a four-year research project into the education sector. The first offshoot of this research was the Clamshell, which did not have some of the most attractive features of the Classmate PC, such as a touch-screen. The Classmate PC later integrated the Clamshell (a low-cost, portable PC) with new features that included ruggedness, a shock-proof body and spill-resistant keyboard, a touch screen monitor that could rotate to 360 degrees and used as a note taking device, a digital book reader, software stacks with Mythmaker, MS Office, Art Rage (a low-end software for recording and basic editing of videos) and Quizmaker. Further, it has a signal port to connect it to a larger monitor and has USB ports, SD card reader, a LAN port, microphone port, built in bluetooth and wireless functionality which make it easy for this PC to interact with other Classmate PCs in a classroom. Mythware makes it possible for a teacher to project her screen as a master screen which will then be visible on all the students' PCs. Students can interact with the presentation through annotating it, asking questions through their screens etc all of which are immediately visible on the other PCs. This functionality makes peer-to-peer interaction between the devices possible. Further, the teacher can also monitor what students are doing on their computers through the constantly streaming images of their screens that are visible on her PC.

Most other devices came with more conventional connectivity. Unlike the Classmate, most other devices have been adapted for educational use, as companies have been scrambling to plug this

[81] For instance, Connoisseur Electronics which markets Intel's Classmate PC has developed a charging cart that can be used at the school to charge 30 laptops. The idea is that students can leave the PCs at school at the end of the day so that they need not remember to charge their PCs everyday or relay on unreliable power supply at home. This of course does not seem to take into account erratic electricity at school and will restrict the kind of usage students can put the PC to.

new demand. A short list: Asus Eee PC (launched in the Indian market in 2008) is marketed as a that will work for both first time computer users and students, and account for 60% of Asus' systems sales (unofficial estimates)**.** Mobilis and SofComp (a version of Mobilis) developed by Encore Software are, respectively, a lightweight computer that comes with a LCD touch screen with stylus input and an integrated keyboard and a compact desktop. Both devices support a wide range of applications such as e-mail, internet browsing, text-to-speech, creating documents and managing spreadsheets. While neither device was developed specifically for the education sector, both are apparently popular in schools.

The Nova Net PC and the Navigator have worked on a somewhat different thin-client model: the Nova Net PC is priced at Rs. 2999 (monitor costs additional), but both devices work on a pay-for-use model. All files are stored on central servers, with the terminals only allowing internet connectivity and multiple USB peripherals. Users of the devices also get access to the Nova portal, which besides enabling users to recharge also provides access to tutorial content developed by companies such as NIIT.

The World Bank recently announced that two new education projects it has approved for India will together 'comprise the Bank's largest investment in education in one country in FY2010' ($ 1.05 billion)[82]. All of these initiatives jostle for the same space as is being entered into by the MHRD's NMEICT.

[82] http://go.worldbank.org/UQNUVJXDB0

**Chapter 5**

# THE UNIQUE IDENTITY NUMBER FOR EVERY RESIDENT IN INDIA PROJECT

**I**

## Querying Citizenship

In February 2009, the Government of India announced the formation of the Unique Identification Authority of India (UIDAI). The purpose of this initiative was twofold: it would issue a unique identification number to all Indian *residents* (as against *citizens*, an important distinction, as we will see) that would be (1) robust enough to eliminate duplicate and fake identities, and (2) verifiable and authenticatable in an easy, cost-effective way.

The Authority claimed that, on its own, it would be no more than a database, comprising select information. The database would be a *number*, not a *card*, with the UIDAI's role limited only to issuing that number. It would be a random number, and not contain intelligence since loading intelligence into identity numbers made them susceptible to fraud and theft. The Authority would only collect basic information on the resident, which could comprise the following demographic and biometric information: Name, Date of birth, Place of birth, Gender, Father's name, Father's UID number (optional for adult residents), Mother's name, Mother's UID number (optional for adult residents), Address (Permanent and Present), Expiry date, Photograph, Finger prints.[83] Importantly for Indian social theory, it would not collect information on religion or caste.

It is worth detailing, at the outset, what the UID says it is and what it is not. As per the Authority itself, the UID's *primary* purpose is to run a set of servers from a Centralized ID Data Repository through a federated set of databases. These servers can only be queried, and will only provide a yes/no answer to whatever questions are asked of them: they will not volunteer information nor be available for public scrutiny.

