# **Reconstructing the Nation:**

# **A Historical Analysis**

# of the Aadhaar System

By: Diva Mukherji

Supervisors:

Dr. Andreas Dafinger Dr. Prem Kumar Rajaram

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### Abstract

Aadhar, the biometric identification system in India, established in 2009, has grown to become one of the most invasive and totalizing identification systems in the world. It serves as a form of ID, and is mandatory for receiving social welfare services. In line with the global rise of surveillance technology, Aadhar has simultaneously become a source of critique for its lack of privacy measures, and been touted by international organizations for its positive societal effects. This thesis will investigate how the Aadhar system reforms social organizations, with a specific focus on infrastructural, legal, and technological shifts. It will do so through a content analysis of legal and policy papers related to Aadhar, which centre on Aadhar and its technological usage. With an integration of critical science and technology theories, it will analyse the role of Public-Private partnership, identifying the key actors in this relationship, in the restructuring of modern Indian life. It will conclude with an analysis of the use of biometric technologies in the remaking of a governable population.

### **Key Words**

Aadhaar, Biometrics, Identification, Surveillance, Solutionism

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### Introduction

I am at a private bank with my mother, where I am trying to open up a new bank account. I am asked to list the phone number my Aadhaar card is linked to, and I recite the mobile number I have had since 2012. After a few attempts, the teller asks me if I am sure that that's definitely the correct number, as the verification process is marking it 'incorrect'. The teller explains that the number is used for KYC verification, so I can put down a different phone number, I just won't be able to access online banking, receive OTPs (One-Time Passwords, a security verification technique used for online purchases which is commonplace in India), or be able to use e-Banking. I sigh, and put down my mother's mobile number, as she quips about having unfettered access to my account. "You can get the number changed at an Aadhaar Centre", the teller says, "there are many in Gurgaon. There's one just 15 minutes away from here, they'll quickly change the number for you".

As I am at my friend's house, I am chatting with her gardener, a Bangladeshi woman in her mid-40s, who has worked there for several years. As we're catching up, I ask her how the past several months have been for her family. She tells me that she's worried for her sons, both in their early 20s, as they're sometimes 'reckless' when talking to the police or traffic cops. She talks about how she's thinking of moving back to Bangladesh, where she has not lived since she was 10 - "there at least I can feel safer. Here, I am regularly picked up by the police when I am riding my bike or walking on the road. They ask to see my Aadhaar card and there's nothing I can say." I ask "if you don't have the Aadhaar card then what? If you show your PAN card, is it fine?" She replies "They can easily make you go back and get the Aadhaar. Sometimes they're worse. That's why I always carry it, I can't risk it".

I am getting out of an autorickshaw outside my house, and take out 50 Rupees, the agreed upon payment for the distance I travelled, to pay the driver. He shakes his head and points to the laminated QR code hanging from the roof and in Hindi says, "Can you use Paytm"? I apologize and say I don't have Paytm, and he responds, "What about BHIM?". I say I'd never even heard of BHIM, and apologise as I hand him the cash, and he begins to take out change. "BHIM is a Government app, you just need Aadhaar and you can send money. Sign up, most places don't accept cash anymore." he explains. Naturally, I ask "What if you don't have Aadhaar? Then you can't join?" as I take my change, and he looks ahead and signals the colloquial hand sign meaning "well, good luck with that then", and drives off.

Aadhaar, which translates from Hindi to 'foundation', is a biometric identification service in India, implemented in 2009. The programme aspires to contain a holistic database of demographic and biometric data of its citizens, to not only create a shared form of official identification card, but also enable a smooth-functioning system to minimize the possibilities of inefficiencies and corruption in the delivery of government services. These vignettes provide a short insight into the way Aadhaar has appeared in occasional conversations and interactions I have happened to have over the past three months. Whilst a very limited sample size, I reproduce them here to illustrate the way Aadhaar pervades contemporary life in India. As this thesis will demonstrate, the Aadhaar system has fundamentally reshaped contemporary Indian society, and ushered a new, technologically-driven mode of governance. As an upper-middle class person, the Aadhaar only crucially impacts my life in the occasional situations of inconvenience. I am in the minority. The Aadhaar has transformed not only the mode of delivery of social services, but it has prompted a technological shift in governance and social regulation, led by the Government, and closely assisted by Private technology companies. This is highlighted by the Aadhaar's use of biometric technologies. The use of visual biometric technologies to social regulation techniques is not new, with the oldest iteration of biometric identification schemes, implemented in India by Colonial British administrators, centering the use of fingerprints. The system was built primarily for criminal identification, but quickly expanded across the country to ensure social and economic regulation of groups to their locality. The system was based on the basic principles of anthropometry - that caste, and other social characteristics, were biologically ingrained (Anderson, 2004). The constitution of a racial hierarchy, supported by a 'scientific' analysis of physical characteristics, then enabled anthropometry to enter the system of colonial administration. Anthropometry allowed administrators to develop and understand the racial system better, and therefore assisted their legal and policy structure, such as those related to food and crops distribution and marriage customs. Anthropometry therefore became a crucial tool in the ruling of India.

This thesis will consider, 12 years on from its initial inception, how the Aadhaar has fundamentally changed the fabric of modern India. It will first consider the conditions of its origin and implementation, focusing specifically on issues of global development discourses and national economic goals. Aiming to combat long held perceptions of India prevalent in the West, usually accompanied with images of poverty, destitution, and chaos, the Aadhaar presented itself as a tool of modernization and economic prosperity, which would transform the State into a global force, comparable to those in North America and Europe. It will consider the strength of these motivations as a tool to gain local and international support, and dissect the key agents in perpetuating this cabinet of myths. It will also focus on the challenges the Aadhaar system has posed in its integration into the Indian legal system, and track how its enshrinement consecrates understandings of privacy and digital life more broadly. By tracking the key actors involved with the various legal battles throughout the years, it will consider the vested interests they have in preserving the constitutionality of Aadhaar. Finally, through an integration of decolonial scientific theory, it will understand the role biometric technologies play in the construction of different social groups and hierarchies.

Through the thesis, a key thread of analysis is focused on the role 'science', and the authority 'scientific knowledge' commands in the local and international development contexts. This appears throughout the process of implementation and maintenance of the Aadhaar system, and serves as a continuous driver for modifications to its delivery. This research will consider the sources of technological optimism, and the role it plays in the construction of a regulated, database-oriented society.

According to the Unique Identification Authority of India, the statutory body which governs the Aadhaar ecosystem, their vision is "To empower residents of India with a unique identity and a digital platform to authenticate anytime, anywhere." (UIDAI, 2010). This thesis will consider to what extent the Aadhaar aligns with its intended goal, and what is sacrificed in the pursuit of doing so.

### **Historical Context**

A Commission, led by Ministers from across India, began to research the feasibility of implementing such a system in the early 2000s, as a response to the rising population numbers. Whilst through the years, there have been multiple forms and systems of identity documentation, including drivers licenses, ration cards, passports, and the PAN card (used for income tax purposes), the Commission concluded that it would be easier to implement a new universal system, linked to a single, centralised database, which pulled together various pieces of relevant information. The Planning Commission was led by Nandan Nilekani, whose title was 'Chairman'. Nilekani was the co-founder of Infosys, a technology company that quickly became one of the largest, most profitable businesses in India, with a revenue of £20 billion in 2021.

Nilekani had been involved with government projects prior to the appointment, including serving on multiple Technology Advisory Groups focused on developing the financial sector. His role as Chairman, situated within the broader government, effectively gave him as much power as that of an elected Cabinet minister. The system was implemented by the ruling Congress at the time, and received significant criticism from the rival BJP Party. In 2014, the BJP won a majority, with Narendra Modi as the new Prime Minister. Aadhaar quickly became a crucial part of Modi's plan of action, with it becoming the basis of his transformation of existing processes and systems.

Implementing the Aadhaar system involved an intricate audit and evaluation of multiple social, economic, and political systems across India. Due to the unequal growth amongst different states, services, and certain private sectors, the reliability and efficiency of different service provisions varied widely across the country (Khera, 2018). UIDAI used this as an opportunity to propose the streamlining of such provisions, emphasizing the opportunity for public-private partnership. This would involve not just the use of Aadhaar as a sufficient form of identification for various private companies, such as enabling the setting up of a bank account, but also involving the private sector in the delivery and maintenance of the UIDAI biometric and demographic database, as well as providing the infrastructure for enrolment. The first government scheme to be regulated through Aadhaar was the 'Direct Benefit Transfer' service, which enabled the transfer of government subsidies directly to beneficiaries (Aadhaar linked) bank accounts. According to government reports, the newly refreshed system saved the government reduced 'leakages' which were common in the previous system by approximately 15%, or a total of INR 125 billion (2015). The perceived success of the system, particularly in making such significant financial savings, encouraged the fast-tracking of new partnerships between UIDAI and other government and private services.

As the program continued, and spreading widely across India, there was an increased amount of outcry from some public officials and citizen interest groups, who objected to its rapid omnipotence. Part of the criticism was centred around the lack of legal regulation around the implementation and remit of UIDAI. In 2016, Arun Jaitley (the Minister of Finance at the time, and a member of the ruling BJP Party) introduced the 'Aadhaar Act', which would serve as the main legal framework supporting the project. The Act touched on the types of data that could be collected through Aadhaar, data protection regulations, and crucially, the extent of power the UIDAI would have.

The bill was proposed as a 'money bill' (which typically is a bill referring to public spending structures or taxation) which enabled it to be approved through the lower house Lok Sabha, where the BJP held a majority. This then required it to not be passed through the upper house, the Rajya Sabha, where substantial bills which relate to public services are typically discussed. The BJP did not have a majority in the Rajya Sabha. Within a week, the Aadhaar Act successfully passed with minimal debate, and officially made into a bill. The bill superseded the previous iteration of such an act, entitled the 'National Identification Authority of India Act

2010', which never successfully passed through the Rajya Sabha, due to extensive debate about its powers. The Aadhar Act borrowed much of the NIAIA's structure, including crucial details around the definitions of certain terms, including 'resident', stipulating the relationship between the UIDAI and Parliament (that the former was able to make certain types of decisions without approval from Parliament), as well as outlining the network UIDAI would build in relationship to other pre-existing demographic and biometric databases, such as the National Population Register.

Whilst the Aadhaar is not mandatory, it has quickly become the most preferred mode of identification by both the Public and Private sector. Whilst the Supreme Court Appeal of 2018, which will be discussed in-depth later in this paper, limited the access Private companies had to Aadhaar databases, and made it illegal for Private companies to necessitate the use of Aadhaar, it still acts as the ultimate form of ID. Moreover, as Dreze et al (2017) argues, the lack of concrete terminology or stipulations around precisely when and how Aadhaar could be used and implemented, the bill opens the possibility of misuse. Further, the implementation of Aadhaar within the legal system occurred in tandem with a multi-million Rupee advertising campaign for the service, which overstated the necessity of enrolment for Aadhaar. By emphasizing its perceived possibility to end corruption and limit financial wastage, and minimizing the possible negative or inconvenient implications of the system, the Aadhaar became presented as a tool to enter a modern, technologically-driven era for India.

There is a rich archive of work researching the Aadhaar system, and its implications on various facets of the social, political, and legal landscape. As Chaudhuri & Konig (2018) explain, the Aadhaar system is an encapsulation of the relationship between Foucault's conception of governmentality and biopolitics with broader citizenship processes. The key link in this relationship is the use of the Aadhaar in numerating a population, thereby making each

individual a conceivable, discrete unit. Categorizing the shifts in modes of governance the Aadhaar has marked, Chaudhuri & Konig explain that the system demonstrates a change to "categorizing the population as targets of state and market services and resources, instead of establishing their rights and responsibilities as members of a political community" (ibid.: 139).

Rao describes the Aadhaar system as a product of "the state's ability to direct the population through personalized support and surveillance", referring to the system's promise of a more effective Welfare system, with the added crucial element of a surveillance mechanism (2013: 72). Dreze et al (2017) demonstrate through their research in Jharkand that even with backup measures put in place, if one's fingerprints are not accurately identified when seeking to receive rations, those individuals are then forced to rely on irregular and difficult workaround methods. That so many of these safeguards, including the fingerprinting system at large, relies on internet connectivity, is an inherent flaw in the system, when there are significant areas of the population, particularly those in rural areas, who do not have regular internet access.

