DATA ETHICS OF POWER

A Human Approach in the Big Data and AI Era

Chapter 1

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CHAPTER 1
Big Data Sociotechnical Infrastructures (BDSTIs)

"Change: survive!" (John Mashey, 1999)

From 1967 to 2018, the Morandi Bridge ran as one of the main arteries through Genova, Italy, connecting the East to the West part of the city. The bridge's concrete construction was a global symbol of Italian engineering and technical capacity. In fact, Italy was in 2018 one of the top cement producers in the world and thousands of concrete viaducts, tunnels and bridges worldwide were based on the Italian design. As a key infrastructural component of the city, Morandi Bridge formed the silent background against which life and business were facilitated with thousands of people driving across it every day without giving the bridge and its construction an extra thought. However, on the 14th of August 2018, the heavily trafficked bridge collapsed, causing the death of 43 people and leaving 600 homeless. The bridge was at once no longer silent. With countless media reports and investigations, not only was the engineering history of the bridge told but also the very infrastructural breakdown was equated with the collapse of a 'national myth' (Mattioli, 2019).

Think of big data socio-technical infrastructures (BDSTIs) like the Morandi Bridge, or just any ordinary road and building that reside in a 'naturalised background' (Edwards, 2002, p. 185). We cross them, like we cross bridges and follow roads, every day. Unnoticed, they facilitate and organise our everyday lives. They constitute the micro spatial architecture of our everyday lives and they are embedded in macro societal structures. And just like the Morandi Bridge, these BDSTIs are not just appearance, digits and cables; they have politics and culture that become particularly apparent in moments of crisis and infrastructural breakdown (Star & Bowker, 2006; Bowker et al. 2010; Harvey et al., 2017).

In this chapter, we will examine the infrastructures of the Big Data Society with the double purpose picked up from Infrastructure Studies to know and make transparent a human environment, but crucially also to control it (Harvey et al., 2017, p. 2). The main objective is to understand the special power dynamics of the sociotechnical infrastructures that a data ethics of power addresses. I refer to these as BDSTIs, or AISTIs, and investigate how they have evolved as components of the power dynamics of the Information Society addressing specifically the conception of a European big data infrastructure. In the last part

of the chapter, we will look at the ethical problems that concern a data ethics of power specific to the Big Data Society, which is the term I have chosen to use to describe the specific characteristics of societies in which BDSTIs and AISTIs are dominant. We also explore the asymmetric experience of data power and examine the voice of a data ethics of power. Who has the power to raise issues, define problems, propose and create the solutions to the problems we are facing?

1. BIG DATA SOCIETY

What is a Big Data Society? Society's technologically advanced big data technologies and systems aside, how do we imagine the role of big data in a society like this? What social, economic and cultural functions should it have? If we consider the Big Data Society a coherent social structure, as a specific complex of powers with equally particular critical ethical problems, we also need to understand its social, economic and not least ideological underpinnings. Mayer-Schonberger and Cukier (2013) depict the Big Data Society as a societal revolution that transforms human work, social relations and the economy. This is a transformation enabled by computer technologies and dictated by a transformation of all things (and people) into data formats ('datafication', Mayer-Schonberger & Cukier, 2013, p.15) in order to 'quantify the world', thus helping businesses, governments and scientists organise and make sense of data (Ibid., p. 79).

This evolution of BDSTIs can be coupled with the imagination of big data as an unlimited resource that, unlike other resources in society (e.g., oil and water), will not diminish (Ibid., p. 101). In essence, we could therefore also argue that big data more than anything is also a movement behind which lies a system of imagining and making sense of the role of digitalised data in society (Mai, 2019, p. 111). The collection of big data is here perceived as an end in itself, holding the promise of future endless ways of use and reuse (Mayer-Schonberger & Cukier, 2013, p. 100).

Ideas about the risks and potentials of big data can be traced back to the late 1990s, when big data surfaced as a term in the computer science and business fields to describe a range of emerging technological innovations in digital data storage, exchange and analytics enabled by computer technologies and the evolution of the internet. It was first used by a chief scientist named John Mashey at Silicon Graphics, a large U.S. computer graphics company, in a number of product pitch talks depicting the great promise of big data, but also describing the commercial and technical challenge to meet this future potential (Lohr,

2013). For example, in 1999 he predicted how big data would unsettle both human and material IT infrastructures. The response was an urgent call for companies to 'Change: survive!' as one of his PowerPoint presentations with the title 'Big Data and the Next Wave of InfraStress' exclaimed in 1999, with reference to among others enhanced computer power to store and process data and the unleashing of data with scalable interconnect and high-performance networking (Mashey, 1999, p. 45).

In a big data movement limits and risks are mainly 'technical' in nature: limited storage, processing and analytical capacities. The most powerful companies and institutions are also those with a 'big data mindset', engaging in big data infrastructural practices, collecting big data, and processing and creating interoperable big data sets (Mayer-Schonberger & Cukier, 2013, p. 129). Success equals the ability to transgress the limits and borders that lock in valuable data. Data retained and data potentials locked in space are identified as the problems to solve. First the problems and their solutions are technical as in how do we store and collect data? How do we make sure that we have tools to make sense of it all? Then they become legal as in, is there a way to comply with a data protection law and still collect and process as much data as possible? Finally, they become human. How do we retrieve data beyond the limits of individual rights like privacy, beyond the human body, the mind, the human inexplainable nature? The limits and borders crossed with a big data movement in order to retrieve data are increasingly human and accordingly big data transform into a fundamentally human challenge.

BDSTIs are human-made space shaped by human imagination, compromise and domination of some interests over others. A driving force has here been the commercial and institutional fantasies about the potential of big data as an unlimited resource and the commercial and technical risks to companies and infrastructures that failed to store, collect and process it. BDSTIs as space is therefore also shaped by practices aimed at making the most of this potential while simultaneously mitigating identified challenges to this.

The Imagination and Politics of Space

Once there was unprocessed space. Or in a way there was. Hundreds of years ago, an untouched breath of land cut from the Rocky Mountains in the West of North America across to Illinois and Indiana in the East and extending from Canada in the North to Texas

in the South. About this land, which by the French first settlers was named the 'prairies' ('the grasslands'), the American poet Emily Dickinson in the mid 1800s dictated a small poem to a friend: 'To make a prairie it takes a clover and one bee, One clover, and a bee, And revery. The revery alone will do, If bees are few.' (Franklin, 1998) Even space untouched by human hands, she seemed to say could be captured and made meaningful by human imagination. In the 21st Century, nothing is left untouched, very little space is open and plain, but predominantly made out of human-made architecture – material and digital. Very rarely do we sit and ponder over open plains. We move through buildings, parks and playgrounds, among planted trees and bushes and digital networks invested with human interests, intentions and imagination. Yet, there are still plains left to explore. Imagination does not stop at the break of the horizon. As Rebecca Moore, Director of Google Earth, Google Earth Engine, and Google Earth Outreach said with great enthusiasm in 2015 'Just imagine the next generation, it's like a living breathing dashboard for the planet' (Eadicicco, April 15 2015).