While the UID Authority has claimed that it would be drawing lessons from previous State experiments with providing clear identity to residents, starting with the 1993 effort of the Election Commission to provide voter IDs, and the Multipurpose National Identity Card (MNIC) approved in 2003, in several ways the initiative appeared to stand apart from its predecessors.

[83] Quoted from the UIDAI's working paper, 'Creating a Unique Identity Number for Every Resident in India', 2009, hereafter UID Working Paper.

Three of its key claims, first, that it was not a citizenship record, second, that submission of personal data was voluntary and not coercive, and finally that it would intervene into major public distribution welfare systems, have attracted significant attention. On the citizenship issue, the Authority has said they would register anybody who lived in India and wanted to be registered, and that the sole purpose of this was individual-driven – in that it simply linked bodily data to an *identity*, making for a kind of portable authorized acknowledgment that you are who you say you are and could more or less prove this at any place and any point of time. Elaborating on its citizenship disclaimer, the UIDAI also claimed not to emerge from any standard national citizenship concerns, such as national security, voting rights etc, the conventional reasons for why governments create national identity registers. Unlike other purpose-driven identity definitions, whether social security numbers, voting registrations or driving licenses, all of which stemmed from a primary purpose and became secondarily a proof of identity, the UID itself had no primary purpose other than establishment of identity. It could of course be used for numerous purposes, but those would be autonomous domains of functioning for which the Authority itself could not be made directly responsible. Asserting its wide-ranging and pro-poor approach, the UIDAI 'envision(ed) full enrolment of residents, with a focus on enrolling India's poor and underprivileged communities', with a 'method of authentication (that) will improve service delivery for the poor' (UID Working Paper).

Among these were, on one the side, the major Government of India schemes for service delivery, including the Public Distribution System (PDS) and the National Rural Employee Guarantee System (NREGS). And on the other, a clutch of both public and private enterprises which included banks, credit card, mobile phone and insurance companies. As stated in the Working Paper, the 'Authority will partner with agencies such as central and state departments and private sector agencies who will be 'Registrars' for the UIDAI. Registrars will process UID applications, and connect to the CIDR to de-duplicate resident information and receive UID numbers. These Registrars can either be enrollers, or will appoint agencies as enrollers, who will interface with people seeking UID numbers. The Authority will also partner with service providers for authentication. The UIDAI will (the Working Paper said) emphasize a flexible model for Registrars*: The Registrars will retain significant flexibility in their processes, including issuing cards, pricing, expanding KYR (Know Your Resident) verification, collecting demographic data on residents for their specific requirements, and in authentication*'.

As defined in the Working Paper, the process of registration would have four levels, (1) the Registrar, the State Government, but also possibly a private sector agency, (2) the Sub-Registrar, typically a government department such as the Food & Civil Supplies Department, (3) the Enrolling Agency, which could be the bank, the ration shop or the cyber-kiosk, and (4) The user of authentication services, such as mobile phone companies, banks, credit card companies and airlines. Over these different roles the key partners of the UIDAI would come from a mix of three categories:

(a) Government distribution agencies working on massive development schemes for the poor: the Ministry of Rural Development's National Rural Employment Guarantee Act (NREGA), 2005; the Ministry of Labour and Employment's Rashtriya Swasthya Bima Yojana (RSBY), inaugurated in 2008, and the Department of Food and Public Distribution's Targeted Public Distribution System (TPDS), 1997, which attempts to distribute essential commodities, such as wheat, rice, kerosene and sugar to a large number of people through a network of Fair Price Shops on a recurring basis.[84]
(b) Government-led marketing agencies, the two major agencies presently highlighted being the Life Insurance Corporation, and the Ministry of Petroleum and Natural Gas.
(c) Banks and other financial institutions, and service-oriented agencies such as mobile phone companies.

To all these agencies, the UIDAI would provide standards in basic KYR administration, to maintain uniformity in collecting certain demographic and biometric information. These standards would be finalized by the KYR and biometric committees to be constituted by the Authority. An apparently independent, but (I argue) in fact related issue was that the UID was NOT an identity *card* but a much more portable entity, an identity *number*. Its core strategy was to define an individual via biometrics, and to add to that central data other information received either directly from the applicant, or from other databases held by other authorities that would act as agencies of the UIDAI while supplementing this data with additional data they may require.