Rao & Nair (2019) explain that the Aadhaar system is the ideal channel to remove the 'messiness' of human experience from issues of social equality and governance. As they explain, "the passionate investment in data engenders a certain dematerialisation of the state's concerns." (ibid.: 470). Once the 'messiness' is removed, social experiences are able to be represented in clean, organized formats of data, enabling an idea of modern governance which aligns with contemporary development politics. Dandurand (2019) understands the materiality of documentation as a means to organize how cultural and social concepts are organized, and specifically focuses on the shift from paper to digital documentation as a significant means to reorient cultural schemas about food rations. As Dandurand (2019) explains, digital documentation becomes representative of the Indian government's attempt to maintain transparency, minimize the possibilities of corruption, and instigate more widespread digital

literacy. The reality of the Aadhaar system, however, often proves the opposite of those intended aims.

Jayal (2011) explains that the integration of JAM as a State priority creates a Private-Public partnership pipeline through which all 'legitimate' citizens now must experience. Cohen (2019) explains that this pipeline, while working to maintain ration-receivers in the same economic state of poverty, their usage contributes to the growing wealth of individuals involved in maintaining the Aadhaar ecosystem. Singh (2019) extends this analysis, and describes the Aadhaar system as transforming the Government into a 'platform'. The Government as a platform not only enables individuals to access services through the technologies it ascribes, but then also works crucially as an authentication measure for it as a database.

Rao delineates three modes of personal identity: "(1) a digital signature, (2) a documentary proof of identity, both of which [...] are based on (3) personal recognition" (2019: 539). With systems of digital identification, such as Aadhaar, Rao posits a medium of translation or equivalence, to compare different types of personal identity, then must be established. Rao (2019) explains that the medium of translation is often a single bureaucrat working in the administration of the Aadhaar ecosystem. This person is tasked with verifying a range of information to evaluate one's ability to receive rations through Aadhaar, such as address, number of dependents, and employment status. 'Official identities' are then still a contested and negotiated status, one which involves a certain conformity to social and cultural life, along with the authorised recognition of it.

### **Literature Review**

### Scientific Knowledge

A crucial element of this research is investigating the role of scientific knowledge, and the legitimacy such a decree lends, to the implementation and validity of new technological systems. Rather than positioning science as an objective source of information, several scholars point to the influence social factors has on the development of knowledge and facts. Pushing forward, Mulkay (1976) argues that the norms of scientific knowledge production are regularly reinscribed through systems of social control. This typically occurs through the solidification of a 'correct' scientific system of knowledge production, which seeks to reify that which goes through the system, and denigrates that which exists outside it. Stemming from Merton (1952), Mulkay posits that the seemingly objective and detached nature of the system of scientific knowledge production is most effective in the configuration of a modern, democratic society, as it maintains the veneer of separation from an ideology-motivated political system. Through this, we can understand the mystification of ideological bases in nature of scientific knowledge production as crucial in maintaining its esteemed status. The scientist, and the scientific business, continues to be characterized as separate from the political ideologies of the State. Whilst this separation is a myth, the scientific apparatus is perceived as operating efficiently and effectively, or in other words, the opposite of the modern, bureaucratic State (Browne, 2015).

Mulkay's analysis of the distanced nature of science from the public arena is therefore helpful to understand the seismic shifts in the way contemporary science institutions and discourses act, particularly through Hess' concept of 'epistemic modernization' (2007). Epistemic modernization is defined as "*the process by which the agendas, concepts, and methods of scientific research are opened up to the scrutiny, influence, and participation of users, patients, p* 

non-governmental organizations, social movements, ethnic minority groups, women, and other social groups that represent perspectives on knowledge that may be different from those of economic and political elites and those of mainstream scientists. (Hess, 2007, p. 47)". The process of epistemic modernization has been enabled by various factors, including, significantly for this research, the growth of non-governmental organizations.

### Development

As Mitchell (2002: 210) argues, postcolonial countries are often constructed as a space of tension between the natural and modern through Western development organizations. Through these constructions, which often include imagery of expansive topographies, the discourse around the postcolonial nation as romantic yet primitive becomes continually naturalized. Understood through the binary of nature and science, postcolonial nations are then constructed as in need of scientific technologies to modernize its processes and peoples. The leading organizations purporting this binary and imagery of the postcolonial state, including the International Monetary Fund and the World Bank, also lauded directives which could supposedly bring the postcolonial state into the modern world, which typically involved a turn towards economic liberalization.

In the case of India, a significant part of this discursive construction is the invocation of food and health imagery. This imagery is particularly evocative, and constructs an image of a nation which is incapable of supporting its people, or enabling survival, detaching it from the actual processes and politics of food production and distribution (ibid.: 220). Not only does this narrative point to the apparent to the mismanagement the government, especially when coupled with the topographic imagery often used to portray the expansiveness, or ruralness, of different nations, emphasising their inability to effectively distribute resources, but it creates an underlying theme of 'fight' necessary to secure resources for each individual. If there are only so many resources to go around, everyone can only take what they need, and nothing more. This implicitly introduces a theme of mistrust which is typically characterised to poorer classes of people (ibid.).

Mitchell outlines Chatterjee's concept of 'self-deception' in development discourses and sectors, as a necessary practice to enable continued functioning of various organizations. This self-deception refers to the process by which external, Western organizations plan interventions by mapping the power, structures, and resources of the designated country, yet exclude their own power in shaping the situation (ibid.:240). By excluding its role in the direction of power configurations, such organizations successfully reiterate the narrative of a postcolonial nation as an object, rather than with its own distinct agency. Through this relationship, or relationship made invisible, development discourse, and its key actors, are able to construct an appearance of objectivity and rationality, perpetuating long-standing conceptualisations of the West versus postcolonial states. Through the depoliticization of such schemes, and their own role in conducting such activities, they are able to successfully remove possibilities of accountability and further entrench caricatures of the Postcolonial as primitive (ibid.:242).

Tsing uses the 'economy of appearances' to describe the exaggerated performance by those firms seeking financial capital and investment, utilized to imply the necessity of their products (2005). Tsing goes on to explain that in the dramatization process is a product of capital operating through creative means, rather than through 'stable reproduction' (ibid.: 59). This means that the drive for capital becomes a creative or aspirational action, rather than one which operates through raw materialist bases (ibid.). This creativity draws capital into its actions, with the creation of potential profits being crucial in the development of certain activities or processes. The creation of such possibilities of profits, or construction of certain national objectives, contains both global and local conceptions of the State, and within the Indian

context, places it within broader discourses of development of Global South countries. The economy of appearances therefore balances a globalist and localist perspective, operating both in tandem to create a holistic idea of certain ideological and/or economic possibilities. As Tsing explains, the appearance becomes more effective as both aspects are more deeply intertwined, thereby creating an influential and convincing world-making project, containing a multitude of actors. As Tsing clarifies, there are three crucial scale-making projects at play to construct the overarching Economy of Appearances. This includes the global level speculations of financial capital, "the nation-making coercions of franchise cronyism; and the region-making claims of frontier culture" (ibid.:75). All three scales are linked and united in contributing to the production of a holistic and speculative Economy of Appearances. The association with foreign, typically Western, capital not only lends an air of legitimacy to the nation, but enables the production of the 'miracle nation', which is "a nation in which foreign funds support the authoritarian rule that keeps the funds safe" (ibid.: 69). These contracts, therefore, enable a unique and mutually dependent relationship between the host nation and the foreign investment companies, and as Tsing points out, the latter tends to translate into representing the Global North country the company originates from (ibid.: 74). It involves a malleable definition of the term 'global' - instead of meaning the involvement of countries across the globe, 'global' involves the act of the latter finding new potential sites of exploitation in the Global South. This is particularly crucial in this research, as it begins to explain the way foreign technological investment is not only invited by many in the Global South, but considers how the association with technology can reshape a country's public perception to appear more modern.

Arora (2019) cites numerous articles which demonstrate the influx of digital technologies in typically marginalized communities to enhance access to different types of tasks, such as e-banking. As Arora (2019) states, these forms of digital technologies are seemingly centralised around the aim of improving communication and access to social welfare services for a

country's citizens. While many of these technologies have been successful in enabling access to social services, they represent the gradual (or not so gradual) shifting to modes of informational governance and the dependency on algorithmic decision making. Touted as technology which will make governance more efficient, fast, and less susceptible to corruption, digital technologies, often developed and conducted by private companies, are becoming the norm in developing countries. However, as van Dijk (2014) and others demonstrate, the reliance on such technologies also offer a vast opportunity to collect and weaponize huge databases of information. Since these databases typically hold a citizen's personal information, including often biometrics and associated details about their social stratification, the introduction of algorithmic forms of governance provokes the transformation of the 'human citizen' into a series of data points, thereby lending to a far more dehumanized mode of governance. A key argument against the reliance on algorithmic governance is the unquestionability that is embedded in its perception; because it is based on 'science' and data, both of which are commonly viewed as accurate and incorruptible, the decisions made through digital technologies are viewed as absolute and accurate. Algorithms frequently reproduce different types of discriminations, based on both the way the algorithm may have been developed and due to the types of information collected.

Morozov (2013) defines 'solutionism' as the phenomenon where 'the Internet' or the general 'technology' is seen as having the potential to fix any issue, or enhance the overall performance of any individual, group, or society. The phenomenon blossomed in popularity with the growing influence of Silicon Valley on global markets and trends in the late 2000s, and supported by a seemingly unlimited flow of financing from Venture Capitalist companies. This shift also comes with the development and centring of a new philosophy of 'Internet-centrism', wherein "the firm conviction that we are living through unique, revolutionary times, in which the previous truths no longer hold, everything is undergoing profound change, and the need to

'fix things' runs as high as ever" (ibid.: 15). Tech solutionism is a crucial element to understand the continuous drive to implement increasingly 'accurate', or more invasive, forms of biometric technology, as demonstrated through continuing Aadhaar debates.

The Aadhaar infrastructure is one which is wide-ranging, and deeply rooted in various sectors and actors across the nation. Star (1999) advocates for an ethnographic approach to infrastructure. A relational analysis to systems of infrastructure, then, can seek to understand the forms of human behaviour which the infrastructure encourages and discourages, thereby developing a deep understanding of the different actors and motivations in infrastructure development (ibid.: 383). One use of infrastructure ethnography, as posited by Star (1999), is being able to understand the 'master narrative' embedded in certain infrastructures, thereby pointing to those who are excluded or ignored, or underlying motives, from an individual, group, and discursive level. In this context, the 'master narrative' purported by supporters of biometric technologies centres the importance of securitization.

As Furlong (2013) explains, when conducting ethnographies of infrastructure within the Global South, accepting that irregularities needs to be folded into an accepted mode of understanding existence of such a system. Whilst ethnographies of infrastructure situated in the Global North typically function on the 'communities of practice' (Star, 1999), Furlong advocates for the insertion of the individual as a unit of analysis in this relationship. Rather than just highlighting the way communities respond and react to the implementation and workings of different infrastructure, Furlong (ibid.) argues that due to the expected dysfunction of various infrastructural systems in the Global South, individuals often must mediate solutions based on their personal networks and systems of resources. Furlong's approach, therefore, focuses on how both systems and individuals are remade through their regular interactions. As Edwards (2003) argues, the intersection of different infrastructures, ranging from micro to macro, reorganize the social world, and must be studied in conjunction with each other, through the lens of Latour's 'modernist settlement' (1999), which seeks to uncover how the spheres of nature, society, and technology (re)construct each other. As Castells (1996) posits, the relationship between different sociotechnical infrastructures, and other structures and institutions present, along with considering the social, historical, political and cultural shifts, can be understood through the movement of 'flows' between them. Crucial to Edwards (2003) analysis is that of time. Infrastructures have the ability to shape conceptions of time, at a human and societal level, which is significant when understanding the relationship between technological infrastructures and modernity. On a human level, the technology tends to 'speed one's day up', and on a societal level, it pushes the into the 'modern', moving it from the past into the future.