In 1974, the Marxist philosopher and sociologist Henri Lefebvre defined space as an architecture that we can touch, feel and be bounded or liberated by with our bodies, but also with our social realities and minds. Space is, he argued, a composite of a material physical reality and social practice, or a type of space that does not exist without '…the energy that is deployed within it' (Lefebvre, 1974/1992, p. 13). He divided this social energy invested in space into three types: 'the perceived, the conceived, and the lived' (Lefebvre, 1974/1992, p. 39). In other words, we perceive space physically with our perception, and we feel space qua our positioned bodies; however, space is also *conceived* by, for example, urban planners, engineers and scientists and it is lived with imagination that seeks to 'change and appropriate' it (Lefebvre, 1974/1992, p. 31). In this way, he pointed to struggles over the meaning of space, delineating the power dynamics and politics that shape space as a real and imagined resource invested with specific interests. Generally, space is open for active 'occupation' by interests, and evidently our 'global space', was originally also nothing more than '…a void waiting to be filled, as a medium waiting to be colonized' (Lefebvre, 1974/1992, p. 125).

Space is not just what we see and feel materially. It consists of open plains and our imagination invested in these voids of space, and also its materialisation in human-made infrastructures. These infrastructures are in essence the navigational tools and architectonics of our everyday lives. They physically direct us in specific directions and limit us corporeally. One cannot walk through a wall or cross a border without showing a passport. Similarly,

the social or cultural dimensions of space can limit or create opportunities. I cannot cross any border with just any passport, and even if I manage to cross the first human border controller with my passport, I might be stopped at the next electronic border when my face is recognized and correlated with a face in the crowd of people in a public demonstration.

The very design of an infrastructure is an active process. We do not just fill in a void of open space with an infrastructure— 'we infrastructure' as the information and STS scholars Geoffrey C. Bowker and Susan Leigh Star calls it (Star, 1999, Star & Bowker, 2006, Bowker & Star, 2000). Practices of designing, repairing or even participating and navigating within infrastructures also implies actively participating in social power dynamics. Spatial infrastructures are the result of human controversy and negotiation, sometimes they even hold stories of violent and oppressive domination of one people and social group over another, as was for example the case of the infrastructural transformation of the North American prairies and the treatment of the indigenous Americans who originally lived and hunted on these plains. As sites of social negotiation and power struggles, infrastructures are invested with different imaginations and hopes regarding the social appropriation of space (Larkin, 2013). This also means that the development of spatial infrastructures has often produced social conflicts (Reeves, 2017). Langdon Winner (1980) famously used the low hanging overpasses that connect Long Island to the rest of New York as a case in point. They were specifically designed to prevent access to public buses that were used by the majority of black people, and thus, Long Island could mainly be accessed by middle or upper-class white people with private cars. In this way, one social group was prevented by infrastructural design from accessing the recreational areas of Long Island.

We can read infrastructures as 'narrative structures' of social power. An investigation of infrastructure should therefore, as Susan Leigh Star argues, always seek to restore these types of social narratives (Star, 1999, p. 377). Making the invisible factors of infrastructures visible by pulling the underlying (the 'infra') into the foreground also has a social function (Star, 1999; Bowker & Star, 2000; Bowker, 2010). It makes change possible and the hidden social consequences manageable (Bowker et al., 2010, p. 98). Nevertheless, as long as they run smoothly, these narratives of power are most often untold. A disruption, like the collapse of the Morandi Bridge, however will necessitate a more detailed explication of their inner working (Star, 1999).

To explore the infrastructural narrative of BDSTIs we can look at different incidents and moments where their integration in society were disrupted and their data power dynamics were exposed. In the early 21st Century BDSTIs were intrinsically intertwined with

organisational systems and practices (Ratner & Gad, 2019). They had evolved into sociotechnical infrastructures for the flows of global economies and societies, cutting across cultures and legal jurisdictions. BDSTIs were representing and constituting global societies and environments as the mundane background against which social practice, social networking, identity construction, economy, culture and politics were conducted. Yet in 2013, the Snowden revelations and the tirelessly journalistic efforts[i] that went into it of the U.S. National Security Agency (NSA)'s global mass surveillance system pulled the narrative of BDSTIs to the foreground of public debate and exposed it in all its complexity. It revealed a material and immaterial global infrastructure enabling the mass collection of the personal data of European citizens by a foreign intelligence service. The leaked PowerPoint presentations from U.S. intelligence officers detailing the PRISM program published in the Guardian (theGuardian, 2013) revealed how the mass surveillance intelligence system was intertwined with the largest global big data companies' social networking services. They also provided a detailed map of the world's (Europe, U.S. and Canada, Latin America and the Caribbean, Asia & Pacific, and Africa) flows of data and communication directed through nodes and hubs in the US. Phone calls, emails and chat would not take the most physically direct route, the PRISM slides showed, but rather the cheapest, which would go through the US. Data was collected through fibre cables and infrastructure as it flowed by, but also directly on the servers of the US-based companies servicing world users.

Following the Snowden revelations, the EU scrapped the legal framework for the data exchange infrastructure between the US and the EU market (the Safe Harbour agreement). They had revealed the core challenges of the global BDSTIs to traditional modes of territorial governance of world states and regions. In the years that followed after the revelations, news of a range of other cases of infrastructural 'disruptions' of the big data infrastructure emerged regularly from large data hacks and leaks of companies and institutions (for example, the Snapchat hack in 2013 or the Ashley Madison hack in 2015; list of breaches on Wikipedia, 2020) to the revelation of the complex data analytics used to influence electoral votes (Cadwalladr, 2017; Rosenbergh et al., 2018, theGuardian, 2018). The incidents all caused momentary or long-lasting disruptions to existing governmental and business BDSTI practices that had been imagined, conceived of and implemented since the 1990s. In particular, as I have argued elsewhere (Hasselbalch, 2019), due to this disruption and crisis of the BDSTIs, the big data imaginations and mindsets of the early digital developments were increasingly contested by alternative mindsets and imaginations about the conception and implementation of a European digital infrastructure.

