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Defining the demos in the technological age: how biometrics can reshape the conception of ‘the people’

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Defining the *demos* in the technological age: how biometrics can reshape the conception of 'the people'

A Research Report by

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Submitted in fulfilment of the degree of Master of Arts by Coursework and Research Report in Political Studies

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Supervised by Professor Daryl Glaser

DECLARATION

I, *Isabel Bosman*, declare that this Research Report is my own work. This Research Report is submitted in fulfilment of the degree *Master of Arts by Coursework and Research Report in Political Studies*, offered by the Department of Political Studies (Faculty of Humanities) at the University of the Witwatersrand, Johannesburg, South Africa. It has not been submitted for examination at any other institution before.

Signed:



Isabel Bosman

Date:

15 July 2021

Acknowledgments

The last year has been, well, challenging. When I enrolled for this degree, a global pandemic was not on my list of complications I thought I might experience while trying to complete it. The road towards the completion of this Research Report was certainly not an easy one, and so, to the people who were there and who saw me through, I am grateful.

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And lastly, I know they can't read this, my loving dogs. Yours is always a calming presence.

Abstract

Biometric identification technologies are taking the world by storm in spite of its century-old history. Their inclusion in the democratic state however, raises a number of questions pertaining in part to privacy and the surveillance power of the state, but also increasingly to the fact that these technologies have an impact on the way that the democratic state interacts with and defines its subjects. Biometrics can be found to both further democratic inclusion and exclusion with some states seemingly more interested in exclusion whereas others apply these technologies to widen inclusion and access to civil, social, and political rights. These technologies are contributing towards a redefinition of citizenship. Biometrics have exacerbated many non-democratic justifications provided for the exclusion of some groups of people and has also offered conditional, and highly privileged, inclusion for others. In this way, it is contributing towards a reshaping of how we understand "the people" and, as I argue, the boundary problem of democratic theory.

Table of Contents

Chapter One
Introduction and General Overview
1.1 Introduction p.1
1.2 Background p.2
1.2.1 The origins of contemporary biometrics p.3
1.2.2 Biometrics' digital incarnation p.5
1.3 Problem Statement p.6
1.4 Rationale p.7
1.5 Research Questions p.7
1.5.1 Primary Research Question p.7
1.5.2 Supplementary Research Questions p.8
1.6 Definition of Relevant Terms p.8
1.7 Research Methodology p.9
1.7.1 Research design p.9
1.7.2 Data Collection p.9
1.8 Limitations of the research p.11
1.9 Ethical Considerations p.12
1.10 Outline of the Research Report p.12
Chapter Two
Theoretical Approach and Literature Review
2.1 Situating the *demos* in the body of democratic theory p.14
2.2 Biopower p.21
2.3 Liberal theory and neo-republicanism p.24
2.4 Dilemmas of democracy p.25
2.5 The spheres of democracy p.27
2.6 Biometrics, questions of citizenship, and democracy p.30
2.6.1 Biometric citizenship p.32
Chapter Three
Contemporary biometrics in practice
3.1 Biometrics applied to citizens p.40
3.1.1 South Africa p.40
3.1.2 Ghana p.42
3.1.3 Israel p.44
3.2 Biometrics applied to non-citizens p.46
3.2.1 United States of America p.46
3.2.2 European Union p.47
3.3 Concerns around and attitude towards biometrics p.49
Chapter Four
From Review to Application: Seeking answers to the supplementary research questions
4.1 Supplementary Research Question i p.52
4.2 Supplementary Research Question ii p.55
4.3 Supplementary Research Question iii p.58
4.4 Supplementary Research Question iv p.60

Chapter Five p.63
Conclusions and Implications
Reference list p.66

Chapter 1

Introduction and General Overview

> "The command of the old despotisms was 'Thou shalt not'. The command of the totalitarians was 'Thou shalt'. Our command is '*Thou art*'" (Orwell, [1949]2008: 267, original emphasis).