#### **Knowledge Construction**

Haraway's 'situated knowledges' posits the necessity of considering the role of 'objectivity' or 'neutrality' of knowledge as a way of obscuring the designated position which produces that knowledge, which is typically white, male, and heterosexual (1988). The denial of a source, or position, of knowledge then universalises it, making it an unobjectionable fact. Haraway also resists the allure of relativism, stating that this validates and neutralises all forms of knowledges, and instead uses 'situated knowledges' as an apparatus to interpret the social construction of scientific knowledge by placing it within a socio-political context. Crucially, Haraway also designates bodies as a product of different knowledges, and as a space of boundary making (ibid.: 595). By understanding bodies as a space of 'mapping practices', through an analysis of the 'situated knowledges' which produce the body, one can reinterpret the processes of knowledge production. This places the 'body', as an object of study, into conversation with the political and social players which continually (re)create the body. Drawing from Trouillot, Agard-Jones (2013) argues the implications of global social processes

must be analysed through the body of an individual, more specifically, marginalized bodies who are often forgotten. By combining the body and human agency, Agard-Jones (and Trouillot) posit the importance of their analytic categories in understanding the multi-scalar nature of different agents, and their impact on reconstituting both domains. This includes a historical analysis of the development of different relevant actors on the constitution of bodies, and the making of political subjectivities. By blending Agard-Jones' (2013) approach to understanding bodies as a microcosm of global and social processes with the work of other feminist materialist scholars, such as Haraway who conceptualizes the body not as a static unit, but as an assemblage, we can understand the significance of repositioning the body at the centre of this research. By utilizing the multi-scalar approach outlined by Agard-Jones, an analysis of the body must consider the global political and historical dimensions with the 'material entanglements' associated with the body, physical and relational (ibid.: 192). Crucially here, in this research, this includes an interrogation of the body in interaction with biometric technologies.

Mignolo, drawing from Wynter's decolonial ontological theory (2015) posits that individuals and societies must be understood through the ontologies imposed onto them through social and historical conditions, particularly in the case of colonized peoples. Wynter posits that colonized countries were remade through the lens of Western Epistemologies, which includes an imposition of social values, conceptualisations of humanness, and a reorganization of social infrastructure. In colonial contexts, not only are narratives of peoples and histories artificially constructed and imposed by colonial administrators, but they are crystallised in legal and economic structures. Without an interrogation and dismantling of dominant Western knowledge systems in postcolonial countries, Wynter argues, they are destined to further entrench such systems. This then leads to one of the main sources maintaining power imbalances and hierarchies, which is discursive legitimization of said structures (Wynter, 2015). Power structures are coded through cultural formations, which are constantly reformulated to buttress them. Therefore, political-economic structures which shape imbalanced power dynamics are not enough to maintain them, but require a legitimizing discourse which positions said structures and dynamics as normative (ibid.:111). In the colonial context, this is a cultural model which predicated upon enabling and naturalising domination, accumulation, and exploitation.

One of the underlying bases of the colonial power structures is what is initially described by Fanon, and then expanded by Wynter, as 'the sociogenic principle'. This principle defines the importance of language in the hierarchization of different groups and peoples, with Fanon stating that a mastery of the language which shapes the world, affords its speaker a great deal of power as well. The sociogenic principle can then reveal the underlying 'ontogenesis principle', as Mignolo articulates, which is that race is not coded in or on the body, but rather through a network of social hierarchies and imaginaries predicated on colonial differences (ibid.: 116). The relationship between the two principles, according to Wynter, is that "ontogenesis is an imperial category while sociogenesis introduces the perspective of the subject that ontogenesis classifies as object" (ibid.).

Benjamin (2019) presents a holistic manifesto into understanding how racialization, and racialized bias, is coded into different forms of technology, thereby reinforcing a binary opposition between Blackness and Whiteness. While Benjamin's theorization is built on an interpretation of Western, specifically North American, society, her analysis of how inequalities are algorithmically coded and reinforced remains applicable to the Indian context. Particularly given Benjamin's application of post- and decolonial theory to visual technologies to understand the cultivation of inequalities, and therefore different types of marginalizations, her analysis serves as a helpful theoretical basis of understanding how different social groups in India are better and worse served by Aadhaar technologies.

As Pugliese articulates, biometric technologies are hinged upon the notion of truth and verification; its ascent and embedding into contemporary life has been dependent on the emphasis of the "technologies of truth" which contemporary society is built upon (2012: 3). In the process of biometric technologies 'functioning', i.e. interpreting the body through a specific set of code or analysis, biometrics can confer, ultimately, to what extent a person is "true" and "authentic". And given that biometrics technologies are based in scientific methods, both biometrics and the validity of science enter an interdependent relationship wherein they both strengthen the other. Pugliese employs Foucault's notion of truth which interprets 'truth' as a product of complex relations between structures of power and knowledge, instead of a singular essential notion. He interprets 'biometrics' within the framework of 'situated knowledges', as theorized by Haraway (1988). Situated knowledges perceives all knowledge as a product of a complex web of individual and social identity, therefore reflective of one's own positionality. Significantly, while this location of knowledge comes as entangled within a web of identifiers, certain socially dominant characteristics are able to transcend being identified, thereby causing the knowledge to appear as 'objective'. Potzsch (2015, 103) outlines the discussions around the relationship between human and technology, and the mutually constitutive nature of such a relationship. Veering away from claiming technological determinism, Potzsch highlights the malleable dynamic between human and technology, and emphasises this feature as being critical to understanding how human subjectivities may be contained by such technologies.

As Pugliese (2012: 7) writes, biometrics are seen as identifiers of the 'real body', such as fingerprint ridges; categories such as race, gender, class, are seen as socially imposed categories and characteristics, and therefore irrelevant to such an interpretation of the body. This, while an increasingly contested notion, is largely the norm, or foundation, of much of biometrics scientific research. However, as Pugliese and others argue, bodies are already 'marked' by such categories, and are therefore unable to be 'read' through a lens which doesn't

centre this notion of social marking. Embedding Crary's theory of the 'regimes of vision', which pertains to the role the observer visualising history in a which emphasises, and unemphasises, certain characteristics, thereby developing a very specific 'vision' which is imbued in historical and social processes, Pugliese interprets the process of biometric technologies 'reading' the body, as one which involves a 'technical gaze'. As Pugliese (2012: 109) explains, the use of biometric technologies as a form of 'truth saying' therefore implies at the moment of capture, the individual being scanned has been deemed by the technology and the agent wielding it, as a possible criminal. Given the statistics which speak to the irregularity of 100% biometric correlation matches, the process of such an act, mediated through the technology capturing a scan of a live person, instantly creates a data double. This presents one of the most insidious outcomes of data doubling, as the scan then acts as the 'true' representation of a person, and is the barrier to accessing social services.

Elmer (2012) builds on Foucault's concept of the Panopticon to advance understandings of self-governing in societies with rising levels of technological surveillance. Drawing from Foucault's analysis of disciplinary processes, Elmer argues that contemporary surveillance needs to be understood through the analysis of contemporary disciplinary forms. Ceyhan (2012) furthers the analysis of biopolitics and biopower by understanding it within technological surveillance methods, to explain how body processes have become sites of surveillance. This research will understand the location of embodied power in the context of digital epidermalization to understand if and how these power distributions have changed.

#### Surveillance

As with any form of totalizing technological system, the Aadhaar system must be understood through the lens of surveillance politics, in an effort to understand the global politics which contribute to the contemporary Indian surveillance assemblage. As many scholars argue, surveillance technologies have become a defining characteristic of modernity (Lyon, 2003). This includes a host of technologies, from drones used for military warfare to scanners which transform bureaucracy. Lyon (2003) points to the latter as a particularly useful unit of analysis when considering the expansion of the surveillance state, due to its function of bringing together "daily and ubiquitous processes of tax collection, defence, policing, welfare, and the production and distribution of goods and services in all modern societies" (ibid.: 167). Surveillance technologies which enter the bureaucratic sphere are particularly helpful in understanding how such technologies have transformed social activities and the constitution of the nation state, as they demonstrate the pervasiveness of routine surveillance, and the surveillance of everyday life, which grounds much of contemporary society (Lyon 2001). Lyon traces the root causes of what he describes as the modern, dossier society, back to the birth of the modern society; he claims, the reliance and centrality of administration in contemporary society is indicative of its core components: "industrial capitalism, the nation-state and the new military" (1994: 30).

Following the 9/11 attack in 2001, the world experienced a "surveillance surge" (Wood, Konvitz & Ball, 2003). This occurred across the world, with technology-based surveillance quickly becoming touted as one of the most effective ways to curb terrorism, but was largely situated within the United States and Europe. As Zureik (2004) explains, this not only included a huge increase in the securitization of national borders, as well as increased surveillance of immigration and travel, but also included an increase in monitoring processes aimed at citizens and residents of the country in question. This combination helped develop the comprehensive surveillance apparatus that exists across modern society. Expanding beyond Appadurai's conceptualization of '-scapes' present in the contemporary world, such as the finacescape and mediascape, which orient the flows of material and resources in a modern, globalized world, Gusterson develops the concept of 'securityscapes'. Understanding the 'securityscape' works to address the international development of securitization, from local to global dynamics

(2004). Employing this concept to understand the global security flow is helpful in conceptualizing securitization and surveillance as a dynamic apparatus, which is tailored to cultural specificities.

Key to understanding the relationship between the self and the 'state' or 'nation', which becomes mediated through digital technologies, is the multiplicity of identities individuals form through this process. As Anish (2015) explains, the 'pre-digital' era established at least two types of identity – the social and the bureaucratic identity. The first, a product of personal relationships and social networks, is essential in establishing one's self in. The bureaucratic identity works intimately with the social identity, and creates a version of the self which fits into existing categorizations of society. These identities then lend into the development of a new variation, as Anish (2015: 42) postulates, the system identity, "which represents persons as dynamically forming clouds of data". Lyon (1991) describes the association of a 'moral architecture' which props surveillance apparatuses. This entails an implicit message that those under surveillance, regardless of any evidence of criminal behavior, have the potential to engage in so, and therefore must be surveilled in an attempt to curb such behaviour. This creates a continued form of criminalization of the population.

Ajana (2013) explains the two critical purposes biometrics serve is: to verify identities, typically against existing forms of bureaucratic identity, and to establish identities. To establish identities, biometric records must be developed alongside biometric identity databases. These databases become crucial in determining the 'normative' body and collect increasing amounts of information about every aspect of a person's life. These 'data points' then become the determinants of a person's identity. Through this process of collecting and maintaining biometric records, each person essentially develops a 'data double' which lives in their

biometric identity, versus their physical identity. Ajana (2013, 13) explains the ubiquity of biometrics is underpinned by a complementary narrative built on safety and paternalistic protection. Biometrics are justified through the constant fear-mobilization of the threat of terrorism and the terrorist other; as the narrative goes, biometric identification is the 'truest' way one can be identified, and in that sense, unwelcome others can be detected and removed.

Potzsch (2018: 107) explains the use of dataveillance as crucial in the development of a hypersecuritized (through technology) world. The process of collecting thousands of details related to an individual, recording every associated data flow, is crucial in building a centralised database, giving rise to the 'normative citizen/individual/person'. Potzsch uses the examples of databases compiled by technological corporations to illustrate how data mining is then used to determine and target specific types of advertisements and content to different groups of users. Through these enormous databases, particularly those which compile biometric information such as facial recognition, companies are able to generate 'normative bodies and functions'. Van der Ploeg (2014) explains that how the body is interpreted, as a 'thing', and situated is dependent on a historical and social context; without a narrative that is based on spatial and time elements, the 'body' cannot be understood. She argues that given the increasing technological mediation of how we understand our bodies – through exams, blood work, hormone levels – technology becomes more than just a factor of how our body is exists in the contemporary world, but rather, also affects the very ontology of our body and how we understand it.

Ericson and Haggerty (2006) explain how surveillance practices conduct a disaggregation of the body, dismantling it into smaller, discrete parts. In addition to this, it recreates the body, and works to produce new ways of inscribing marginalized identifications onto the body, be it sexualised, racialised, abled or gendered ideas of bodies. As Puar argues, the increasing use of biometric technologies, and other forms of surveillance, is employed to recreate and emphasise existing inequalities onto already marginalized bodies. Therefore, the surveilled body is never a purely atomic, informational data set, but rather one which still holds the products of social inequalities. Further, Browne's theory of digital epidermalization, in understanding how forms of technology have transformed the way race is embodied (2015), is essential in understanding the relationship between race and surveilled spaces. Stemming from Fanon's theory of racial epidermalization, which as described by Hall outlines "disassociation between the black "body and the world" that sees this body denied its specificity, dissected, fixed, imprisoned by the white gaze" (in Browne, 2015: 91). Browne proposes a theory of digital epidermalization to understand how surveillance technologies have transformed the embodied reality of marking bodies of colour. Referencing forms of biometrics, including facial recognition and DNA coding, Browne argues that the influx of such technologies has codified certain types of bodies, thereby transforming methods of identification and organization (2015: 108).