The Narrative of a European Digital Infrastructure

In Europe, there is a space occupied by the imagination and interest of an EU project. It is a 'European Infrastructure' that enables the efficient workings of a union of collaborating member states. The EU was historically created after the Second World War as an economic collaboration between countries, which was manifested in the idea of a single market. It later evolved into a political union around areas such as foreign policy, migration and security. According to this political project, a European infrastructure's architectonics should facilitate first and foremost a European union of member states; that is, European citizens' free movement as well as the European single market's free movement of goods and services. Thus, in European policy-making 'infrastructure' is above all a term used to describe a system across Europe that enables cohesion and social and economic collaboration between member states. For example, the Trans-European Transport Network (TEN-T) policy was created with the objective '…to strengthen social, economic and territorial cohesion in the EU' (European Commission A, 2020) and concerns the implementation and development of a network of the EU's physical transport infrastructure, which in 2017 counted over 217,000 km of railways, 77,000 km of motorways, 42,000 km of inland waterways, 329 key seaports and 325 airports (European Commission B, 2020). The TEN-T network is part of a system of Trans-European Networks (TENs) that also covers energy and digital services. These programs are supported and implemented via the Connecting Europe Facility, which is a 30 billion Euro (in 2019) funding instrument in the form of grants, procurement and financial instruments with the stated aim to 'further integration of the European Single Market' (European Commission C, 2019, p. 6). The European infrastructure is here defined in terms of its political purpose to support an imagined European community. To *do infrastructure* in the EU is a strategic political endeavour from which has emerged infrastructural practices, such as engineering and design standards, construction, investment and regulation that produce space, or said in other words that constitute 'engineered' and 'intended' components of a 'European infrastructure'.

In the 2010s, an effort to extend the material infrastructure of the EU with a digital sociotechnical infrastructure was increasingly voiced in EU official strategies and materialised in infrastructural practices, such as dedicated policies and investments. The EU's Digital Agenda intersected policy areas and regulatory frameworks that traditionally were treated separately (Valtysson, 2017). The term infrastructure was here still only used

to describe the technical aspects of a digital infrastructure for the Single Market. However, although not described as such, the social and economic components of the European digital infrastructural architectonics gradually became a focal point of European policy and investment strategies.

In 2010, the Digital Agenda for Europe presented the 'Digital Single Market' as a new EU endeavour: 'It is time for a new single market to deliver the benefits of the digital era' (European Commission D, 2010, p. 7) The Digital Single Market aspiration was, among others, voiced as a response to a persistent fragmentation that was said to restrain Europe's competitiveness in a digital economy overshadowed by companies such as Google, eBay, Amazon, and Facebook that 'originate outside the EU' (European Commission D, 2010, p. 7). A wide spectrum of infrastructural practices were therefore envisioned in the agenda to create and sustain the competitive space of the Digital Single Market. Some were technical in nature, focused on 'interoperability' and the creation of technical standards, or the development of 'fast and ultra-fast internet access'. However, immaterial components were also described, such as ensuring the 'trust' of Europeans: 'the digital age is neither 'big brother' nor 'cyber wild west'' (European Commission D, 2010, p. 16).

Later in 2015, a Digital Single Market Strategy for Europe to further enable the Single Market's '…free movement of goods, persons, services and capital…' was published (European Commission E, 2015, p. 3). In his introduction to the strategy, the then-president of the European Commission Jean-Claude Juncker spelled out its foundational political purpose and imagining: 'I believe that we must make much better use of the great opportunities offered by digital technologies, which know no borders. To do so, we will need to have the courage to break down national silos in telecoms regulation, in copyright and data protection legislation, in the management of radio waves and in the application of competition law' (European Commission E, 2015, p. 2).

This was followed up with two communications published together in 2016 ('Digitising European Industry Reaping the full benefits of a Digital Single Market', European Commission F, 2016 and the 'European Cloud Initiative - Building a competitive data and knowledge economy in Europe'), that each emphasized the impact and role of big data and spelled out the contours of a European BDSTI. In the first communication, big data was described as the foundation of an industrial revolution, and a new focus on a data sharing cloud-based infrastructure for scientists and engineers in the EU also took form (European Commission, F, 2016 p. 2). It outlined concrete infrastructural practices to develop a data infrastructure in terms of investment, policy and coordination. In the second of the two 2016

communications, a concrete infrastructural initiative to support the development of a 'European Cloud' with an emphasis on a 'European Data Infrastructure' (European Commission, F, 2016, p. 8-10) was presented, and the BDSTI was specifically framed as a promise to strengthen a data and knowledge economy in Europe and use the potential of big data. It was first and foremost described as a data-sharing system consisting of different technical components: 'the data infrastructures which store and manage data; the high-bandwidth networks which transport data; and the ever more powerful computers which can be used to process the data' (European Commission, F, 2016, p. 2). However, the European Cloud was not just a technical data infrastructure and organisation; it was also envisioned to facilitate the potential of big data by making 'it possible to move, share and re-use data seamlessly across global markets and borders, and among institutions and research disciplines' (European Commission, F, 2016, p. 2).

Following these first depictions of a European data infrastructure, however, the aspiration to become a European Digital Single Market and data infrastructure competitor in a global market on similar terms as big data companies gradually transformed into an aspiration to make this European data infrastructure and Digital Single Market a key differentiator in a global competitive digital market. The aspirations to compete in a global big data economy while preserving and protecting Europeans' fundamental rights were soon reconciled in what was also referred to as the European 'third way' which I will describe in more detail in chapter 4.

Like so, in 2020 a general 'European data strategy' was proposed with reference to a society 'empowered by data' and recognizing the role of data in society: 'Data will reshape the way we produce, consume and live. Benefits will be felt in every single aspect of our lives, ranging from more conscious energy consumption and product, material and food traceability, to healthier lives and better health-care' (European Commission, H, 2020, p.2) Concrete infrastructural practices were outlined, such as investment and policies supporting the development of practitioner and user competences, European science and research, technical data structures and data pooling as well as the development and possible implementation of legal frameworks. To ensure the development of the European BDSTI.

Data Ethics in European Public Policymaking

At a public debate in 2017 the European parliamentarian Sophia IN't Velt said: 'I'm pretty convinced that the ethical dimension of data protection and privacy protection is going to become a lot more important in the years to come'). She was talking about the policy debates in Europe on digital data and data protection regulation that were going on at the same time as policies on the development of a 'European' BDSTI were gaining a foothold. You can discuss legal data protection, she claimed, but then there is 'a kind of narrow grey area where you have to make an ethical consideration and you say what is more important' (in 't Veld, 2017). Policy debates on the ethics of technological developments have been ongoing in Europe in general since the 1990s with the aim to harmonise national laws and approaches with an emphasis on 'European values'. The Council of Europe's 'Oviedo Convention' was for example motivated by what Wachter (1997, p. 14) describes as '[t]he feeling that the traditional values of Europe were threatened by rapid and revolutionary developments in biology and medicine'. The weight on *data* ethics, however, gained momentum in pan-European politics in the final years of the negotiation of the EU's General Data Protection legal reform. As the European Data Protection Supervisor (EDPS) Digital Ethics Advisory Group (2018, p. 5) described it in one report, their work was being carried out against the backdrop of 'a growing interest in ethical issues, both in the public and the private spheres and the imminent entry into force of the general data protection regulation (GDPR) in May 2018'. What had happened? How did this need to discuss and reflect on the ethical implications of data develop?