1.1 Introduction

The development of information and communication technologies and the automation of the many processes made possible through it, has for the most part been incredibly advantageous. These technologies have connected human beings on an unprecedented scale, but have also provided the state with additional avenues into the private lives of its subjects. The automation of identification is one such avenue, manifested in contemporary society in biometric identification technologies. Due to the automation and integration of biometrics with information and communication technologies, humankind is confronted with the novel challenge of "an absolute – yet hidden – system of surveillance that is immanent to our everyday life, but not present for humanist critique" (Lebovic, 2015: 842). The same can of course be said for much of the digital technologies society now relies on, but biometrics in particular raises a number of critical questions due to the pace at which these technologies, developed precisely due to a lack of democratic constraints (see Breckenridge, 2014), are spreading throughout the world's democracies.

How is it that a technology that developed in undemocratic contexts, capable of enabling rather authoritarian oversight functions, managed to infiltrate the democratic state, and more importantly, what does this mean for the democratic state and how it interacts with and defines its people? Does the use of these technologies in any way alter perceptions of how "the people" is conceptualised in contemporary democracies, and what are we to make of their presence in democracy? By embarking on what essentially amounts to a critical intervention in the literature, I aim in this study to draw together existing narratives on the application of biometrics, and in combination with a review of traditional understandings of citizenship, the definition of "the people," and the notion of biopolitics, relate these narratives to democratic government and how democracies define their subjects.

1.2 Background

"Biometrics" is becoming a 21st – century buzzword. Having once belonged exclusively to the domains of law enforcement and immigration management, today we bear witness to the breaking out of biometrics from these "exceptional spaces," and into the realm of our everyday existence as it is transforming into "a normative and all-encompassing practice" (Ajana, 2013: 6). Biometric identification technology – biometrics - refers to a mode of identification of persons that relies on the capturing and storing of certain specific physical or behavioural features that are unique to an individual's body. Through an interconnected procedure of "measuring, analysing and processing," biometric identification technologies are able to distinguish between the "digital representations" of a series of distinctive physical and behavioural features, including most commonly "fingerprints, eye retinas, irises, voice and facial patterns, body odours, [and] hand geometry" (Ajana, 2013: 3; see also Kloppenburg & Van der Ploeg, 2020: 57-8; Redpath, 2005). Biometrics is increasingly being encountered in a number of public and private settings ranging from "border crossings, immigration offices, police archives, military command centers, hospitals and banks" (Lebovic, 2015: 843), to the simple act of unlocking a smartphone through either fingerprint or facial recognition technology (see also Stenum, 2017).

Not only are the localities in which these technologies are encountered increasing, but biometrics is seemingly also in increasing global demand. The market research firm, *6Wresearch*, forecast in 2014 that the market for these technologies would reach a global value of US $21.9 billion by the year 2020 (6Wresearch, 2014; Stenum, 2017: 1). By 2023, this value is predicted to reach US $41.8 billion (Marciano, 2019b: 127). *6Wresearch* finds that this is "one of the key growing electronic security markets in the global landscape" (6Wresearch, 2014: para. 2). The firm attributes this significant global market growth to a hike in "government spending, national ID projects, e-passports [and] visas, rising crime rates, growing terrorist activities, cybercrimes and data thefts" (6Wresearch, 2014: para. 2; see also Stenum, 2017: 1). These technologies have also become more affordable, prompting their promotion in developing countries by "global corporations and donors" (Kloppenburg & Van der Ploeg, 2020: 58; see also Hosein & Nyst, 2014; Bosman, 2019). The increasing penetration of biometrics into such varying areas of life is a significant development and its global expansion is no coincidence: the development process of biometric identification technologies "has been global from its origins" (Breckenridge, 2014: 21).

Biometrics itself has been developed over some two centuries – the only novel thing about it is that biometrics is now being encountered in a digital, automated incarnation (see Ajana,

2013; see also Breckenridge, 2014). The global proliferation of biometrics is linked precisely to the fact that these technologies have been digitised, the result of "the proliferation of computers, of optical scanners, and the networks that connect them" (Breckenridge, 2014: 12). The true significance of the ongoing global proliferation of biometrics, its penetration into different spaces of life, and the hidden (and perhaps forgotten) dangers of biometric identification are only revealed upon consideration of its historical development, or as Lebovic maintains, when we consider "what happened when *bio* fused with *metrics*, essence and life with abstract units of measurement" (Lebovic, 2015: 843, original emphasis).