When considering how the State is able to produce and reproduce controlled people of colour through surveillance, much of the analysis will occur through understanding Foucault's concept of governmentality. Governmentality considers the relationship between the production of the subject and the will of the State, and to what extent the State produces forms of social control through a multitude of institutions, enabling individuals to govern themselves. This concept is particularly useful whilst investigating the use of surveillance technologies, as it considers the proliferation of such mechanisms across different assemblages of the state, rather than viewing surveillance as a unidimensional project (Li, 2007: 276). Additionally, as Lemke (2001) argues, it is essential to analyze the relationship between technologies of power and underpinning state or socio-political ideology of the technologies to understand governmentality as a holistic concept. Moreover, Lemke posits that governmentality in a neoliberal age transfers 'responsibility' from the state to the individual, in line with neoliberal logic (ibid.: 202).

The use of an accessible legal identification system has widely been regarded as a key indicator of development, and has even become enshrined within the UN Sustainable Development Goals as Target 16.9 "free and universal legal identity, including birth registration, by 2030" (Masiero & Bailur, 2021). The issues with digital identification schemes are widely documented, with proven issues of transference of data (Qureshi, 2020), difficulties changing and updating information (Caribou Digital, 2017), as well as enabling widespread uptake (Bailur et al, 2019). Schoemaker et al (2020) explain the phenomenon of NGOs using data collected through digital identification schemes in Uganda and Bangladesh, focusing namely on the issues of enrollment for refugees and other displaced peoples. Effah & Owusu-Oware (2020) explore the relationship between national and sectoral identification schemes in Ghana, drawing on the effects of differing political actors at each level as playing a role in the development and working of the system.

The issues with digital identification schemes then reside not just in the implementation of a widespread identification mechanism, but asks us to consider the use of the 'digital' in this endeavor. As Panigrahi (2020) explains, the eagerness to invoke technology to 'fix' social issues are long documented. This is because social problems are too commonly interpreted as technical issues, as it often provides a more straightforward solution.

### Methodology

This thesis considers multiple aspects of the overall Aadhaar system to better understand the role the Indian government and private companies play in the continued manufacturing of crises through biometric technologies. Rather than a traditional ethnography, it follows the structure of a 'multi-sited ethnography', as described by Marcus (1999), which focuses on a concerted analysis of different infrastructures and technologies. Whilst there is a breadth of academic research related to the Aadhaar system, much of it focuses on issues of citizenship and membership. This research aims to move beyond such entanglements, and consider how the legal and physical infrastructure enable widening social inequalities, conducted through technological interfaces (Collier and Ong, 2003). By embedding a historical critical theory approach, this research will consider the palimpsest of surveillance technologies which exist in India, and understand the social, political, economic, and legal conditions which have contributed to the functioning of the system as it exists today, and considers the possibilities of its future.

This research is predicated upon the discourse analysis of multiple legal and policy briefs related to the Aadhaar system, all of which are freely available online. Whilst these documents are written for and targeted at different audiences, their analysis can provide an effective insight into how certain persons, ideologies and values are distilled into a technological system. Moreover, the breadth of documents speaks to the various difficulties the system has endured over its existence, and act as a helpful marker of key issues of public contention, which then are often addressed (or not) through this type of formal documentation. It also involves a critical discourse analysis of newspaper articles, all published through The Times of India, India's most widely circulated newspaper. The articles serve as a crucially helpful tool in marking different points in Aadhaar's development, and unearthing how the UIDAI central team publicly market the identification scheme.

The decision to not use any interview or survey methodologies was prompted by the multiple restrictions implemented due to the ongoing COVID-19 pandemic, thereby limiting the possibilities of traditional ethnographic methods. Whilst various technologies could be used to reduce the distance, there were far too many logistical difficulties to be able to engage with a broad, representative set of participants. Rather than rely on skewed data, this research engages with interviews conducted by other researchers, and embeds certain conclusions made through their work as a starting point. This enables this piece of research to then engage with broader economic and legal structures which contain the Aadhaar ecosystem, whilst not erasing the real impacts such structures have on the everyday experience of an Aadhaar user.

### **Chapter 1: The Social Promises of Infrastructure**

The drive towards e-governance in India is a product of compounded social and historical characteristics, led by the 1990s-2000s era of technological utopianism. In this period, technology companies began expanding and accumulating significant social capital, as well as holding multi-billion valuations and venture capital contracts. Whilst following the dotcom crash of 2001, technology companies certainly lost the allure and mysticism they previously had, technologies began to absorb a developmentist narrative, specifically focusing on the importance of 'connecting' people and populations. This discourse quickly incorporated the increased proclivity to surveillance and security structures being imposed across the West, with the implicit instruction that the rest of the world follow. This, unsurprisingly, was largely applied to countries in the Global South (Rajagopal, 2001). This section will consider the social and political factors which created a ground for Aadhaar to be instituted, and discern the ways in which the Aadhaar system forms a fundamental part of Indian infrastructure.

When understanding the implementation and network of Aadhaar biometric technologies, Harvey & Knox's application of 'enchantment' to infrastructure delineates the mystification which surrounds it (2012). Crucially, the 'enchantment' plays a crucial role in the development of an imagined Nation state, and centers specific ideologies in the process. While the Aadhaar system is arguably more high-tech than the example they use, of roads, given the crucial status surveillance has in conceptualizations of modernity (Giddens, 2000) it can be argued that a system aiming to provide universal identification and representation also contains similar principles and aspirations. To understand the role Aadhaar plays in the construction of an imagined India, one must investigate the social truths, myths, and goals contained within it. These myths will be discerned through a discourse analysis conducted on articles published in the Times of India, the largest distributed English language newspaper in India. Media articles are the most relevant and accessible form of documentation to uncover these myths, as the myths are inextricably linked to dominant attitudes and discourses about Aadhaar. Moreover, given the senior nature of the Times of India, it often contains direct quotes or comments from those involved in the Aadhaar development and implementation process, therefore shining a light on the elements they want to be highlighted, and those which are not.

### The Desire for Social Equality

Through this analysis process, it becomes evident that the first is the promise of social equality. In India, a country that has persisting social and caste-based inequalities, the Aadhaar system was, and continues to be, touted as an equalizer for all, as a universal identification scheme. There is a continued belief in the inefficiency and corruption of individual Local level State actors, and the Aadhaar system aimed to eradicate the possibilities of such occurring, by ensuring equal access for all actors. Moreover, unlike other forms of identification documents which also exist, such as passports or PAN cards, Aadhaar claims to be the most accessible form of document.

In multiple articles about Aadhaar accessed from 2008 - 2011, the implementation years of the system, the key benefit of the system was stated to be that it promised to 'empower the poor' (Times of India, 2010a; 2011a; 2011b). The previous government organised systems of distribution, especially the food ration programme was publicly regarded as an inefficient system. Eradicating poverty became a key priority, and became an echoing promise the Indian government made to its citizens and residents. Moving away from the failed plans of the past, technology became viewed as a mode through which this goal could actually be achieved. This ties in broader plans of the Indian government. In 2006, the Indian government launched its National E-Governance Plan, which integrated a comprehensive strategy on how to digitize different forms of governance, as well as widen access to digital technologies across the

country (Paul, 2007). Along with the goal of optimizing resource and service delivery, the Plan aimed at transforming the relationship between citizens and government, namely, bridge it closer together. A key agent in the delivery of Government services was the Local level Government office. The distribution of these offices across the country, often with little to no training and minimum resources to deliver effective or efficient services. With the implementation of a system which largely relied on technology, the effects of such individuals could be minimized.

Mazzarella (2006) argues that the government-imposed unabashed enthusiasm for egovernance stems not solely from a desire to enhance social representation, but rather, a centralling of the 'politics of immediation', namely the drive to enhance efficacy, and the understanding that the importance of speed outweighs other characteristics. This comes with the erasing of cultural mediations, and the importance of those mediations and negotiations in the construction of collaborative social life. This transformation also included a thread redefining what governance meant: dislocating it from the ideological and choices made by governments, 'governance' became a homogenizing term employed by entities such as the United Nations and the World Bank to underline administrative practices (ibid.). Corruption became seen as a defetabale offence, one which could be rooted out through more effective governance practices, creating a more efficient overall system. This transformation mirrors the depoliticization of technologies, which became divorced from any ideological bases, and instead became viewed as a simple driver of modernity and efficiency. This discursive shift in how technologies were spoken about was, and continues to be, crucial in the rapid proliferation of technology into social organization, with little to no consideration for the ideological and principled basis for the evolution of technology-driven capitalism.

Along with making the spatial-scale of such technologies and transformations malleable, such technologies and discourses also seek to restructure timescales. With a key driver of the surveillance technology predicated upon enhancing speed, and reducing waiting times, the industry seeks simpler, more time efficient mechanisms to enable such processes. This constant desire, within the broader social context of increased anxieties of fear, translates to a continuous restructuring of temporal conditions, thereby also reorienting the relationship between an individual and the State. Therefore, through Aadhaar, every Indian resident, regardless of socio-economic status, would be able to easily access necessary Government services. As Times of India (2010) states, this closeness, typically located through increased number of local government distributors, will not only ensure that resource scarcities are preempted and managed, but will enable Aadhaar holders to raise grievances more easily. Through this, the Aadhaar system effectively begins the process of transformation of the Government as a provider, to positioning the Government as a platform, whilst seeking to rebuild trust with the people.

#### **Dual-Faceted Economic Prosperity**

This leads to the second social promise, which is that of economic success. A key piece of information contained in multiple media articles about Aadhaar, particularly prominently in the initial reviewable years of its delivery, is that the Aadhaar system could save the Indian government up to INR 90,000 Crores per year, according to Arun Jaitley, (Times of India, 2019).

This is portrayed as a dual promise - for success of the nation, as well as individual economic success. The Aadhaar system is portrayed as one which will bring efficiency to various national service provisions. This includes the supposed huge savings the Indian government will (and apparently has) made in 'leakages' of service delivery. The government claims that the delivery

of social services, including LPG and ration delivery, through Aadhaar has saved approximately INR 90,000 Crores, a number which has not been confirmed by any independent organization (UIDAI, 2020). It is promised that the savings from this system is re-injected into the Indian economy by the provision of even more subsidies and enhanced social services. Meanwhile, as Aadhaar enrolled individuals will not need to undergo the efforts of either securing other forms of identification, or can conduct their routines with Aadhaar easing each step, one is able to invest more time in building their economic and personal success (Times of India, 2015).

Economic success, or the estimated potential of it, is similarly a key driver of e-governance in India. One medium through which the Indian government seeked to enhance economic performance is through private-public partnership. The privatization of State services is not unique to India, but the country served as a particularly fertile ground to do so. The drive to build relationships with private companies, particularly to develop modes of e-governance, in the early 2000s coincided with the growth in success of global technology companies. These companies became symbols of management success, and quickly infiltrated the schemas of the Government as a model upon which to build its own e-governance service transformation. The involvement of technology companies in influencing or 'commenting on' governance and democratic practices is lengthy (Mazzarella, 2006). As many scholars point out, the customerfocused approach of the private sector is viewed as the antithesis to the bureaucratic and corrupt state. E-governance initiatives are seen as a way to cut through those characteristics of the State, and instead, develop governance practices which were impervious to human error. This dynamic is present in the development of the Aadhaar system, of which the UIDAI's Chairman was Nandan Nilekani. The Aadhaar then became a space where the Indian government could trial and experiment with different modes of e-governance, modernize India, and make significant economic progress in doing so. Along with developing opportunities for public-private partnership, the Government seized the opportunity to attract foreign companies to India. That those companies would be involved in the technology sector was a significant advantage and motivator. Moreover, the development of the Aadhaar infrastructure aimed to serve as the basis for a host of other projects affiliated with Aadhaar, which claimed to boost the economic security of individuals', thereby doing the same for the Indian economy. Whilst this was developed later on, one such programme is the JAM (Jan Dhan, Aadhaar, Mobile) Yojana project, launched by the Modi government in 2014. Jan Dhan refers to the project seeking to improve financial access of citizens, namely by increasing the number of traceable, registered bank accounts. JAM Yojana seeked to link all three components to each other, with Aadhaar serving as a verification method to access the other two services. Jan Dhan incorporated working with both public and private sector banks, and in its initial run, accessed a simplified KYC process, as approved by the Royal Bank of India. The updated KYC processes hinged upon the use of Aadhaar as acceptable enough of a document (Shetty, 2014)

Through this, Aadhaar became the fundamental basis of economic and social interaction. Additionally, it became a medium through which the Modi government could project an image of a 'future India'. Aadhaar became the crux upon which all other development initiatives and projects associated themselves with, becoming the most significant forms of social infrastructure in the nation. To speed the implementation of the Aadhaar system, the Indian government floated tenders to have private companies bid for the delivery of certain aspects of the system, including the biometric identification machines. Contracts were won by companies such as MORPHO and L-1, both of which are prominent in the field of global technology services. The invocation of technology, and the involvement of international private technology companies, then became a key way for the Indian government to publicise Aadhaar, and tout their beliefs that the programme would create significant economic savings. As Tsing explains, the entrance of foreign finance capital in a nation through 'contracts of work' often works as a fundamental part in explaining a Government's financial policy approach, particularly in the Global South context, where economic liberalization is seen as a necessity (2005). These contracts are arranged around a proposed project of great national significance, which aligns with a central ideological strand of a ruling government. This becomes increasingly clear as the BJP party, initially a critic of the Aadhaar system, enters ruling power in 2014 and proceeds to absorb the system, and its infrastructure, into its plan.