Throughout the early 2000s, the data protection field was transforming in the context of global information technology infrastructures; and new powers and interests in the data of these increasingly social technical infrastructures were invested in the data collected, transferred and processed. This was particularly evident during the years in which the GDPR was negotiated. Described as one of the most lobbied EU regulations (Warman, 8 February 2012), it was taking shape in the context of competing interests of economic entities, EU institutions, civil society organisations, businesses and third country national interests.

As I have described elsewhere (Hasselbalch, 2019), in the years following the first communication of the reform, data protection debates increasingly also included a reference to 'data ethics' in meeting agendas, debates in public policy settings and reports and

guidelines. And after the adoption of the GDPR in 2016, the list of European member states or institutions with established data or digital ethics initiatives and objectives grew rapidly. Examples included the UK government's announcement of a £9 million Centre for Data Ethics and Innovation with the stated aim to 'advise government and regulators on the implications of new data-driven technologies, including AI' (UK Government, Digital Charter, 2018). The Danish government appointed a data ethics expert committee that I became a member of in March 2018 with a direct economic incentive to create data ethics recommendations to Danish industry and to turn responsible data sharing into a competitive advantage for the country (Danish Business Authority, 12 March 2018). Several member states' existing and newly established expert and advisory groups and committees began to include 'ethics' objectives in their work. For example, the Italian government established an AI Task Force in April 2017 publishing its first white paper in 2018 (AI Task Force/Italy, 2018) with an explicit section on ethics.

In an interview I conducted at the Internet Governance Forum (IGF) in 2017, a Dutch parliamentarian described how in 2013, policy-makers in her country were reacting to the digital transformations' impact on society that they perceived as going 'very wrong' (Interview, IGF 2017, Hasselbalch, 2019). She had already then proposed the establishment of a national commission to consider the ethical implications of the digital society. As she told me '…we need people to think about what to do about all of this, not in the sense you know, "I don't want it", but more in the sense are there boundaries? Do we have to set the limits to all of these possibilities that will occur in the coming years?'

When reviewing different descriptions of official public policy data ethics initiatives, I noticed how data ethics was referred to as a means to make sense of emerging problems and challenges and to evaluate various policies and solutions. Data ethics emerged in spaces of negotiation as ways of making sense in areas in which laws and established norms either did not seem to provide a clear answer or where the state of affairs was challenged by socio-technical changes. For example, a report from EDPS from 2015 states: 'In today's digital environment, adherence to the law is not enough; we have to consider the ethical dimension of data processing' (p. 4). It continues by describing how different EU law principles (such as data minimisation and the concepts of sensitive personal data and consent) are challenged by big data business models and methods. Depictions like these highlighted the uncertainties and questions that the new data infrastructures had created. European policymakers began to see digital data processes as meaningful components of social power dynamics. Information society policy-making thus was also increasingly an issue of the distribution of

resources and of social and economic power, as the then EU Competition Commissioner Margrethe Vestager stated at a DataEthics.eu event on data as power in Copenhagen in 2016: 'I'm very glad to have the chance to talk with you about how we can deal with the power that data can give' (Vestager, 9 September 2016).[ii]

Power in the Information Society

In the early 21st Century, the 'Information Society' was an established term and forceful strategic global policy focus. Most notably, this political agenda gained footing during the UN World Summit on the Information Society (WSIS). In 2003, the first summit was held in Tunis with the stated aim of gathering momentum and taking concrete political steps to establish the foundations for an inclusive Information Society and '...reflecting all the different interests at stake' (World Summit on the Information Society, 2013). Based on a sense of urgency and realisation that an ongoing digital revolution was transforming society as we know it, governments from around the world gathered at one of the UN's first multistakeholder fora to create a political agenda with the aim of tackling the societal, economic and cultural implications of a rapidly developing sociotechnical Information Society.

Something was disturbing the natural 'state of affairs' and lingering was the feeling of a changing world, symbolic and material borders disintegrating, and the changes necessary in modes of governance. The global policy environment saw this transformation of things and invested in it, and different authors have also at length depicted the particularities of a society based on 'information'. Frank Webster (2014) describes these preoccupations with the Information Society as a prioritisation of information. Albeit the different views on what this prioritisation of information means, and what role information plays in societies, it is fundamentally, he argues, a way of conceiving something new and different about contemporary societies (Webster, 2014, p. 8). He examines the literature that portrays the information society and finds five definitions, not necessarily mutually exclusive, but each emphasising different aspects of the new role that information is envisaged to play in society. Technological definitions are concerned with the evolution of specific 'new technologies' in society, such as the computer and IT technologies in general. Economic definitions focus on the economic value of informational activities, whereas occupational definitions track an increase in informational work. Spatial definitions examine the role of information networks in reshaping space and time, and cultural definitions of the Information Society look at the

increasingly media-laden society and technological information environment (Webster, 2014, p. 10-23).

Here, I want to introduce a different perspective on the particularities of the Information Society. Rather than a prioritisation of information, we may consider all of these different definitions of what constitutes the Information Society horizontally in terms of a redistribution of power facilitated within new technologically mediated configurations of space and time, or what I refer to as BDSTIs and AISTIs. Thus, I explore the technological evolution of space for not just the exchange of information, but also as an architecture for global systems of power.

Initially, technological developments expanded our experience of space (Kern, 1983). With the telephone, one could for example be in two different places simultaneously. Later, with the introduction of the wireless this simultaneity of experience was expanded to an instant sense of the whole world.

In the early 21st Century- not many decades after Lefebvre's 1974 description of an occupied global space of commercial images, signs and objects - the digital evolution of a global geographical space was complete. The Google Maps service, for example, had transformed space into a digital data infrastructure with satellite imagery, aerial photography, street maps, and 360° panoramic views of streets combined with real-time traffic conditions and route planning.