Many critics viewed with considerable concern the combination of direct state distribution systems with market mechanisms of delivery as a volatile cocktail of partners. For most, the shift of definition of an identity-card, whose purpose was to prove citizenship, and into a *delivery mechanism*, did not carry much weight. Of considerably greater concern to them was the role that financial institutions were now expected to play in this process, both as potential Registrars as well as Enrolling Agencies, since it appeared clear that the information the Authority received from them would be only a small subset of the information they would gather as representatives of the Authority.

At any rate, armed with this apparatus, the UIDAI stated their ambitions to roll out within 18 months of launch, and to be able to issue 60 million entries within two years of launch. The eventual target would be approximately 1.2 billion data entries of individuals across the length of our country.

Was this a new strategy, different from anything we have seen so far? Or was this yet another instance of targeting minorities, illegal migrants and other 'suspicious people', only made worse by the new role that financial institutions would now play? In a very direct sense, India has been

[84] Links: http://nrega.nic.in/, http://www.rsby.in/, http://fcamin.nic.in/.

fascinated with the idea of a national identity card since at least the late 1990s,[85] and so it was not hard to cast the UIDAI into a familiar mould as merely another step in the direction of a technologized state apparatus or to frame the problem within a relatively orthodox language of human rights.

My argument is of course going to be (as readers who have followed be so far would expect) that this initiative does constitute in many ways a foundational break from earlier systems of governance. I mean governance here in a considerably larger sense than merely the instruments of state governmentality, and do propose with Castells that we are indeed seeing a very new coalition of governing interests that technologically combine the relatively autonomous domains of Law, Executive and Market and pose very new questions to state operations than would be familiar to orthodox human rights.

Part of the problem in declaring newness, or unprecedentedness, here is firstly Castells' point that an informational economy does not *oppose* the logic of the industrial economy but rather *subsumes* that logic through *technological deepening*. It is therefore hard to define any specific point of break between older and newer systems of governance. However, and contrary to the easy, and I believe simplistic, characterization of the UID, and related initiatives like the National Population Register (NPR) and the NATGRID, as a classical indication of *totalitarian* state operation, I expect to show that on at least three counts the UID ratchets up state functioning into a new domain entirely. Firstly, as I have suggested, it is a major intervention into the apparatus of state, and its virtualization of the state may well signal the first step towards the end of a geographical, territory-bound state as we have known it. Continuing that logic, the transformational intervention into a virtualized citizenship – and the explicit tagging of what used to be my citizenship data to data about, first, my bodily self, and second, to replace all knowledge about me into *resident* knowledge – I propose that what is entirely done away with is state interpellation. My citizenship as constituting a call of the nation to which I answer may well be, once and for all, replaced by market-driven interpellation (my personal choices, my likes and dislikes) which, in turn, equate my beliefs with, to take a random example, my creditworthiness, or my travel history. As such, this is a new intervention into the market, directly intervening into historically fraught issues such as how (formerly) state distribution systems could be made compatible with market mechanisms of delivery, and questions of why previous attempts to merge the two have failed in the past, how conflicts of interests between the Authority itself and its several intended 'Registrars' can be resolved.

[85] SEE TAHA MEHMOD'S EXEMPLARY WORK ON THIS, GOING BACK TO THE MULTIPURPOSE NATIONAL IDENTITY CARD (MNIC), THE NATIONAL SECURITY SERVICE COUNCIL AND THE KARGIL REVIEW COMMITTEE (NOTES FROM A CONTESTED HISTORY OF NATIONAL IDENTITY CARD IN INDIA: 1999-2007', HTTP://WWW.SACW.NET/ARTICLE391.HTML). ALSO SEE HTTP://EN.WIKIPEDIA.ORG/WIKI/MULTIPURPOSE_NATIONAL_IDENTITY_CARD

At the time of writing, amid mounting civil society criticism against the project, its future is by no means clear. Nevertheless, given the strenuous arguments made by the Authority itself, in its several position papers and studies, and of course the positions taken by those unambiguously opposed to it, the data already available and mounting by the day is far too rich to ignore, as we consider the latest in the grand tradition of the Indian State's most recent tilts at the Last Mile windmill.