### The Pursuit of Modernity

The final myth is that of modernity. As Tsing explains, a common and persevering trope associated with countries in the Global South, is that of poverty and destitution (2005). The role of global NGOs and charities in bringing 'awareness' to the apparent conditions of the Global South, as places rife with inequality and mismanagement.

The Aadhaar system has been lauded by countless organizations, such as the World Bank and IMF, for the supposed 'revolution' it has caused in identification systems in the Global South, and has been used as a template for other universal identification systems in countries such as Jamaica and Uganda. Following the publication of various World Bank affiliated documents praising the Aadhaar system, including a report on digital dividends (2016), an Op-Ed published on the World Bank website authored by Nandan Nilekani about the successes of the Aadhaar (2013, 2018), and numerous research pieces about social security schemes in CGAP, the positivity of those responses are reproduced in ToI articles (2014). Whilst it is expected that this news may be reproduced in a prominent periodical, the tone and approach of the articles referring to the World Bank, or Aadhaar in general, shifts. There becomes an increase

in articles referring to the various World Bank reports in the context of the changing nature of the Indian economy, with Aadhaar consistently referred to positively (2014), interviews with tech leaders such as Bill Gates on the potential of India to become Silicon Valley (2015) As Tsing (2005) discusses, the dramatization of the Global South's apparent lack of resources, and efficient infrastructural practices, is crucial in the construction of such a global development economy. This dramatization, coupled with gratuitous applause with the success of development initiatives, typically affiliated with international organizations, is a crucial process in the continued construction of the Global South as 'backward' (ibid.). These pieces do not critically engage with the possible negative effects of Aadhaar, or technology more broadly. Nor do they question the positionality of the interviewees or authors, those who are affiliated with international technology companies who have clearly vested interests in developing, and leading, the newly build technology infrastructure. Instead, technology, and their founders are seen as value neutral, with the sole objective of bettering society. Moreover, by imparting and lauding certain generalised forms of governance, these supranational organisations are able to construct an organizational and infrastructural framework in which 'less developed' countries should allocate their resources to adjust to.

Along with placing an infrastructure which promotes a sense of modernization, an underlying factor to this phenomenon is the support Aadhaar provides a once nascent tech industry. This comes from a combination of factors, including the contracting of the aforementioned foreign technology companies, and the promise that the widening network of Aadhaar centres would upskill and train employees, increasing digital literacy (Times of India, 2018). The affiliation with foreign technology companies proved crucial in the rehabilitation of India's international, and domestically the Government's, image to remake it as a key global financial player. The Aadhaar project, and the wider system of e-governance, is seen to have modernized India, to make it comparable to Western countries. Comparisons to the US Social Security system are

frequent in the descriptions of Aadhaar in ToI, and discursively work as an unquestioned justification for the system (Times of India, 2014; 2021). Whilst the Aadhaar infrastructure was initially partially delivered by foreign companies specialized in surveillance technologies, since 2017, the government has implemented a domestic-first bid system for Aadhaar tenders, which only allows Indian firms to compete for the delivery of Aadhaar technology and infrastructure. Not only does this financially support Indian tech companies, it seeks to position India as a technologically-driven, modern country. This shift not only functions to strengthen the widening portfolio of successful Indian technology companies, enabling them to work on Aadhaar to enhance their abilities and widen their portfolio, but gives them a monumental chance at exposure, allowing them to grow into globally competitive companies. The success of technology companies, then, contributes to the wider construction of India as a modern state, comparable to the tech havens of North America. This global projection is crucial in the making of the Indian State.

We also begin to see currents of how the three myths combine to create a marketable image of the 'modern' Indian nation state, one which is guided by global discourse and currents. The Aadhaar becomes representative not just of the State's ability to institute such a large project, but also appears to speak to its commitment to developing social equality, and eradicating the poverty-stricken imagery which frequently accompanies Western ideas of India.

A coalescing of these factors - the drive towards modernity, the environment of technological utopianism, and the desire to present itself as a beacon of development, social equality and democratic citizenship - contributes to the ultimate motivation for the Aadhaar project, which is to create a standardised, measurable nation. Within each factor discussed in this chapter, is the inherent belief that quality of life, and the quality of Government, can be increased through a more comprehensive and bureaucratic model of management.

# **Chapter 2: The Elasticity of Legal Frameworks**

When understanding not just how certain infrastructures are implemented, but how discourses around such infrastructures come into being, it is essential to consider the legal framework which it is embedded within (or outwith). This is crucial in analysing the Aadhaar system, as it not only leans on certain legal gaps to continue its practice, but has also been a project which has caused the legal system to be reshaped around its objectives, along with demonstrating the deficiencies of the legal system at large. Not only does the cultivation of a legal order seek to reorder social hierarchies and practices, through its formalization, it seeps into the social and cultural imaginary as a naturalized way of the world (McKittrick, 2020). The law has a legitimizing force, and in this context, reoriented social behaviours and presented them as the natural, correct way of doing so. This section will examine the most significant struggles over legal legitimacy the Aadhaar programme has undergone, and use it as a lens to understand the way key actors mediate and control flows of power within broader political and legal structures.

As discussed previously, it is evident that the law plays a significant role in the constitution of different forms of social organization. Equally important, then, is an understanding of how the legal field functions internally. To understand the workings of the legal system in conjunction with the Aadhaar project, and especially understand the power struggle between different key actors, this section will incorporate Bourdieu's theories of the field and the law (1987). This collection of theories proves particularly helpful when analysing the Aadhaar project's relationship with the legal system due to its emphasis on entangling the relationship between the law and the State, and understanding the nuanced distribution of power between different actors.

Bourdieu's theory of the state and juridical field demonstrates that the law is essential to maintain forms of symbolic power, and symbolic capital, to constantly re-establish certain types of social relations and hierarchies (ibid.). Given the leaning relationship between the political field, which includes both state and non-state actors, and the legal field, this case brings to fore a crucial question, which is how non-state actors can influence the configurations of the legal field. Bourdieu's theory of the legal system is particularly useful when understanding the relationship between it and the State, as contends that whilst State actors play a key role in the structuring and acting of the legal field, the field maintains a sense of autonomy and individual practice, rather than simply being a tool to implement the needs of the State. This analysis therefore must begin with the initial Aadhaar Act of 2016.

#### The Aadhaar Act (2016)

The events of 2016, namely, the Aadhaar Act being approved through the Lower House of Parliament, to much criticism, demonstrate the ability of the State to manipulate the legal system, and enable the system to provide it with desired results. The Act was ushered through by the then BJP Finance Minister, Arun Jaitley.

There were previous iterations of identification related Bills, including the National Identification Authority of India Bill of 2010, which served as a prototype for the Aadhaar Act of 2016, which was never successfully passed in the Rajya Sabha (the Indian High Parliament), due to significant pushback from politicians and citizens alike. Whilst this remained in the Parliament, in 2012 a petition was filed by a retired Karnataka High Court judge, Justice K.S. Puttaswamy, which focused on concerns related to privacy assurances, as well as free access to State social services regardless of Aadhaar enrolment. The petition argued that the Aadhaar system infringed upon constitutional rights. Over numerous years, relevant actors including legal professionals, technical experts, and civil rights leaders formally responded to the

petition, aiming to obtain a holistic and rounded discussion regarding the relevant issues. Following extensive deliberations, and numerous public campaigns and discussions regarding the raised issues, in September 2018, the Supreme Court announced their definitive verdict that the Aadhaar system was constitutionally valid, with 4 Supreme Court Justices voting in favor, and 1 Justice dissenting. In 2020, another Supreme Court petition was lodged to conduct a review of the 2018 decision. In 2021, the Supreme Court dismissed the petition to launch such a review, with 4 Justices in favor of dismissal and 1 Justice dissenting. The continual shifts and contested amendments to the Aadhaar Act, as well as the validity of the Act as a whole, serve as a helpful microcosm to understand how the Indian legal arena interacts with State produced legislature, as well as how different terms and concepts may be interpreted by varying legal professionals. Further, the continued Supreme Court battles over Aadhaar demonstrate how the law can be seen as a space of power struggles, and to what extent the governing State is able to influence the rule of the law. The Supreme Court challenges demonstrate a battle over legal legitimacy, which is rooted in the ability of legal professionals to know and challenge the law. As Bourdieu (1987: 827) explains, when such a dispute exists at this level of the law, i.e., the most advanced, it becomes a symbolic struggle, wherein professionals are required to compete with their social and technical influence.

#### The Sense of the Law

A key driver of the increased publicity around the difficulties of Aadhaar is the work of citizenaction groups, particularly in bringing media attention. This includes the petitions developed by non-partisan groups such as Rethink Aadhaar, who systematically collected stories about the effects of Aadhaar's malfunctioning on individual lives. Whilst these groups played a role in contributing to the widening media coverage, which contributed to the increased status of the Supreme Court rulings, none of them were invited to give official testimony; those who did were either legal professionals, formally in charge of the UIDAI ecosystem, or noted 'experts' deemed as such through their chiefly academic and professional work. This demonstrates that whilst citizens, or non-legal professionals more broadly, can play an active role in determining the content of the legal sphere, their lack of symbolic capital, and official affiliation with the legal system, prevents them from being able to act with authority in formal legal settings. The non-legal professionals, namely the experts, were only allowed to engage with the sphere due to the symbolic capital imparted by their educational background. The cases collected by Rethink Aadhaar, and other groups, were ultimately presented in the SC by the petitioning legal team.

Bourdieu describes how the structure of the legal field is continually supplanted by higher education institutes, and other legal-adjacent bodies, which determine the dominant form of legal practice (ibid.). As Khera (2019) and many others posit, the Indian juridical system is largely occupied by legal professionals specialised in criminal and real estate law. By the claim of Supreme Court Justice DSC, the sole dissenter in both Supreme Court cases, India has a negligible legal framework regarding issues of privacy, data protection, and other forms of digital rights. The other Supreme Court Justices working on this case acknowledged the lack of a legal privacy framework, but ultimately determined that the benefits of Aadhaar justify its current iteration. Similarly, the Aadhaar Act (and programme) was asked to meet the conditions of 'proportionality', which "can be defined as the set of rules determining the necessary and sufficient conditions for limitation of a constitutionally protected right by a law to be constitutionally permissible" (2016). This links to the outlined 'Legitimate State Aim' portion of the Supreme Court ruling documents. The stated State Aims in these papers overwhelmingly refer to obligations to uphold the dignity of each individual, determination of the welfare state to provide necessary provisions, and ensuring security.

Central to this analysis is Silbey's definition of legal consciousness. This involves using it as a mode of analysis in legal situations, which involves understanding the different ways in which legal hegemony is developed and maintained (2005). Through this process, we can understand the complex, malleable relationship legality has with social structures, and explore how various actors and meanings entangled within these systems are able to perpetuate or reconstruct different modes of thinking and definitions which pertain to the law (ibid.: 334). This aligns with the prominent, and consistently repeated, belief which is that "privacy is an issue for the middle class" (Khera, 2019). This sentiment pervades contemporary discussions about the Aadhaar programme, including being consecrated within the supporting rulings made in favour of Aadhaar by the Supreme Court Justices. Even within the broader context of greater digital fluency, and particularly a larger understanding on issues of privacy, the continual belief that the right to privacy can, and should be, sacrificed, is commonplace when discussing the Aadhaar system.