Looking at the digital geographical evolution, which Google maps is representative of, sociology scholar Francesco Lapenta (2011) coined the term 'Geomedia' to describe emerging location-based services like Google Maps and Earth's merging of geographical space, virtual space and the local experiences of users based on big data and information exchanges. He describes these as mediating spaces that function as 'new organisational and regulatory systems' articulating and organising social interactions (Lapenta, 2011, p.21). They are used by individuals as social navigation tools that can help reduce the complexity of global information systems to manageable and socially relevant information exchanges (Lapenta, 2011, p. 21). Geomedia is an example of technologies that in the 21st Century Information Society were transforming the body, social and individual experiences, physical space and location into interoperable digital data, blurring their lines of separation when integrated into the designed spatial architectures of a virtual infrastructure. As such, not only our experience of space transforms, but Geomedia, as Lapenta argues, also regulate social behaviour and interpersonal communications as well as coordinate social interactions. As Communications scholar Joshua Meyrowitz (1985) described it in his momentous book *No*

Sense of Place our emerging electronic global and local information realities have real qualities that shape our social and physical realities. 'Information systems' modify our physical settings via new types of access to information, restructuring our social relations by transforming situations.

The Marxist cultural geographer David Harvey uses the term 'time-space compression' (Harvey, 1990) to describe the transformation of the human experience and thus representations of time and space in an increasingly globalised world. The annihilation of 'space through time' (Harvey, 1990, p. 241) is a reduction of distances between places in terms of travel time and costs. A shrinking world map represents a concrete transformation of the very objective qualities of time and space. Harvey argues that space is conquered by humans through processes of 'producing space', of occupying and settling in space, and that these occupations of space are legitimised by specific legal systems that stipulate the different rights we have to the spaces we navigate in society. In this way, space also constitutes the internal and external spatial borders of a society. They are spaces occupied by human ideas that frame social processes and practices (Harvey, 1990, p. 258). Therefore, the transformation of time and space also has the function of maintaining power as it imposes the structure for social practices representing the forces of power in a given society. Harvey sees 'time–space compression' and a shrinking world map as not just consequences of technological developments per se, but also importantly as an expression of the embedded interests of the expansion of capitalism and industrialisation in the 19th Century. Hence, while a 17th Century space was occupied with human ideas about a 'better society' and accordingly focused on a rational ordering of space and time to develop a society that guaranteed individual liberties and human welfare, 'time–space compression' is, he argues, mainly created for the operations of capital and therefore designed for instantaneity, ephemerality, fragmentation, volatility and disposability (Harvey, 1990, 286- 307).

We can use Harvey's idea of a 'space' that is open for 'active occupation' by different ideas and interests to consider the infrastructural practices that actively contribute to the material and immaterial shape, form, direction and orientation of power. This type of occupation works in a space of imagination and symbolic practices of power, and it works in very concrete terms as a property of the material space we design and create for ourselves in society. In this way, we can also say that in the early 21st Century our space had a very material form of power with global and local architectonics that had been imagined within specific business and political mindsets and ideas about the role, the opportunities and challenges of information technologies.

The IT revolution was a major historical event comparable to the 18th Century's Industrial Revolution, argues another scholar of the information society, Manuel Castells (2010). 'The Network Society' he describes in terms of 'space of flows' (of capital, information and technology, organisational interaction, images, sounds, and symbols) that work as the material form of power. It is a type of society in which dominant societal functions are organised around networks (Castells, 2010, p. 407-459) and this very architecture of flows constitute the transformation of power (Castells, 2010, p. 445).

There are three layers to the 'space of flows'. The first layer Castells refers to as the 'material support' constituted by a 'circuit of electronic exchanges' in a global technological information network (Castells, 2010, p. 442), which also forms the foundation of an acceleration of the moment of people and goods. The second layer is constituted by 'nodes and hubs' (Castells, 2010, p. 443). The networks that enable the spaces of flows are not 'placeless', but rather organised around electronically linked up 'places' with 'well-defined social, cultural, physical functional characteristics.' (Castells, 2010, p. 443). They have specific functions such as exchange or communication 'hubs', or as the 'nodes' where strategically significant functions are located in positions with different constantly evolving hierarchies between them. The third material layer of the space of flows involves the spatial organisation and form created for dominant 'managerial elites' and takes point of departure in the general notion that a society is 'asymmetrically organised around the dominant interests specific to each social structure' (Castells, 2010, p. 445).

The three-layered 'architecture' constitutes the foundation for an ongoing transformation of society, and it is in its very design that we may read '...the deeper tendencies of society, of those that could not be openly declared but yet were strong enough to be cast in stone, in concrete, in steel, in glass, and in the visual perception of the human beings who were to dwell, deal, or worship in such forms.' (Castells, 2010, p. 448).

In Castell's depiction, societal power is concentrated in the very information architecture of technological networks. It is no longer fixed in places but distributed in the design of infrastructures of information flows '... the power of flows takes precedence over the flows of power' (Castells, 2010, p. 500). Thus, to be connected or disconnected from the space of flows is the first step towards being empowered in the network society, while the second is to actively participate in the design and shaping of its global infrastructure.

2. ETHICS IN THE SURVEILLANCE SOCIETY

Power transforms in the networks and flows that comprise the architecture of the Information Society. Politics and narratives about big data are invested in the very construction of the infrastructures that facilitate the particular shape of sociotechnical power of a Big Data Society.

BDSTIs is a form of power integrated in our spatial architectures. They are not liberating spaces in which human life flourishes. Most often they sustain the power of powerful actors in society while putting others at a disadvantage, and they are difficult to resist and change particularly due to the very design of their data infrastructures, which track and monitor personal data by default and restrict citizens' liberty and agency. In other words, the acceleration and integration of – what I have referred to elsewhere as 'Destiny machines' (Hasselbalch, 2015) – in ordinary state and business practices, have resulted in a complex and advanced societal machinery of data power that leads, guides and defines human lives. A data ethics of power addresses the ethical challenges of these particular structures of power.

Destiny machines are technological systems and processes designed to predict human behaviour based on the accumulation of personal data and then act on these predictions. Every day humans interact with these big data 'machines' designed to predict human behaviour by tracking, scrutinizing and analysing a recorded and stored data past and present of the 'data doubles' of humans (Haggerty & Ericson, 2000). In this way, human lives are framed and pointed in specific directions. Destiny machines can also be described as machines specifically designed to produce machine-readable people and shell out destinies on the other side of the production line. In fact, they produce, create, act on and define destinies. We might even say that fate is what Destiny Machines produce. This is what is being innovated with; it is part of an actual machinery and can literally be sold and traded with (Hasselbalch, 2015). Within this machinery, human lives are made 'programmable '(Frischmann and Sellinger, 2018) and meaningful only within the sorting structures of inclusion or exclusion of the surveillance assemblage (Lyon, 2010).