1.2.1 The origins of contemporary biometrics

Contemporary automated biometric identification technologies are the descendants of anthropometry and fingerprinting, both developed in the nineteenth century[1] (see Ajana, 2013; Breckenridge, 2014). These technologies were the result of the need for a system that could enable law enforcement agencies to distinguish between new and repeat offenders, but in part resulted also from the needs of a society confronted with "increasing migration of individuals and the rapid urbanisation of cities" (Ajana, 2013: 27). Anthropometry originated in the 1880s in France, the creation of Parisian police administrator, Alphonse Bertillon, who developed the system to serve primarily as a criminal database (see Breckenridge, 2014: 13; Ajana, 2013: 27; see also Lebovic, 2015). Anthropometry as developed by Bertillon was a two-step process involving "*description*" and "*classification*" (Ajana, 2013: 27, original emphasis). The former involved careful description of a person's appearance and the precise measuring of certain features, including for example, the measuring of a person's height, and both the length and width of the head, amongst others (Ajana, 2013: 27). After this phase was completed, these details were recorded in print and filed according to "small, medium and large categories," available for comparison when confronted with new crime suspects (Ajana, 2013: 27).

In order to bolster the identification system he developed, Bertillon incorporated photography and in so doing, "was able to bring more 'criminal' bodies under surveillance" (Ajana, 2013: 27). Breckenridge maintains that contemporary automated biometrics, facial recognition technology and hand geometry in particular, "have adopted, quite directly, many of the older mechanical tools of measurement" developed by Bertillon some two centuries ago

[1] There are others, like Liberatore (2007) for example, who refers to evidence of fingerprinting from 14th century China, and Lebovic, who extends the history of biometrics to seventeenth- and eighteenth-century physiognomy, although he maintains that the "concept" of biometrics itself "was born in the nineteenth century" (see Lebovic, 2015: 845).

(Breckenridge, 2014: 13). Not long after its development and a brief wave of popularity, anthropometry was deposed by *fingerprinting*. Fingerprinting became accepted as "the most prominent, valid and adequate method of personal identification" (Ajana, 2013: 28). Historical figures such as William Herschel and Henry Faulds tried their hands at fingerprinting in the 1850s and 1870s respectively (see Ajana, 2013: 28), but it is Francis Galton who is credited with the "formalisation" of fingerprinting between the years 1889 and 1901 (Breckenridge, 2014: 13; see also Lebovic, 2015).

It is fingerprinting above all other modes of biometric identification that successfully "nurtured the development of automated identification" (Breckenridge, 2014: 13). Biometric identification technologies developed largely alongside the expansion of the "ambitions of imperial progressivism" which thrived largely in an environment "unconstrained by a democratic order or constitutional traditions of local and central government" (Breckenridge, 2014: 214). As both Ajana (2013) and Breckenridge (2014) emphasise, anthropometry and fingerprinting have been "complicit with discriminatory discourses and racist practices" (Ajana, 2013: 29). These systems were applied "to 'diagnose' disease and criminal propensity, define markers of heredity and correlate physical patterns with race, ethnicity and so on" (Ajana, 2013: 28). Alarmingly, for nearly seven decades from the year 1900, biometrics was closely linked to eugenics (Breckenridge, 2014: 12; see also Lebovic, 2015), and as Breckenridge (2014) shows, was deeply embedded in both the colonial state more broadly, as well as the government of racial segregation present in South Africa for the greater part of the 20th-century. South Africa occupies a central place in the history of biometric identification since the country "for over a century […] served as a laboratory" for the development of "biometric government," the technologies of which, now being implemented globally, "find their earliest and fullest development" in South Africa (Breckenridge, 2014: 21).