Moreover, as Jonnalagadda (2018) explains, there can be a significant gap in what the law dictates, and how the law is perceived and known in local communities. This stems from only a lack of accessibility in understanding the law, which is typically obscured through legal jargon understandable only to professionals. Instead, the definitions and purposes of such technologies is constructed through the social exchange of information. As Bhatia et al (2020) explore through their research in Varanasi, Aadhaar enrolment has achieved a social value which does not necessarily correspond to its actual function. Namely, they cite the widespread belief that the Aadhaar is essential, and beneficial, to achieve Indian citizenship. Legally, Aadhaar is explicitly stated to not be a citizenship document, yet with the public perception of the strength of the system, in tandem with the media emphasising so, it begins to take on a

different, socially constructed meaning. As Jonnalagadda (2018) explains, the lack of clarity can often serve to benefit other actors. In this case, the misalignment in definition works to emphasise the necessity and importance of Aadhaar, which goes to support the Indian Government's agenda. The Aadhaar becomes a disciplinary mechanism, not only encouraging enrolments through the construction of fear, but also through the underlying implication that those who are not enrolled are then subject to punishment. Moreover, the misalignment gives UIDAI more power than it has, and positions it as an outpost of Citizenship and Immigration authority. Terdiman (1987) explains that fundamental laws embody the neutralization and universalization effects: the neutralization effect entails the use of depersonalised language, thereby rendering the 'legal mandate' having a universal and impartial sense of objectivity. The second, the universalization effect, invokes a series of linguistic tools to denote facts and truths within the law, and is "designed to express the generality or omnitemporality of the rule of law" (ibid.: 820). These rhetorical devices are crucial to establishing the legitimacy of the legal system, as it works to rationalize and objectify certain terminology and ways of being. By consecrating such definitions into a universal truth through the law, the legal system then creates a 'juridical sense', wherein such truths are continually reproduced through the actioning of the law. This process seeks to remove the subjective opinions of individuals and impose a totalising set of definitions, which are then preserved by the legal system. And as Terdiman continues to explain, that this set of definitions are not subjectively derived is incorrect, but instead, the root of such subjectivities are mystified through its consecration in the legal system, thereby giving it the appearance of objectivity (ibid., 821).

Such a legal case is fought in the details of the law, as the multiple reports and documentations prove, with an emphasis on the interpretation of minute, yet crucial, definitions. The Aadhaar Act (2016) contains swathes of material relating to the Aadhaar ecosystem and delivery, but

most relevant to this study include both some of the key definitions contained within the document, as well as the stated purpose of the Aadhaar program. One such detail is nestled in Point XII.v., page 12, which states that along with working as an identification medium, and a means to enable public distribution of services, the Aadhaar programme can "be used as a mode to amplify or publicise the benefits of biometric identification schemes" (2016). The Aadhaar system, then, becomes legally bound to a necessity to work as an international object of applause, one which shines a positive light on not only the strengths of biometrics, but on the impressive ability of India to embed such a system.

#### **Global Influence in Local Legalities**

A key function of the law is its ability to continually reproduce itself, thereby maintaining its hegemonic definitions for certain types of actions (Bhatia et al, 2020). One key mechanism through which this occurs is that of 'legal precedent'. This defines the reliance of the law on previous judgements to maintain a sense of continuance in its types of judgments. Due to the regional specificities of the law, legal precedent is largely used to reference legal proceedings in the same country or state of operation. In the deliberations during Aadhaar, respondents to the petition frequently invoked international legal battles to support the constitutional validity of Aadhaar. This included the employment of the United States Supreme Court cases Whalen vs Roe by K.K. Venugopal, the CEO of UIDAI at the time. These two cases were used to illustrate the normalcy of identification schemes, and the necessity of biometric collection in ensuring legitimacy and preventing the possibilities of fraud. While some Supreme Court Justices challenged their invocation, citing that various European nations held diametrically opposing views to those contained within the American judgments, the cases contributed to supporting the validity of various aspects of the Aadhaar system. While the petitioner also cited international legal judgments to buttress its case, the respondents employed significantly more,

as well citing less Indian court cases (1 to the petitioner's use of 8). Finally, where the petitioner frequently cites the Indian Constitution, as well as legal statutes such as the 2017 Right to Privacy judgement, the respondent only cites one amendment of the Constitution.

This also demonstrates the strength of 'legal hegemony' in certain countries influencing the law in others. The United States of America is frequently cited as one of the most developed and litigiously advanced nations in the world, and the use of its Supreme Court rulings in Indian proceedings, while not completely unique, speaks to the ability of the law to pervade national and social boundaries. As Jonnalagadda (2018) argues, the use of American legal precedent to support the case for Aadhaar in India reflects an underlying belief that the Indian legal system requires associations with the American legal system to further legitimize it, implying the latter is more 'correct' than the former. Moreover, in the respondent's presentations to the Supreme Court, they frequented a number of articles and reports which spoke to the positive attention the Aadhaar system had received from international organizations, including the World Bank Report 2016 and the positively received Indian Statement to the United Nations. The invocation of such positive media, within the context of understanding the role development agencies have played in enabling Aadhaar, and other identification schemes in the Global South, as discussed previously, reflects the continuing influence of such organizations in the social development of India.

When reading the Act, as well as the supporting and dissenting briefs produced by Supreme Court Justices over the years, some key omissions become apparent. One such omission is in clarifying the involvement of the Private sector in the working of the Aadhaar ecosystem. Following no detail of such involvement in the initial Act, enabling private companies to increasingly mandate for an Aadhaar enrolment to permit usage of services, the Supreme Court ruling of 2018 made that section of the Act illegitimate. Therefore, private companies were no longer able to mandate the need for Aadhaar enrolment to enable service provision. While the legitimacy and efficacy of the Supreme Court's ruling in this regard is tenuous, as various research demonstrates that some are denied access to private services due to lack of Aadhaar, the ruling crucially ignores the relationship between private companies and UIDAI in the delivery of the Aadhaar infrastructure. The law blurs the boundary between the UIDAI and private contractors working on the delivery of biometric technologies, and therefore does not consider the implications of a complete lack of legal regulation around such private access. By applying Arora's theoretical lens to this, one can view this as not just a simple legal oversight, but rather an intentional omission (2019). One such benefit of such an omission for the foreign private companies who were won tenders to deliver the biometric technologies, as well as other parts of the Aadhaar infrastructure, is the use of such data collection in sharpening the efficacy of their products. As Khera (2019) posits, with over 1 billion enrollments, the Aadhaar database is one of the most comprehensive, valuable datasets in the world. While the Aadhaar Act (and Supreme Court rulings) starts to clarify for what purposes Aadhaar data can be used (and crucially, when it cannot be), the use of the dataset in enabling machine learning or other forms of data-driven enhancements is unclear. This is particularly significant when considering the initial international drive by foreign technology companies to bid for the Aadhaar tenders -India, and its citizens, became the perfect trial space to test technology which was growing in popularity and demand.

Bourdieu (1987: 839) posits that the law has the symbolic power to create and perpetuate social divisions and identities, thereby playing a key role in the continuous social and political structure of a nation. The law presents us with the most overarching imagination of what the world, or a State, may look like, and asks individuals to determine their own positions in this landscape relative to the structure, and the other actors within it. The official acceptance and

approval of the Aadhaar system means any future privacy framework will be developed around this ruling. This means, any privacy or digital rights legislation can only design protections, based on the ruling that Aadhaar is constitutionally valid. Further, the lack of clarity on how Aadhaar infrastructure clearly interacts with other forms of national databases, including the National Population Register, enhances the possibility of State-led function creep, homogenizing the State's ability to collate and correspond different data sets.

Through this analysis, we can understand to what extent the Aadhaar system has challenged and stretched the legal field, and the various ways in which different key actors interact within such a power-laden dynamic. It demonstrates the strength of the State in the determinants of the players in the legal field, and the importance of the presence of symbolic value in being able to access the field. This includes the invocation of international legal schemes to buttress the validity of Aadhaar, lending to the continuing negotiation between global and local contentions through the system.

### **Chapter 3: Algorithmic Inequality**

Following an analysis of the conditions within which the Aadhaar system came to be, and an understanding of how the legal system has adjusted to it, the final chapter will consider the ways in which the Aadhaar has fundamentally shifted the digital-scape in India over the past decade. This will first focus on issues of biometric intake of data: to conduct this analysis, this section will incorporate existing research conducted by Rethink Aadhaar, a non-partisan civil liberties group. It will use biometric difficulties as a lens to understand the broader digital landscape in India which is now inextricably intertwined with the Aadhaar ecosystem.

### The Body Transformed

A core theoretical lens through which one can analyse biometric technologies is through their ability to correctly, or incorrectly, mark bodies. This considers the effects of marking different bodies, through the use of digital technologies, on the production of scientific knowledge more broadly. The inefficiencies of the technologies used to implement Aadhaar are well-documented. Because the system works on the repeated identification of certain base visual points on one's person, it assumes the continual maintenance of one's physical attributes, as detectable by the 'Aadhaar-Based Biometric Authentication' (ABBA) systems. The Aadhaar originally collected 'basic' forms of biometric data - specifically fingerprints and iris scans. Photographs are also collected. Cole (2002) explains the way such technologies work - certain points are identified in combination with each other, and the unique pattern is then attributed to one singular person. The ABBA is then carried out by machines upon the requirement of Aadhaar mediated services, and is perpetually carried out in comparison to the initial collection of data. This means the 'correct' body is secured as a discrete unit in time, with any changes to ones' future corporeality to always be in comparison to the 'correct' body. Rao (2019) explains

that documentary identification is a reflection of how an external group chooses to categorize someone, rather than how an individual may perceive themselves. Through the process of collection of select biometric or demographic points, certain pieces of information are then seen as important, while others are then discounted.

Rethink Aadhaar explores a variety of stories related to people across India who have had difficulties using the biometric authentication system, which then renders them unable to receive the social service schemes they had been enrolled in. One such example is that of a construction worker in Maharashtra, who enrolled into Aadhaar in 2015, and is a recipient of the LPG scheme, which involves monthly entitlements. Due to the nature of his work, he developed calloused hands, which then made the fingerprint ABBA scanner unable to recognize his prints. Due to the difficulties in updating biometric information, which involves a series of documentation and other procedures to accurately change ones' records, the worker was unable to do so, and was then denied their rations. A similar example of an elderly woman who cites her inability to 'pass' the iris scan checks to receive LPG anymore, as she has developed cataracts. Therefore, the Aadhaar biometric system demarcates what an acceptable body looks like: a body which is measurable and fixed.

A crucial element of this, as well, is the demographic makeup of Aadhaar enrollments, specifically those who must do so. As Panigrahi (2020) explains, many of those who are reliant on government subsidies belong to marginalized communities, including those in lower caste groups. These groups have historically, and continue to be, the target of discriminatory violence, both institutionally and otherwise. Given the documented difficulties in accessing the same services in different States or constituencies, the Aadhaar successfully regulates physical mobility, and marks certain groups within a space. As Scott (1998) describes, the increased

visibility and legibility of certain marginalized and displaced groups, both to State powers and to international organizations, can contribute to the development of imbalanced power relations, creating new asymmetries. The visibility these groups, and forced conformity into the limits of Aadhaar's identification mechanism, creates new opportunities for management and control of such groups. Therefore, those who typically are living in poverty or require State support are required to give up a piece of their biometric information to access them. Bodies become a form of payment through which the State can continually mine whatever data they may require. This data collection becomes invaluable for those technology contractors who are working on the various aspects of Aadhaar, as it becomes a testament to their products. The State then becomes a mediator to convert bodies into consumable pieces of information which serve to enhance the State Apparatus, as well as prop up technology companies.

### The Promised Neutrality of Technology

The 'glitches', instead of being interpreted as random errors, must be understood as concerted acts in McKittrick's terms, which is that a glitch acts to open the gateway for increasingly intrusive technologies (2020). A small group, to whom the technology does not function in its publicized or preferred way, become the sacrifices to usher in technology which is purported to "get closer to the truth", the truth which as previously discussed, resides in corporeality. In an attempt to prevent such biometric-related errors, as of 2018, the UIDAI began to trial and implement facial recognition technologies as another authentication measure. Currently, facial recognition is largely being used for banking and other financial service authentication, but due to the COVID-19 pandemic, the government and UIDAI are trialling facial recognition software to authenticate and track the uptake of COVID-19 vaccines. Whilst this clearly evokes Morozov's claims of centrality of solutionism in modern State building, it is essential to consider the other actors involved in this process. Along with State actors, private technology

companies reappear (or perhaps more accurately, are made visible) as a significant player in the determining of technology usage and trends. Integrating Agard-Jones (2013) approach to analysing the body, this interpretation must incorporate a global and local aspect, to understand the relationality of the body between different scales and actors. When considering the different actors which play a role in constituting the body through the Aadhaar, then, the two biggest actors are the State and crucially, and often forgotten, the companies which supply technology to support the infrastructure. Bodies are moulded and reconstituted through the changing flows of power and must be interpreted through relating it to "the space of global capital" all the actors are contained within (ibid.: 187).