In fact, the Destiny Machine does not need the human life and body; it is fundamentally indifferent to the individual human being as only our 'data doubles' are meaningful within its surveillance assemblage. Or, said another way, it only has an interest in the 'data derivatives' (Amoore, 2011) of the 'data double'. As Louise Amoore describes, it is 'not

centred on who we are, nor even on what our data say about us, but on what can be imagined and inferred about who we might be – on our very proclivities and potentialities.' (Amoore, 2011, p. 24).

It is what the sociologist David Lyon refers to as the 'Surveillance Society' (Lyon, 2001, 1994), or more specifically a 'Liquid Surveillance Society' (Lyon, 2010, Bauman & Lyon, 2013), sustained by socio-technical 'data flows' (Lyon, 2010, p. 325). 'Liquid surveillance' has a different shape than the form of surveillance that Jeremy Bentham famously outlined in his description of the Panopticon prison (1787) and Michel Foucault's Panopticism (Foucault, 1975/2018), which is centrally integrated in the spatial architecture of society and enforced as a type of aware self-discipline. It does not come from a centralised visible above ('sur'), or middle (Bauman & Lyon, 2013), but is embedded in digital infrastructures, networked, distributed and sustained by increasingly greater distances between the ones that watch and those being watched (Galic et al., 2017). Opaque and bottom up, liquid surveillance is invisibly intertwined with individuals' lives, and therefore, it is also inscrutable and generally difficult to address (Lyon, 2010). Notably, surveillance is not exceptional, but a condition of experience and human life in the Surveillance Society. It is a culture (Lyon, 2018) based on 'dataveillance', a systematic monitoring, tracking and analysis of personal data systems (Bauman & Lyon, 2013; Clarke, 2018, Christl & Spiekerman, 2016). Taking form as an 'assemblage', it abstracts the human body from a digital 'data double', which can be scrutinized and used for purposes of control by governments or can be sold for profit in commercial interchanges (Haggerty & Ericson, 2000).

Transformation of the actors of power in the Surveillance Society also means widening the attention of ethical scrutiny from a focus on the more conventional arbitrary surveillance powers of states to the commercial stakeholders that gain power through accumulation, tracking and access to big data. Surveillance is a 'surveillance-industrial complex' in which it is the very sociotechnical interrelation between state and private sector actors that makes surveillance possible (Hayes, 2012). Our private lives become part of a public space prone to intelligence gathering activities often legally possible, but ethically problematic (Røn & Søe, 2019). This change in power dynamics is a core ethical problem as it is based on an increasing information asymmetry between individuals/citizens and the powers of the big data companies that collect and process data in digital networks (Pasquale, 2015; Hasselbalch & Tranberg, 2016; Powles, 2015–2018; Zuboff, 5 March 2016, 9 September 2014, 2019). As Tranberg and I illustrated in our book (2016): '…the biggest risk lies in the

unequal balance of power that the opaque data market creates between individuals and corporations.' (Hasselbalch & Tranberg, 2016, p. 161).

Shoshana Zuboff (2019) describes 'Surveillance Capitalism' as an accumulation of a capitalist logic that commodifies human psychology and experience to satisfy market forces and commercial aims of tech giants. Her work on 'Surveillance Capitalism' raised public attention in the late 2010s to the role of named powerful Silicon Valley industrial actors, such as Google and Facebook. Her main concern is the way in which these new commercial forms of digital surveillance reshape the institutional structure of modern democracies, and she describes this form of power in very concrete terms:

'Two men at Google who do not enjoy the legitimacy of the vote, democratic oversight, or the demands of shareholder governance exercise control over the organization and presentation of the world's information. One man at Facebook who does not enjoy the legitimacy of the vote, democratic oversight, or the demands of shareholder governance exercises control over an increasingly universal means of social connection along with the information concealed in its networks.' (Zuboff, 2019, p. 127).

Big Data Ethics

An urgent call for data ethical action on the power of big data and algorithms takes form in critical studies of contemporary socio-technical structures of surveillance and power. Lyon emphasises the urgency of developing an 'ethics of surveillance' (Lyon, 2010, p. 333), or what he in conversation with Zygmunt Bauman also refers to as 'surveillance ethics', to address the 'political realities of surveillance' (Bauman & Lyon, 2013, p. 20). They identify two major issues addressed by an ethics as such: one they refer to with Bauman's term 'adiaphorization' (Bauman, 1995), where morality is abstracted from the very systems and processes of surveillance, while the other is the distance created between the human being and the consequences of their actions (Bauman & Lyon, 2013, p. 7). It is a very practical applied data ethics, an 'ethics of Big Data practices' (Lyon, 2014, p. 10) aimed at renegotiating what is increasingly exposed to be an unequal distribution of power between individuals and the institutions that develop BDSTIs. As Lyon later states with direct reference to the 2013 Snowden revelations:

'We need ethical tools for assessing surveillance, a broadened sense of why privacy matters and ways of translating these into political goals. And it is essential that we do this with a clear sense of what kind of world we are working towards. How do we get a sense of what a better world would look like?' (Lyon, 2014)

Studies of the surveillance architecture of the Surveillance Society purposely seek to disclose new constellations of power in sociotechnical assemblages and to hold those in power accountable. Eric Stoddart, argues that surveillance studies as a discourse of disclosure constitutes a method of ethical enquiry (Stoddart, 2012, p. 369). Here he considers two strands of approaches that ethically evaluate surveillance. The first is a 'discursive-disclosive' approach that seeks 'to disclose what is being done and the possibilities that might be available for alternative actions' (Stoddart, 2012, p. 372). He refers to a type of Foucauldian ethics in which ethical inquiries address practices of surveillance, rather than only processes, and as such he emphasises ethics as a process of liberating reflection. As he describes it, 'A discursive approach discloses to both us and others what we did not previously know about our situations, the conditions under which we have been living and working and how we might be being exploited...' (Stoddart, 2012, p. 372).

The second approach is what he refers to as a 'rights- based' approach with reference to a body of human rights work that demands 'accountability of those with the power to watch' (Stoddart, 2012, p. 369). We can here think of the new power actors of a 'platform economy' shaped by the large digital technology platforms of the 21st Century that transform the structure for and accordingly adequacy of traditional modes of individual rights protection (Belli & Zingales, 2017; Wagner et al., 2019; Franklin, 2019; Jørgensen, 2019).