The Controversy

Ever since its announcement in 2009, the UIDAI has been at the eye of a storm. Many of the most strident arguments mounted against it reproduce well-established concerns that have been raised whenever countries have tried to issue national identity cards. Notable recent debates were in Britain[86] and Australia[87], which announced in 2006 a new 'Access Card' for Health and Welfare Services only to abandon the plan in 2007. There has been a consistency, and perhaps also a redundancy, to the arguments mounted, that have also been reproduced in India, in the most strident critic of the initiative, Usha Ramanathan, and in several concerns and anxieties voiced by eminent scholars including Jean Dreze, and in at least two signature campaigns, one issued in September 2010[88] and a second specifically asking the UIDAI to keep out of the NREGA. While many concerns expressed are clearly genuine, my key difference with them is around their understanding of the intervention and its techno-legal impact which I think may well be different, and also more complicated, than what the criticisms suggest.

There is, as British human rights group Privacy International shows, a redundancy to debates on the identity card as key issues appear again and again:

> During the first stage of the debate, a popular view is usually expressed that identification, *per se*, is not an issue related to individual rights. At this level of debate, the perceived benefits of ID dominate discussion. People often cannot see past the idea of a card being used strictly for purposes of verification of identity (banks, public transport, travel etc). Invariably, at this early stage of awareness, support for ID cards is high. The device is perceived as an instrument to streamline dealings with authority. The second stage of public debate is marked by a growing awareness of the hidden threats of an identity card: function creep, the potential for abuse by authorities, the problems arising from losing your card. Technical and organizational questions often arise at this level of discussion. As for the question of abuse by authorities (i.e. routine ID checks by police) a

[86] See the House of Commons Science and Technology Committee report, *Identity Card Technologies: Scientific Advice, Risk and Evidence* Sixth Report of Session 2005–06.
[87] See the work of the University of New South Wales Cyberspace Law and Policy Research Centre's work on the Australia Card, and especially Graham Greenleaf's extended work on the subject (http://www.cyberlawcentre.org/privacy/id_card/index.htm).
[88] Signed by several eminent legal names, including Justice V.R. Krishna Iyer, K.G. Kannabiran, Upendra Baxi and Justice A.P. Shah, and reprinted in a letter to the Editor of the *Economic & Political Weekly*, vol xlv no 43 October 23, 2010.

> common response is still "I have nothing to hide, so I have nothing to fear". The final level of discussion involves more complex questions about rights and responsibilities. At this stage, the significance of the computer back-up and the numbering system come into the picture. Most public opposition to administration strategies such as numbering systems, Identity cards or the census are structured around an organized campaign of negative imagery (Big Brother) and a more systematic process of public education.[89]

Ramanathan's key argument follows some of this logic. She clubs the UID project with two other by the Government of India: a November 2009 report that the government would soon be setting up a DNA data bank, and the very next month, the setting up of the NATGRID.[90] Ramanathan quotes P. Chidambaram, Home Minister, as saying that '21 sets of databases will be networked to achieve quick seamless and secure access to desired information for intelligence and enforcement agencies.' In her criticism, Ramanathan combines at least three components: first, her principled opposition to the project on an uncompromising fundamental rights platform, that this is a violation of privacy and dignity. Seen together, these initiatives fundamentally alter the characterization of citizens and residents: all citizens are seen as *a priori* terrorists who are presumed guilty and need to establish their innocence and this is incompatible with our democracy. The ensuing politics of suspicion 'dramatically erodes the ideas of citizenship, privacy, and minimum-invasion- and-that-when-there-is-reason-why' as the state becomes 'preemptively readied to catch whoever of the 1.4 billion may commit the act of terror'. Ramanthan is entirely dismissive of the UID's claims that enrolment will not be mandatory; that it is pro-poor; that only basic information will be gathered. 'Scratch the surface of these assertions', she writes, 'and a different truth emerges'. The UID is nothing but 'an easy route for the market and the security agencies to identify and profile any person. That is how the UID fits into the larger scheme of monitoring and control and that, as the current discourse reveals, will be its central purpose'.