This belief system, which Morozov argues is central to the way the modern state has developed over the past two decades, contends that the Internet (and the technology that comes with it) must remain at the centre of societal organization. It also posits that the shortcomings that come with various Internet-driven technologies can only be 'fixed' or overcome through a 'better' or more innovative type of technology. That technology remains in this landscape, however, is non-negotiable. This belief acts as another strand of the overarching phenomenon, which is ultimately, the de-politicization of technology. The appearance of the homogenized term of 'technology' as one which is rooted in innovation, efficacy and transparency, is an enduring mythology, and one which often protects the products and actors in the sector from different forms of criticism. As many scholars explain, the de-politicization of technology is the product of an active and concerted effort by multiple actors. Through the lens of tech solutionism and standards of modernity imposed by Western actors, one can understand Aadhaar not simply as an identification scheme with some occasional glitches, but rather, a project collaborated upon by the Indian government and private technology corporations to enable and solidify certain forms of marginalization.

#### The Datafication of Individuals, of Society

As Lyon explains, data doubles are the "various concatenations of personal data that...represent 'you' within the bureaucracy or the network" (2001: 22). As the Aadhaar system requires the intake of not just biometric information, but other types of demographic information, it is able to construct a 'data double' of each individual enrolled. This is exemplified through the research which shows that HIV positive people are scared and resistant to enrol into Aadhaar, in fears that doing so will publicize their status in a community wherein HIV is still hugely stigmatized. This demonstrates the ability of the system to control and differentiate between different bodies, thereby creating a hierarchy between bodies deemed as 'healthy' and those as 'unhealthy', definitions which are held by the State. As Lyon (2001) explains, whilst demographic data has the potential to democratize information, its usages and effects rely on the information infrastructure it exists in. Crucially, such information, whilst basic, is interpreted through complex and biased infrastructures, which lead to the creation or maintenance of social inequalities. Data does not exist in a vacuum, or have an innate moral or social use, but rather, can be instrumentalized within broader structures of power.

A key mode through which this development occurs is 'function creep', or the phenomenon through which the original explicitly stated purpose for a surveillance mechanism, through a grey policy area, is able to expand its area of work, and utilize its infrastructure to surveil more than the originally intended situation. With Aadhaar, this occurs through the systemization of the various demographic databases which exist across Governmental control, as through this combination and sharing of resources, the Aadhaar enables a network of database control across the country. In December 2019, the BJP Party passed the 'Citizenship Amendment Act', which outlined the new demographics and documentation required to gain Indian citizenship. The passing of the Amendment prompted nation-wide riots and protests, due to the clause which enabled Hindu migrants from certain countries, including Bangladesh and Pakistan, to be eligible for citizenship, but not Muslim migrants from the same countries. Not only does this process inflame historically ingrained Islamophobia, it aims to act as tool to support the National Register of Citizens (NRC), which the Government is also in the process of doing so in certain states across the country. The NRC aspires to act as a cohesive database of all "legal" citizens, thereby acting as another core database system to manage the Indian population. As multiple reports have demonstrated, the Aadhaar and NRC work together in some crucial ways (Panigrahi, 2020). Namely, the NRC acts as a 'verifier' for the receipt of some State social services which can be obtained by residents through Aadhaar. One can only successfully validate their citizenship through certain 'legacy data' which proves their presence in India before 1971, which if not presented and accepted, means ones' citizenship can be revoked. In Assam, as Borah (2019) explains, is a prevalent issue, with millions being left of the official NRC, thereby cutting off their ability to access subsidies such as food rations.

Through the intake of increasingly sophisticated, or invasive, biometric technologies, the Aadhaar system (and by proxy, the Indian government) has created a nation of measurable and discrete bodies through their enrollment. As Hedenus and Backman (2017) explain, drawing from Foucault, an object, or subject, needs to be known to be controlled. The restructuring of society through the use of data flows is reminiscent of Deleuze's 'society of control' (1992). Moving beyond Foucault's construction of a surveillance society, Deleuze posits that contemporary society, and its integration of digital technologies into social organization, transforms and reduces the individual into manageable units of code, which are then circulated

through broader information infrastructures. These units of code are then aggregated to create and guide social developments (ibid.). However, the merging of different demographic databases in Indian society reveals the depth at which such technology can mediate life. The NRC, and its relationship to Aadhaar, presents another example of the hostile approach to migration exhibited by the BJP, as well as explicates some crucial issues in the constructing of a database society. Not only does entry into such a database act as a legitimating force, its relationship to other national databases enable, or disable, one's ability to participate in public life. Through the transformation of one's political and social personhood into a minutia of data, which has the ability to reorient one's mode of being, the State is successfully able to reconstruct a discretely manageable and governable population.

### Conclusion

I reach the Aadhaar centre at 8:15AM, and start standing at the end of a slightly socially distanced queue of 12 people. The centre is due to open at 9AM, and as it moves closer to the hour, the line behind me continues growing. I enter the centre at about 9:15, and am greeted by a large picture of Modi mounted on the wall, laughing above all those who enter.

The COVID-19 pandemic has only caused the increased mutation and reach of the Aadhaar ecosystem. As discussed, it has ushered in significant political pressure to fast-track facial recognition systems as a new baseline for biometric identification. From registering to receive the COVID-19 vaccine, to being the 'key' to receive national School Board final exam results, facial recognition has quickly become the subject of much public conversation. Given the severity of the waves of COVID-19 over the past 18 months, facial recognition has quickly positioned itself as being a potential preventer of any future waves. On the other hand, Private companies continue to lobby for unfettered access to the Aadhaar database, with the argument that it could be instrumental in easing identity verification processes, thereby enabling their work more simply.

A key takeaway from this research is understanding the role of the Private sector in creating a pervasive environment of, in Morozov's terms, tech solutionism. Technology continues to be touted as the weapon of choice against poverty, exclusion, and inequality. Even in the face of growing public scandal of the invasive nature of technology conglomerates, with Google, Facebook, and Microsoft being the target of most outrage, these critiques revolve around the determination that increased legal regulation and governmental oversight should be imposed to prevent the possibilities and likelihood of involvement in nefarious activities, or function

creep. Whilst this one possible protection against such occurrences, as this research demonstrates, Public-Private cooperation remains an instrumental mode through which technology is dissipated into contemporary life. Whilst legislation may mediate to what extent that is, it does not account for the broader discursive environment, constructed by technology companies, governments, and other international actors, which positions technology as the road to salvation. With this being the most pervasive, dominant myth, a crucial question cannot be answered - is it a technical problem, or a social one? The quickness to 'fix society' through a series of increasingly invasive forms of technology is manufactured and maintained, and this research has hopefully chipped away at the validity of that myth.

As has been discussed, the Aadhaar ecosystem acted as a key pipeline to build up the technical expertise and presence of India. The shift from contracting foreign companies to domestic ones is crucial in understanding not just the significant role technological infrastructure can have on national goals and economic development, but is necessary to understand the functioning of the ruling right-wing BJP party. Whilst this research has not had the necessary space to go into the details of this relationship, the crux of this is the way technology can be instrumentalized to serve ruling interests. This is arguably true of any tool or infrastructure, the tenacity with which the technological framework of the Aadhaar ecosystem has enabled and fastened processes of social exclusion and hierarchization reveals the way technology can be employed to fundamentally reshape modern society with limited scope for public approval.

Whilst out of scope for this research, this offers a possibility of future research to be conducted specifically on the dynamics of the Private technology sector in supranational development organizations, combined with a historical tracking of technology developments. By identifying the relationship between the two actors on a global scale, this can offer a more nuanced analysis

of how the values and objectives shared on both sides share clear similarities, and understand the growing importance of the technology sector in the operation of development organizations across the world. This can also include a more detailed analysis of the different actors, some of which have been mentioned through this thesis, such as the World Bank. Whilst unable to be incorporated into this research, an important strand is the increased role of global consultancy firms, which have produced numerous reports on technology and development, which have continually been applauded by organizations such as the United Nations. Through this, clearer lines can be drawn about the working dynamics of tech solutionism, and how it is preserved through such actors.

Through holistic analysis of the Aadhaar ecosystem, starting from the myths and social promises it contained in its initial stages, then considering the definitions and practices it consecrated through its interactions with the legal system, and concluding with an analysis of the effects biometrics have on the construction of social hierarchies, and the role technology can play in maintaining governance over a population, it becomes clear the necessity to continue researching the India's digital-scape. The Aadhaar system, with its global status, has fundamentally shifted the way governance is conducted, and continually reshapes the political subjectivities of those who engage with it. To combat the pervasiveness of technological utopianism, the choices of implementing technology must be accessible to everyone, not just a limited set of actors.

## **Bibliography**

Agard-Jones, V., 2013. Bodies in the System. *Small Axe: A Caribbean Journal of Criticism*, 17(3), pp.182-192.

Ajana, B., 2013. Governing through biometrics: The biopolitics of identity. Springer.

Akerman, J. (ed.) (2009). *The Imperial Map: Cartography and the Mastery of Empire*, Chicago, IL: The University of Chicago Press.

Anandaraj, S., Anish, R. and Devakumar, P.V., 2015, March. Secured electronic voting machine using biometric. In 2015 International Conference on Innovations in Information, Embedded and Communication Systems (ICHECS) (pp. 1-5). IEEE.

Andrejevic, M., 2009. Control over personal information in the database era. *Surveillance & Society*, *6*(3), pp.322-326.

Appadurai, A., 1990. Disjuncture and difference in the global cultural economy. *Theory, culture & society*, 7(2-3), pp.295-310.

Arora, P., 2019. Benign dataveillance? Examining novel data-driven governance systems in India and China. *First Monday*, 24(4).

Arora, P., 2019. The next billion users. Harvard University Press.

Arora, P. 2016. Bottom of the Data Pyramid: Big Data and the Global South. *International Journal of Communication*. 10: 1681–99.

Arora, P. 2019. Decolonizing Privacy Studies. Television and New Media. 20 (4): 366-78.

Bailur, S., Srivastava, D., & Smertnik, H. (2019). Women and ID in a digital age: Five fundamental barriers and new design questions. https://medium.com/caribou-digital/women-and-id-in-a-digital-age-five-fundamental-barriers-and-new-design-questions-79caa2a4acb8.

Baxi, P., 2019. Technologies of disintermediation in a mediated state: Civil society organisations and India's aadhaar project. *South Asia: Journal of South Asian Studies*, 42(3), pp.554-571.

Benjamin, R., 2019. *Race after technology: Abolitionist tools for the new jim code*. Social Forces.

Benjamin, R. 2016. Catching Our Breath: Critical Race STS and the Carceral Imagination. *Engaging Science, Technology, and Society*. 2: 145–56.

Bhatia, A., Donger, E. and Bhabha, J., 2021. 'Without an Aadhaar card nothing could be done': a mixed methods study of biometric identification and birth registration for children in Varanasi, India. *Information Technology for Development*, 27(1), pp.129-149.

Browne, S. 2010. Digital Epidermalization: Race, Identity, and Biometrics. *Critical Sociology*. 36 (1): 131–50.

Browne, S. 2015. *Dark Matters: On the Surveillance of Blackness*. Durham, NC: Duke University Press.

Bourdieu, P. 1987. The Force of Law: toward a sociology of the juridical field. *Hastings Law Review*. 38: 805-853.

Caribou Digital. 2017. Identities: New practices in a connected age. Caribou Digital Publishing. <u>https://www.identitiesproject.com</u>.

Castells, M., 1996. The space of flows. *The rise of the network society*, *1*, pp.376-482.

Ceyhan, A., 2012. Surveillance as biopower. *Routledge handbook of surveillance studies*, pp.36-46.

Chaudhuri, B. and König, L., 2018. The Aadhaar scheme: a cornerstone of a new citizenship regime in India?. *Contemporary South Asia*, *26*(2), pp.127-142.

Cohen, L., 2019. The 'Social'De-Duplicated: On the Aadhaar platform and the engineering of service. *South Asia: Journal of South Asian Studies*, 42(3), pp.482-500.

Collier, S. and Ong, A., 2003. Oikos/Anthropos: rationality, technology, infrastructure. *Current Anthropology*, *44*(3), pp.421-426.

Dandurand, G., 2019. When biopolitics turn digital: transparency, corruption, and erasures from the infrastructure of rationing in Delhi. *PoLAR: Political and Legal Anthropology Review*, *42*(2), pp.268-282.

Deleuze, G., 1992. Postscript on the Societies of Control." 1990. *Cultural Theory: An Anthology*, pp.139-142.

Drèze, J., Khalid, N., Khera, R. and Somanchi, A., 2017. Aadhaar and food security in Jharkhand. *Economic & Political Weekly*, *52*(50), p.51.