Biometrics began its process of digitisation only in the last two decades of the twentieth century and with it, as Breckenridge so fittingly describes it, "the statistical science of biometrics began to face an identity crisis of its own" (Breckenridge, 2014: 12). Breckenridge (2014: ix) cautions that "most, although not all, of the authoritarian political results of universal and centralised fingerprinting will persist into the epoch of computerised automation unless we pay special attention to them." Biometric identification technologies have "escaped from the special conditions of South Africa" (Breckenridge, 2014: 164) and today, a number of democratic states rely on these technologies for "vital registration" and various other core state functions (Breckenridge, 2014: 1). However, a number of "democratic limits" pertaining specifically to "established privacy rights, […] fear [of] the surveillance implications of

biometrics," and more importantly, recognition that "compulsory fingerprinting cannot shed its particular sentimental and ideological history" severely complicate the efforts of "social engineers […] to drive through large-scale registration projects" (Breckenridge, 2014: 204).

1.2.2 Biometrics' digital incarnation

In contemporary practice, biometrics fulfils two roles: it is relied on for "*identification*" on the one hand, and "*authentication*" on the other (Gelb & Clark, 2013: 1, my emphasis; see also Ajana, 2013; Redpath, 2005; Zureik & Hindle, 2004). In the case of the former, biometrics seeks to answer the question "who are you?" while in the case of the latter it needs to answer the question "are you who you claim to be?" (Gelb & Clark, 2013: 1). In each case, the size of the dataset used differs significantly with identification drawing on "one-to-many or 1:N matching," while authentication relies on "one-to-one or 1:1 matching" (Gelb & Clark, 2013: 9; see also Ajana, 2013; Redpath, 2005; Zureik & Hindle, 2004). Kloppenburg and Van der Ploeg (2020: 58) note that the use of biometrics can be advantageous – it can assist in promoting inclusion, bridge "failed state infrastructure," and can also be said to improve both the pace and security of "border passage." However, the technology receives widespread criticism with concerns raised about the security of the data collected and stored, and exclusion due to an inability of some to register biometrically (Kloppenburg & Van der Ploeg, 2020: 58). Certain scholars view a failure to register successfully in these systems as linked to "racialized and gendered biases" (Kloppenburg & Van der Ploeg, 2020: 58). While this may well be the case, Kloppenburg and Van der Ploeg (2020: 57, original emphasis) argue that the main focus of criticism should rather be on studying the role of biometrics in "*producing and enacting* (new) gender and ethnic classifications and identities."

Contemporary ideas of citizenship, relating directly to membership and therefore to the idea of "the people," is an appropriate starting point for the formulation of an answer to the question of how biometrics might impact on the way that "the people" is conceptualised. Biometrics is becoming a central feature of the "exercise of citizenship" globally (Kloppenburg & Van der Ploeg, 2020: 58). Stenum writes that these technologies are "radically invading commercial as well as governmental forms of surveillance and the governing of people as consumers and as citizens or anti-citizens" (Stenum, 2017: 2). A certain binary begins to take shape in Stenum's analogy; various biometric identification technologies can be linked to this binary categorisation of people into either "citizens" or "anti-citizens." When considering the history of this technology, it seems that biometrics have historically involved this kind of binary, applied in order to distinguish between some kind of "in-group" and a group of outsiders

marginalised in one way or another. The particular vocabulary of Stenum's argument here is, I think, very significant. Biometrics is not merely incorporated for dividing people into citizens and *non*-citizens, but rather as Stenum has described it, *anti*-citizens, suggesting something stronger, something not only opposite to, but somehow against the idea of what it means to be a citizen.

1.3 Problem Statement

Breckenridge (2014: 1) notes that "biometric registration systems" are emerging as the defining feature of "the way a particular group of states undertake vital registration, build voters' rolls, distribute welfare benefits, control credit transactions, issue identity documents and police immigration." Thus, biometrics have infiltrated the core of social processes in many ways as well as some democratic processes. However, biometric identification is coupled with what Marciano (2019a: 100) refers to as the "standardization of people," essentially the "quantification of lives, bodies and experiences" (Marciano, 2019a: 98). Marciano argues that standardisation presents a unique challenge since "standards are inherently linked with discrimination" and "prevent unlimited diversity, ultimately resulting in the exclusion of people and things" (Marciano, 2019a: 101). Marciano identifies two types of discrimination resulting from "biometric standards" – "(A)ctual and textual" discrimination, the former referring to "real-world discrimination" caused when "certain individuals and groups" are rendered "biometrically ineligible" by these standards, while the latter refers to efforts at "legitimizing discriminatory treatment by framing standards and standardization as technical and objective" (Marciano, 2019a: 105).