To this is a second criticism: the question of whether such a system will work at all, or whether we are into a sci-fi domain of technological infallibility. The DNA test is not foolproof, and so, beyond the problem of every citizen and resident as suspect, there is the possibility of error. Yet, the presumptions about the infallibility of science and technology – contrasted, often, with human imperfection – will tend to shift the onus to a person accused on the basis of whoever the DNA bank suggests is suspect. To questions about whether the system can work at all, lies the related question of whether it will ever serve its declared purpose. Will interminably adding to

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[89] Simon Davies, 'The Loose Cannon: An overview of campaigns of opposition to National Identity Card proposals', http://www.privacy.org.au/About/Davies0402.html

[90] Usha Ramanathan, 'A State Of Surveillance', International Environmental Law Research Centre, 2010 (http://www.ielrc.org/content/w1002.pdf). Also see Ramanthan, 'A Unique Identity Bill', in *Economic & Political Weekly*, vol xlv no 30 July 24, 2010, and 'Implications of registering, tracking, profiling', *The Hindu* (April 5, 2010, http://www.hindu.com/2010/04/05/stories/2010040554240800.htm),

this data information abut every single person who legally enters the country ever address the question of 'those who enter the country uninvited and unnoticed'?, or will this entire exercise leave 'the bane of cross-border terror unaddressed'? To technological fallibility are added the problems of human fallibility including corruption, inefficiency and failing systems, all of which contribute to making the data unreliable.

Thirdly, the danger of misuse: the danger of DNA, and data, theft. The possibility of targeting from a rage of social interests. Is the UID's data safe? Can it be accessed by enemies?

Several of Ramanathan's concerns have been echoed by other individuals as well as concerned NGO groups. The September 2010 signature campaign by Justice V.R. Krishna Iyer *et al* is primarily pivoted on the privacy issue. The campaign states that on privacy, while they hear that the Department of Personnel and Training is working on a draft of a privacy law, nothing is out for discussion, and grave concerns exist on the technology's potential for surveillance, profiling, tracking, and the possibilities of people in power collating information about individuals. This is the key substantive issue, and other concerns are mainly questions on procedure: the petition demands a feasibility study, stating that several claims – especially for the PDS and NREGA – 'do not reflect any understanding of the situation on the ground', a cost-benefit analysis since it appears that the Authority could be spending Rs 45,000, not counting costs incurred by the registrars, enrollers, the internal systems costs that the PDS system will have to budget if it is to be able to use the UID, the estimated cost to the end user and to the number holder.

Also, says the petition, the Authority needs to have a clearly stated strategy on data theft, especially since key corporates 'such as Ernst & Young and Accenture' may have access to such data. Confidentiality and data theft also concerns Jean Dreze, who accuses the Authority that its claim that the data will be safe with the Central Identities Data Repository is a half-truth, since the Authority can authorise 'any entity' to maintain it, and as such the data can be accessed not only by intelligence agencies but also by any Ministry. But more important, the UID will help integrate vast amounts of personal data that are available to government agencies with few restrictions.

Like Ramanathan, Dreze too belittles the Authority's claim that enrolment for Aadhaar is not compulsory, given that, in its own self-justification, the UID project claims that 'all benefits and services linked to the UID will ensure demand for the number.' This, he says, 'is like selling bottled water in a village after poisoning the well'.

> That the UID is, in effect, going to be compulsory is clear from many other documents. For instance, the Planning Commission's proposal for the National Food Security Act argues for 'mandatory use of UID numbers which are expected to become operational by the end of 2010' (note the optimistic time-frame). No UID, no food. Similarly, UIDAI's concept note on

> the National Rural Employment Guarantee Act (NREGA) assumes that 'each citizen needs to provide his UID before claiming employment.' Thus, Aadhaar will also be a condition for the right to work — so much for its voluntary nature.[91]

Dreze's reference to the Employment Guarantee Scheme, and the dangers that bringing the UID could pose to that initiative, has been widely echoed by others. A second signature campaign that includes Aruna Roy, Nikhil De and Dreze himself among others asks that the plan to link MGNREGA to Aadhar be revoked immediately since it could cause havoc in MGNREGA's fragile structure. They respond to the
Ministry of Rural Development's tender of October 11th, 2010 worth Rs. 2162 crores to engage 'service providers' for MGNREGA under a public-private partnership model, which includes 'UIDAI compliant enrolment of job card holders under MGNREGA scheme', 'recording... data in the field such as biometric attendance at worksite with GPS coordinates… and updation of a centralized MIS'. Given that job cards issued in 2006 are shortly to expire in 2011, any linking of new job cards to UID enrolment could create a jam that would disrupt the programme, as many people are likely to be denied their entitlement to 100 days of work. They are also concerned that, despite outsourcing the task to service providers, almost certainly the entire administrative machinery would get diverted from their primary task and into capturing people's biometrics. They further claim that the proposal of 'biometric attendance at the worksite with GPS coordinates' is completely impractical since many MGNREGA worksites are in remote areas with poor or no connectivity.