Along these lines, legal scholars Neil M. Richards and Jonathan King (2014) suggest a more inclusive rights-based analysis based on a 'big data ethics' (Richards & King, 2014, p. 393) that points to the ethical implications of the empowerment of institutions that possess big data capabilities at the expense of 'individual identity' (Richards & King, 2014, p. 395). In this way when addressing the distributed power relations of the Big Data Society as a condition for the implementation of the right to privacy, for example, we may also better understand privacy as 'contextual' (Nissenbaum, 2010), effected and created in groups (Mittelstadt, 2017), and therefore a collective rather than only individual responsibility (Tisne, 2020).

I draw the very material of a data ethics of power from these depictions of the surveillance properties of a sociotechnical data-infused environment. The spatial architecture of

BDSTIs, and also AISTIs, is by design sustaining asymmetries of power, but they are not just reinforcing existing power dynamics—they are also creating new structures and actors of power. Commercial actors gain power with the accumulation of data and data design made for purposes of profit and/or control challenging traditional state power.

A data ethics of power addresses this new natural state of power in the Big Data Society and calls for an alternative design and implementation of data systems; but more importantly it desires different data cultures (a term I return to in the second part of the book). Here, 'surveillance capitalism' (Zuboff, 2019) incapsulates the role and power structures of capital and commercial actors very well. Yet, this idea does not capture the 'liquidity' (Baumann, 2000; Bauman & Haugard, 2008; Lyon, 2010; Bauman & Lyon, 2013, Castells, 2010) of the power structures and cultures of a Big Data Society, which is what a data ethics of power needs to address. That is, a power that is indeed concentrated and engineered by a few power actors, yet also increasingly self-sustained, re-engineered and evolving in (surveillance) cultures (Lyon, 2018) of use, design, governance and imagination, and therefore difficult – but not impossible – to change. I propose that it is exactly this 'liquidity' of power that necessitates a holistic data ethical governance approach to the Big Data Society.

The Asymmetric Experience of Data Power

During the COVID19 pandemic, online global data maps, such as the John Hopkins University COVID19-Dashboard, monitored and categorised regions in red zones of deaths and disease. Concurrently, the heterogeneous patterns of the erratic movements of the deadly virus materialised in experiences of segregation and exclusion of 'red zone' populations or communities' with sudden imposed social controls, and even discrimination and abuse (Xu et al., 2021).

In the 21st Century, all lives are part of a global surveillance assemblage and consequently the experience of risk of sudden subjugation to power, is also a shared human experience. The ephemeral and volatile nature of the digital means that we are all exposed and all at risk. Yet, the direct experience of social structural data power as a constant and certainty is not new and far from homogeneous (Lyon, 2007, Browne, 2015).

'Surveillance is nothing new to black folks' (Browne, 2015, p. 10), as Simone Browne, puts it, when describing the experience of surveillance of African American people that

throughout history have been subjugated to acts of surveillance, violent branding and control:

'… rather than seeing surveillance as something inaugurated by new technologies, such as automated facial recognition or unmanned autonomous vehicles (or drones), to see it as ongoing is to insist that we factor in how racism and antiblackness undergird and sustain the intersecting surveillances of our present order.' (Browne, 2015, p. 8).

Existing historically rooted inequalities are replicated in data systems of power. Powerful tools are used by powerful actors, and already exposed and vulnerable communities continue to be the objects of systems of arbitrary power. They do not become the 'managerial elite' (Castells, 2010). They might be hired in the machinery as low paid labour as content moderators under harsh working conditions (Chen, 23rd October 2014) and to provide their data resources and attention (Advocates for Accessibility, May 3rd 2020). Yet, rarely are they the subjects of digital empowerment. And, as I will also argue at the end of this chapter, seldom do they have a voice when solutions and governance are proposed and developed.

On a global scale, countries and regions are divided between the 'information rich' and 'information poor'. Many developing countries did not experience the digital information revolution of their economies and societies. Instead, their populations gained access to the scraped version of the internet, FreeBasics, offered by Facebook in exchange for intensive collection of their data (Advocates for Accessibility, May 3rd 2020). Once again, being 'rich' or 'poor', will generally determine your level of exposure to and experience of arbitrary powers. As Virginia Eubanks has illustrated, automated decision-making in the social welfare provision in the US is a sophisticated evolution of the nineteenth-Century poor houses (Eubanks, 2018). Examples of data power and discriminatory treatment of people with socially challenging demographics are to be found everywhere. In 2020 in the UK, an algorithm that weighted in a schools' historical performance when grading individual students, caused the grades of students from large public schools to plummet, while the grades of students from smaller fee-paid private schools increased (Hern, 21st of August 2020). In the Netherlands it turned out that the fraud detection system SyRi used by government agencies was predominantly applied in low-income neighbourhoods (AlgorithmWatch, 2020).

Today we all have a digital 'data double' (Haggerty & Ericson, 2000) abstracted from the human body that can potentially be used for purposes of scrutiny and control by governments, sold for profit in commercial interchanges and also targeted by direct acts of

digital violence and abuse. Though the direct experience of 'data violence' (Bartoletti, 2020) is in practice generally not shared. The Danish woman, Emma Holten, describes her experience of having intimate images shared online without her consent and the brutal response from countless men in the years following as a vicious form of 'objectification' (Holten, September 1st 2014). Online revenge porn and aggressive exposure of one's intimate life is predominantly a female fear and experience. Other direct experiences of data oppression are bound to one's ethnic heritage; the experience of disempowerment of African Americans represented online as 'dead', 'dying' or 'detained' (Noble, 2018), 'sexual' (Noble, 2018), 'criminal' (Sweeney, 2013); or similarly people with specific ethnic biomarkers defined as less beautiful (Levin, September 8th, 2016). These are everyday experiences to some people.

While surveillance technologies per se are frowned upon in a Western context as a challenge to the exercise of democratic citizen rights, there are always accepted exceptions that allow their design and application in order to manage particular risks and solve social problems. When a society defines a specific group or community of people as a 'problem' to be solved, for example, data technology and systems will be designed to target this problem in an as sophisticated manner as we allow it to be. Biometric identification technologies and systems are no exception to this rule. In Europe, entire communities of 'third country nationals' or 'stateless' people ('refugees' and 'migrants') have been identified as constituting a European 'migrant crisis' and an extensive migration and border management system has been put in place. Thus, for example, when asylum seekers or migrants crosses a border, their fingerprints are collected in a specifically designed EURODAC database for 'unauthorised' accesses to a country. In addition, in visa, citizenship applications and migration procedures, including asylum procedures, a centralised system for the exchange of criminal conviction data on third country nationals and stateless persons, the ECRIS-TCN system, is in place. The ECRIS-TCN will for example allow for the processing of fingerprint data for the purpose of identification. At the time of writing the expectation was that also facial images would become part of the EURODAC database and the ECRIS TCN system for identification purposes with the use of facial recognition technology. (Wahl, 10th September, 2019). A regulatory proposal in 2020 even proposed the lowering of the age for biometric data collection in EURODAC from children of 14 years of age to 6 years (Marcu, 29th April, 2021). While data power is increasingly externalised, disinterested and sophisticated, the very power dynamics have not changed. We might all live in liquid forms of surveillance, but we do not all experience the reality of it.