Edwards, P.N., 2003. Infrastructure and modernity: Force, time, and social organization in the history of sociotechnical systems. *Modernity and technology*, *1*, pp.185-226.

Effah, J., Owusu-Oware, E. and Boateng, R., 2020. Biometric identification for socioeconomic development in Ghana. *Information Systems Management*, 37(2), pp.136-149.

Elmer, G., 2012. Panopticon-discipline-control. *Routledge handbook of surveillance studies*, pp.21-29.

Guha, S., 2003. The politics of identity and enumeration in India c. 1600-1990. *Comparative Studies in Society and History*, 45(1), pp.148-167.

Gusterson, H., 2004. *People of the bomb: portraits of America's nuclear complex*. U of Minnesota Press.

Haggerty, K.D. and Ericson, R.V., 2006. The new politics of surveillance and visibility. *The new politics of surveillance and visibility*, pp.3-25.

Haraway, D., 1988. Situated knowledges: The science question in feminism and the privilege of partial perspective. *Feminist studies*, *14*(3), pp.575-599. Harvey, P. and Knox, H., 2015. *Roads: An anthropology of infrastructure and expertise*. Cornell University Press.

Hedenus, A. and Backman, C., 2017. Explaining the data double: confessions and self-examinations in job recruitments. *Surveillance & Society*, *15*(5), pp.640-654.

Hess, D.J., 2007. Alternative pathways in science and industry: Activism, innovation, and the environment in an era of globalization. Mit Press.

Introna, L. and Wood, D., 2004. Picturing algorithmic surveillance: The politics of facial recognition systems. *Surveillance & Society*, 2(2/3), pp.177-198.

Jayal, N.G. 2011. "The Transformation of Citizenship in India in the 1990s and Beyond." In *Understanding India's New Political Economy: A Great Transformation*? edited by Sanjay Ruparelia, Sanjay Reddy, John Harriss, and Stuart Corbridge, 141–156. London: Routledge.

Jonnalagadda, K. (2018). 'Inside the Plumbing of Technology Projects', in Khera, R. (ed.) *Dissent on Aadhaar*. Black Swan Press.

Kaplan, M. (1995). "Panopticon in Poona: An Essay on Foucault and Colonialism," *Cultural Anthropology*, 10(1): 85–98.

Kinchy, A., 2017. Citizen science and democracy: Participatory water monitoring in the Marcellus shale fracking boom. *Science as Culture*, *26*(1), pp.88-110.

Khera, R., 2018. *Dissent on Aadhaar: Big data meets big brother*. Orient Black Swan Hyderabad.

Lemke, T., 2001. 'The birth of bio-politics': Michel Foucault's lecture at the Collège de France on neo-liberal governmentality. *Economy and society*, *30*(2), pp.190-207.

Li, T.M., 2007. Governmentality. Anthropologica, 49(2), pp.275-281.

Lyon, D. 1994. *Electronic Eye: The Rise of Surveillance Society*. First edition ed., Minneapolis: University of Minnesota Press.

Lyon, D. ed., 2003. *Surveillance as social sorting: Privacy, risk, and digital discrimination*. Psychology Press.

Lyon, D., 2001. *Surveillance society: Monitoring everyday life*. McGraw-Hill Education (UK).

Major, A. J. (1999). "State and Criminal Tribes in Colonial Punjab: Surveillance, Control and Reclamation of the 'Dangerous Classes'," *Modern Asian Studies*, 33(3): 657–88.

Marcus, G.E., 1999. What is at stake-and is not-in the idea and practice of multi-sited ethnography. *Canberra anthropology*, 22(2), pp.6-14.

Marinaro, I.C., 2009. Between surveillance and exile: Biopolitics and the Roma in Italy. *Bulletin of Italian Politics*, 1(2), pp.265-287.

Silvia Masiero & Savita Bailur (2021) Digital identity for development: The quest for justice and a research agenda, *Information Technology for Development*, 27:1, 1-12.

Mayur Shetty (2014). *RBI simplifies KYC norms ahead of Jan Dhan Yojana launch*. [online] The Times of India. Available at: https://timesofindia.indiatimes.com/business/india-business/rbi-simplifies-kyc-norms-ahead-of-jan-dhan-yojana-launch/articleshow/41005593.cms [Accessed 10 Sep. 2021].

Mazzarella, W., 2006. Internet X-ray: e-governance, transparency, and the politics of immediation in India. *Public Culture*, *18*(3), pp.473-505.

McKinson, KimberleyD. 2019. Black Carcerality and Emancipation in Postcolonial Jamaica. *Surveillance & Society* 17(5): 734-737

Merton, R., 1952. Reader in Bureaucracy. Glencoe, Ill: Free Press.

Mitchell, T., 2002. Rule of experts. University of California Press.

Morozov, E., 2013. *To save everything, click here: The folly of technological solutionism*. Public Affairs.

Mulkay, M.J., 1976. Norms and ideology in science. *Social science information*, 15(4-5), pp.637-656.

Ataulla, N. 2014. *Nandan Nilekani's journey from Rs 200 to Rs 7,700 crore*. [online] The Times of India. Available at: https://timesofindia.indiatimes.com/news/nandan-nilekanis-journey-from-rs-200-to-rs-7700-crore/articleshow/32372480.cms [Accessed 10 Sep. 2021].

Nilekani, N. 2018. *Giving people control over their data can transform development*. [online] Available at: https://blogs.worldbank.org/voices/giving-people-control-over-their-data-can-transform-development [Accessed 10 Sep. 2021].

Paul, S., 2007. A case study of E-governance initiatives in India. *The International Information & Library Review*, *39*(3-4), pp.176-184.

Pötzsch, H., 2015. The emergence of iBorder: Bordering bodies, networks, and machines. *Environment and Planning D: Society and Space*, *33*(1), pp.101-118.

PTI. 2010a. *UIDAI gets new name, logo*. [online] The Times of India. Available at: https://timesofindia.indiatimes.com/india/uidai-gets-new-name-logo/articleshow/5858992.cms [Accessed 10 Sep. 2021].

PTI. 2010b. *Sonia is my "Aadhaar", says first UID recipient*. [online] The Times of India. Available at: https://timesofindia.indiatimes.com/india/sonia-is-my-aadhaar-says-first-uid-recipient/articleshow/6651486.cms [Accessed 10 Sep. 2021].

PTI. 2011a. *UIDAI: Aadhaar No is now valid ID proof for LPG gas connection*. [online] The Times of India. Available at: https://timesofindia.indiatimes.com/india/uidai-aadhaar-no-is-

now-valid-id-proof-for-lpg-gas-connection/articleshow/8964677.cms [Accessed 10 Sep. 2021].

PTI. 2017. *Plugging LPG subsidy leaks leads to Rs 21,000 crore savings*. [online] The Times of India. Available at: https://timesofindia.indiatimes.com/business/india-business/plugging-lpg-subsidy-leaks-leads-to-rs-21000-crore-savings/articleshow/57022255.cms [Accessed 10 Sep. 2021].

PTI. 2019. *Aadhaar savings can fund 3 schemes of the size of Ayushman Bharat: Arun Jaitley*. [online] The Times of India. Available at:

https://timesofindia.indiatimes.com/business/india-business/aadhaar-savings-can-fund-3-schemes-of-the-size-of-ayushman-bharat-arun-jaitley/articleshow/67405519.cms [Accessed 20 Sep. 2021].

Pugliese, J., 2012. Biometrics: Bodies, technologies, biopolitics. Routledge.

Qureshi, S. 2020. Why data matters for development? Exploring data justice, microentrepreneurship, mobile money and financial inclusion. *Information Technology for Development*, 26(2), 201–213.

Rajagopal, A., 2001. *Politics after television: Hindu nationalism and the reshaping of the public in India*. Cambridge University Press.

Rao, U. 2013. 'Biometric Marginality: UID and the Shaping of Homeless Identities in the City.' *Economic & Political Weekly*. 48 (13): 71–77.

Rao, U & Nair, V. 2019 Aadhaar: Governing with Biometrics. *South Asia: Journal of South Asian Studies*, 42:3, 469-481.

Prasad, R.S. 2018. *Digital India comes of age: Under the Modi government it is giving rise to employment, entrepreneurship and em.* [online] Times of India Blog. Available at: https://timesofindia.indiatimes.com/blogs/toi-edit-page/digital-india-comes-of-age-under-the-modi-government-it-is-giving-rise-to-employment-entrepreneurship-and-empowerment/ [Accessed 10 Sep. 2021].

Rose, N. and Novas, C., 2005. Biological citizenship. *Global assemblages: Technology, politics, and ethics as anthropological problems*, pp.439-463.

Sa'di, A.H., 2012. Colonialism and surveillance. *Routledge handbook of surveillance studies*, pp.151-158.

Sengoopta, C., 2003. *Imprint of the Raj: How fingerprinting was born in colonial India*. Macmillan.

Singh, R. 2019. Give Me a Database and I Will Raise the Nation-state. *South Asia: Journal of South Asian Studies* 42(3):501–18.

Singha, R., 2000. Settle, mobilize, verify: identification practices in colonial India. *Studies in History*, *16*(2), pp.151-198.

Srinivasan, J., Bailur, S., Schoemaker, E., & Seshagiri, S. (2018). Privacy at the margins the poverty of privacy: Understanding privacy trade-offs from identity infrastructure users in India. *International Journal of Communication*, 12(20), 1228–1247.

Star, S.L., 1999. The ethnography of infrastructure. *American behavioral scientist*, 43(3), pp.377-391.

Silbey, S.S., 2005. After legal consciousness. *Annual Review of Law and Social Science.*, *1*, pp.323-368.

Mathur, S. 2021. *Aadhaar info must to seek social security code benefits*. [online] The Times of India. Available at: https://timesofindia.indiatimes.com/india/aadhaar-info-must-to-seek-social-security-code-benefits/articleshow/82422726.cms [Accessed 10 Sep. 2021].

Puri, T. 2015. Soon, passport authorities to verify applicant identity with Aadhaar database. [online] The Times of India. Available at: https://timesofindia.indiatimes.com/india/soonpassport-authorities-to-verify-applicant-identity-with-aadhaardatabase/articleshow/47115181.cms [Accessed 10 Sep. 2021].

Taylor, L., Sharma, G., Martin, A., & Jameson, S. (2020). What does the COVID-19 response mean for data justice? In *Data Justice and COVID-19: Global Perspectives*. Meatspace Press.

THE AADHAAR (TARGETED DELIVERY OF FINANCIAL AND OTHER SUBSIDIES, BENEFITS AND SERVICES) ACT, 2016

TNN (2010b). *Ranjana Sonawane is now a 12-digit no*. [online] The Times of India. Available at: https://timesofindia.indiatimes.com/india/ranjana-sonawane-is-now-a-12-digit-no-/articleshow/6654987.cms [Accessed 10 Sep. 2021].

Tsing, A.L., 2011. *Friction: An ethnography of global connection*. Princeton University Press.

Mahalingam, TV. 2015. *World won't achieve its development goals without India coming through: Bill Gates*. [online] The Economic Times. Available at: https://economictimes.indiatimes.com/opinion/interviews/world-wont-achieve-its-development-goals-without-india-coming-through-bill-gates/articleshow/49160201.cms [Accessed 10 Sep. 2021].

Unique Identification Authority of India | Government of India. (2010). *Vision & Mission - Unique Identification Authority of India* | *Government of India*. [online] Available at: https://uidai.gov.in/about-uidai/unique-identification-authority-of-india/vision-mission.html [Accessed 11 Sep. 2021].

Van der Ploeg, I., 2012. The body as data in the age of information. Kirstie Ball, Kevin & David Lyon (Eds.), *Routledge Handbook of Surveillance Studies*, pp.176-183.

Van Dijk, T.A., 2014. *Discourse and knowledge: A sociocognitive approach*. Cambridge University Press.

Williams, R. and Johnson, P., 2004. Circuits of surveillance. *Surveillance & society*, 2(1), p.1.

Wood, D., Konvitz, E. and Ball, K., 2003. The constant state of emergency? Surveillance after 9/11. *The Intensification of Surveillance: Crime, Terrorism and Warfare in the Information Age*, pp.137-50.

World Bank. (2013). *India's Massive I.D. Program Exemplifies "Science of Delivery."* [online] Available at: https://www.worldbank.org/en/news/feature/2013/05/02/India-8217-s-Massive-I-D-Program-Exemplifies-8216-Science-of-Delivery-8217? [Accessed 10 Sep. 2021].

World Bank. (2016). *World Development Report 2016: Digital Dividends*. [online] Available at: https://www.worldbank.org/en/publication/wdr2016 [Accessed 10 Sep. 2021]