**II**

## A Leap too far?

These are formidable objections, and made by formidable opponents. Clearly, problems are arising with the UID project that have not been in evidence in the earlier leaps recorded in earlier chapters of the book; and the government faces a credibility gap both on the legal front as well as in the credibility of the technology being deployed that it has not faced previously.

So what can have gone wrong this time? My key contention, in terms of the historical argument I have been trying to make, is to do with the uncanny ability of the Indian state to identify its own survival with a particular technology – and the benevolent aura of that technology – and create an appropriate legal mechanism, which it seemed to do with some ability even as it moved into Castells' informational era. I need, therefore to disentangle from the morass what the technology thought it was doing and what its defined purpose would now do to the nation. We can then work out the somewhat special nature of the legal problems it seems to have faced here.

[91] JEAN DREZE, UNIQUE FACILITY, OR RECIPE FOR TROUBLE?, THE HINDU, NOVEMBER 25, 2010 (HTTP://WWW.THEHINDU.COM/OPINION/OP-ED/ARTICLE911055.ECE)

While Ramanathan does not, I think, herself see the several concerns she has expressed as autonomous of each other, I believe they fall into a small number of discrete sets, each attracting a quite different argument. Let me separate these out as follows:

1. Inviolate and non-negotiable aspects around rights: The fact that my rights are being violated, crucially my right to privacy. The threat of violation of non-negotiable foundational rights – the 'there is no way I will agree to this because this endangers my liberty' argument – typically has the danger of gesturing towards libertarianism. This is of course a contentious position since, as Amartya Sen for example shows, 'an 'uncompromising priority of libertarian rights can be particularly problematic since the actual consequences of the operation of these entitlements can, quite possibly, include rather terrible results (in) the violation of the substantive freedom of individuals'.[92] Ramanathan however does not restrict herself to non-negotiable basics, but goes further: while the UID's claims that it is about social benefit to the poor may have a stand-alone validity – in that if they actually did what they say they were doing, it *may* have been a god thing – the problem is that she simply does not believe them. Firstly, she thinks that they are dissembling, and that the actual purpose of this is indeed profiling. Secondly, that even if we take them at face value, they are in no position to achieve these ambitions. This is a different position from uncompromising libertarianism: what if, somehow, the UID *could* prove that they could perform social benefits? Would she then withdraw or continue to maintain her position?

The significant question that arises here is when the UID's legal requirements appear to conflict with other laws that are already in place. A specific instance is the question of whether registration to the UID is voluntary or not. What kind of voluntariness is it when job cards at NREGS are denied to those not registered? Ramanathan makes a further point specifically with regard to the National Population Register (NPR) which will be assembled, not under the Census Act of 1948 but under the Citizenship Act of 1955 and the Citizenship (Registration of Citizens and Issue of National Identity Cards) Rules 2003. Unlike the Census Act, which has an express provision regarding confidentiality and would have made it impossible for the Government to share Census data with something like the UIDAI (since section 15 of the Census Act categorically makes the information that we give to the census agency 'not open to inspection nor admissible in evidence'), information gathered in NPR's proposed house-to-house surveys, and the biometrics collected during the exercise, is expected to directly feed into the UID database. Conflicting directly with the UID's claim to 'voluntary' registration, the Citizenship Rules of 2003 class every individual and every 'head of family' as an 'informant' who will be penalised either if every person in his household is not listed or if the information provided by him is incorrect or outdated. Additionally, the rules also envisage an exercise in sifting *citizens* from *residents*, a distinction the UID does not make, since persons collecting NPR information are expected to exercise judgment in deciding whether those whose details are being taken down

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are citizens or not, categorise suspicious people for further investigation.[93]