Does Data Ethics Have a Voice?

In 2020 the Netflix documentary *The Social Dilemma* cast light on the ethical implications of big technology companies in our everyday lives reaching a new audience on one of the world's most popular online streaming services. An important critique, though the problems identified appeared strangely new and surprising in the film. It was a story told by only North American characters, and with a predominantly white male voice in a 'damage control' mode. The silence of the people most exposed to data power was glaring. The silence of a global civil society movement was equally so. The film did not feature the key agents of change from regions and cultures all over the world that had worked for decades on the disclosure, the alternatives, the law and the awareness of the arbitrary global data powers of the big tech companies.

A data ethics of power is not only about power, it *is* power. The power to raise issues, define problems, propose and create the solutions to the problems. The empowerment to reject the objectification of the digital surveillance assemblage and raise one's voice against it as a subject. Yet, rarely do we hear the voices of the people who are subjugated to data power when solutions are proposed (Levin, 29th March 2019). The engineer in command of the 'solution' to the 'ethical problem' in the engine room in the *Social Dilemma* is the white male actor, Vincent Kartheiser, in a white suit with a fluent North American accent.

When examining some of the personal accounts of people with particularly brutal experiences of data power, I found that core to the experience of abuse was a feeling of disempowerment, the inability to speak and act against power. As Emma Holten says in her description of her experience with the spreading of her intimate images online:

'To use women as sex objects for one's own pleasure, **without her having anything to say about it**, is everyday life online' (my translation and emphasis) (Holten, September 1st 2014).

The UK student, Laura Hodgson, that had received lower grades than she expected and deserved, because of an algorithm that weighted in the historical performance of her public school, formulated her sense of disempowerment in a letter to her government accordingly:

'I write to you as a A-level student who has just received their results. I am devastated and upset by the results I have been given as the result of a system that was forced upon me.

I had no say in any of this, yet I am expected to just live with these unfair grades.' (My emphasis, Gill, 13th August 2020).

Not only does the inability to speak up constitute a feeling of disempowerment, it is also often associated with fear of escalation of power and abuse, as it comes with a cost to speak up from a vulnerable position. As the black American man, Robert Williams, who was arrested by the police due to an incorrect match between his face and another black man's face by a facial recognition system, writes in an op ed:

'As any other person would be, I was angry that this was happening to me. As any other black man would be, **I had to consider what could happen if I asked too many questions or displayed my anger openly** — even though I knew I had done nothing wrong.' (My emphasis, Williams, June 24 2020)

This is also evident in politics. Being a highly visible female politician also means being more frequently targeted by 'uncivil messages' online (Rheault et al, 2019).

Thus, a data ethics of power does not only have a voice, it is also a silence that can be heard only if we choose to look for it and include it in spaces of negotiation. And if we do listen, we will find that these experienced voices come with incredibly valuable and nuanced solutions and approaches. Three years after her experience with online abuse, Emma Holten, decided to reappropriate her body and created what she calls: 'A new story about my body'. With a new set of photographs that she shared online she gave her naked female body a personal voice as a subject in control (Bødker, September 1st 2014). At that time, risks to online privacy were in the European internet governance debate identified mainly in the abstract as a threat to markets and democracy and solutions were carried forward loudly and even at times aggressively as questions of mostly technical design and legal requirements. Emma Holten's voice came into this debate as an alternative voice leaving a powerful mark based on her experience of abuse and discrimination as a woman online. My point is here that we see nuances, we restate our problems and find new solutions, when social and personal experiences are voiced. For example, the technical is essential in a discourse on the way in which privacy is challenged in the context of online socio-technical infrastructures. It will consider 'stack-issues', 'application-requirements', 'decentralised' technical infrastructures, 'asymmetric upgrade' and 'privacy biometrics' as solutions to macro power imbalances in democracies and markets. However, often the 'technical debate' seems to be disinterested in the very cultural experiences of abuse and thus in the nuances of the complex socio-technical processes necessary to effect change.

The change necessary to counter the violent and oppressive effects of intensive data collection and processing in terms of loss of opportunities, discrimination and skewed cultural representation comes with the lived experience of being targeted and outside. It is a voice that is most often not the loudest one. A voice that knows abuse but does not necessarily understand the very technicalities of the abuse - the data design of it, the data analytics behind – because it didn't have a voice in its design. It is a voice that is regaining power by reappropriating the debate and the abuse on its own terms. Often it does not speak in a language that the West understands, or it comes with a broken accent, and with a plethora of experiences from multiple regions worldwide. Importantly, it is a voice that does not accept without question highly technical solutions to the complex problems and implications of big data and AI systems. Because data abuse is not a technicality. Data power and abuse are social, cultural, historical and not the least personal experiences.

In the next chapter I will look at 'data ethical governance'. Core to this concept, is the constitution of a critical space of value negotiation characterised by the inclusion of multiple actors in governance processes. Importantly, the foundation of data ethical governance is an awareness of the very conditions of power between different stakeholders. Thus, inclusion of stakeholders is not a straightforward process. For example, I used to work for years with the inclusion and empowerment of young people in the internet governance public policy debate where I learned that just adding young people in a policy panel debate rarely made much of a difference. On the other hand, in the workshops and the focus group surveys I did with young people, they could speak openly and freely among their peers, and I would receive valuable input for the internet governance policy processes, I was engaged in (see e.g. Hasselbalch & Jørgensen, 2015). The conditions we create in governance spaces of negotiation are core to meaningful participation and inclusion. We need to expect and accept that people with different experiences will present their ideas in untraditional ways that might not be pleasing to an accustomed ear and that might not make sense in traditional governance contexts. However, they will have real stories that will challenge our ways of stating a problem and finding a solution. We will have to accept that alternative views and discourse is good for governance as it will help reshape the very conditions in which problems are stated. There are countless ways of engaging and ensuring that a plurality of voices are heard and accepted in processes of governing socio-technical change. Very often, it is not only a question of just composing representative groups and initiatives, it is also about empowering civil society and minority communities with resources to participate and

the competences to compete with the most powerful interests shaping the institutional politics of AISTIs and BDSTIs.

[i] By journalists such as Laura Poitras, Glenn Greenwald, Henrik Moltke and others.