2. The Contingent Argument. This argument sometimes shades into another position some have taken, who (unlike Ramanathan) support the initiative in principle, but feel that 'it is a good idea but it will never work'. Why will it not work? Firstly, the argument discredits the claims of the technology. Ramanathan contends that technology is *meant* to be infallible, but is in fact not. It is not infallible, because technology can itself make mistakes, and also because human error is always possible, and lastly because of the gap between intention and execution: *the technology often does not serve the purpose for which it is intended*. Ramanathan is correct to point out that in the event of the technology going wrong – in the event that a wrong reading of a DNA sample, say, implicates the wrong guy – the onus falls upon the wrongly implicated person to prove his innocence since technology can never lie.

This is a somewhat different challenge: technologies, especially of the future, have never been challenged as this one has been, and clearly there is no answer to this question. One has to assume that any new technological intervention being mounted on a major scale must work, or must be made to work. To this I want to add a further contention, drawn from database theory, namely that databases are indeed fallible, but then grow organically with use.[94] Thus is a new problem, since it appears that legal theory would need to make a very different attribution to such technology than it has historically done. I strongly suspect that technological certitude – or what I would call technology's investment into symbolic realism, that the representation is always true to the reality – may well be changing in this case, with a theory of technology that appears to directly conflict with its legal representation.[95]

The human error argument is perhaps more easily dealt with. The petition against the MGNREGS outlined above, for instance, quotes in contrast to the UID project's implementation strategy the far more successful strategy used in Tamil Nadu and Rajasthan:

> We do welcome the use of technology provided that it enhances transparency, empowers labourers and is cost effective. Such technology has been used with success in Tamil Nadu. For instance, it combines SMS reports on daily attendance with random spot checks to curb the problem of fake muster roll entries. Localized use of biometrics, independent of UID, to speed up payments can be considered. Biometrics and UID are not the same. In Rajasthan, simpler measures have been put in place, such as 'transparency walls' where all job cardholders in the Gram Panchayat are listed along with days of work, allowing people to monitor implementation.

So the problem then is in poor implementation: a procedural rather than a substantive argument,

[93] Ramanthan, 'A Unique Identity Bill', in *Economic & Political Weekly*, vol xlv no 30 July 24, 2010, pg 12.
[94] The Fourth Dimension text.
[95] Shuddhabrata on Geelani and cellphone records.

and to that extent not a legal problem.

3. Misuse: This argument links with the privacy argument: and the fact seems to clearly be that, notwithstanding any assurances that the UIDAI can give, simply the range of Registrars and enrollers, and the enormous presence of the private sector cannot ever prevent the data from being within closed walls. Here I have a slightly different position: personally, I do not think the data being generated will be confidential, even by design, and I further suspect that confidentiality is not – despite all that the Authority is saying to the contrary – a necessary requirement for its functioning. While both Dreze and Justice V.R. Krishna Iyer *et al* are right to raise confidentiality arguments, I think their criticism is working with a rather older idea of data, as something lying in one place, which can then be pilfered, or sold, or hacked into. The data is clearly *not* in one place; the Authority's original Working Paper, we have seen, is to employ a flexible model for Registrars, who can issue their own cards, have their own pricing policy, expand KYR (Know Your Resident) verification and **collect demographic data on residents for their specific requirements, and in authentication**. While the Authority may itself not make its own databases available beyond a simple yes-no query, there is clearly no way they can prevent Registrars, Sub-Registrars or Enrollers from using their data as they wish.

The other area around misuse, doubly relevant given the credibility gap faced by the technology, has been to do with my interest in against-the-grain usage. Misuse of course always assumes a 'correct' use. Commonsensically, any data is susceptible to misuse, both well-intentioned as when you misread something, say, or ill-intentioned – as when people use a telephone directory to hunt out members of a minority community during a riot – what the misuse argument *also* unfortunately does is to eliminate the possibility of what I might call progressive misuse, or against-the-grain use as well as to shut out any inquiry into the very salience of 'correct' usage. Earlier we have discussed what happens to technology when it is used in ways that are unintended, or when users go against the 'how-to-use' manual. My own sense, as we move into new generation technologies is that, along with technology building its fallibility into its use manual, new structures of governance may be far more able to handle against-the-grain usage than they could within a more literal definition of 'correct' usage.