The abovementioned biometric infiltration occupies a central place in the historical trajectory of a novel state form – the "biometric state" (Breckenridge, 2014: 1) and ultimately these technologies "make up an infrastructure of citizenship" (Breckenridge, 2014: 8). This is significant since "infrastructure is typically invisible […] and commonly buried in boring and technical representation. Its politics, therefore, is rarely explicit" (Marciano, 2019a: 104). If the global demand for biometric identification technology continues its current growth trajectory, these technologies are likely to become a cemented feature of the state apparatus in the near future. While biometrics is useful in assisting the state to fulfil a number of its core functions, the use of these technologies also come with the inherent risk of enabling large-scale state surveillance. This seems antithetical to democracy especially when considering (liberal) democratic values such as the right to privacy; this necessitates the study of these technologies

in relation to democracy in order to determine the possible threats and advantages to democracy as a result of biometrics use.

1.4 Rationale

The writing of this Research Report coincided with a global pandemic that has been indicative of some of the possible effects of increased human movement between countries, but also of the will and perhaps the need of states to gather knowledge about those entering and exiting its borders. Globally, states have been collecting an additional type of biometric data through the screening of individuals for signs of the novel coronavirus, and most recently, through the suggested biopolitical requirement for vaccine passports as evidence of having been vaccinated against the disease (see Osama, Razai, & Majeed, 2021). Even on the campus of the University of the Witwatersrand, a microcosm where biometrics is used to effectively demarcate a border and control movement on campus, the simple act of touching a fingerprint reader was halted in order to prevent transmission of COVID-19. Much of the literature on biometrics suggests that the terrorist attacks of 11 September 2001 in the United States of America prompted a turn in attitude towards biometrics (see for example, Ajana, 2013; Breckenridge, 2005; Duncan, 2018; Liberatore, 2007; Marciano, 2019a; Redpath, 2005).

Many of the world's democracies, including its largest, India (see Kloppenburg & Van der Ploeg, 2020; Breckenridge, 2014), and various non-state actors are increasingly turning to biometrics to facilitate identification. Without identification, not only is meaningful interaction between the state and the people compromised, but it also leads to exclusion; without "robust identification" individuals are unable to "claim rights, including services, voting, or participation in the formal economy" (Gelb & Clark, 2013: 52). Identification is also linked to citizenship which is the primary mode through which the democratic state interacts with its people. By critically reviewing the available material on biometrics, this Research Report has therefore sought to investigate the consequences of including biometrics in this central process (identification) and what it could possibly mean for how democracies interact with and define its subjects.

1.5 Research questions

1.5.1 Primary Research Question

I. In what way is the increasing use of biometrics contributing towards a reframing of how 'the people' is conceptualised in contemporary democracies?

1.5.2 Supplementary Research Questions

In its main concern with answering the primary research question, this research study will also aim to answer the following supplementary research questions:

i. How might the use of biometric identification technology impact on democratic inclusion and exclusion?

ii. With the surveillance potential of biometric technologies in mind, what risk does this pose for the future of democracy, and do certain biometric technologies better enable surveillance than others?

iii. Many states claim that invasive biometric identification technologies are employed in the interest of state security, but often results in a disregard for privacy. Can an invasion of privacy in the name of "the common good" cause respect for other democratic rights and principles to break down?

iv. Biometric identification technology has found global traction. However, different states emphasise different aspects of the potential uses of biometric identification technology when opting for the technology. What does this reveal about the underlying reasons for their decisions?[2]

1.6 Definition of Relevant Terms

Key terms referred to in the primary research question of this study are defined as follows: Firstly, "biometrics" here will be understood as referring to the mode of identification of persons that relies on the capturing and storing of certain specific physical and behavioural features unique to an individual's body. More specifically, it is taken to refer to the "automated means of identifying an individual through the measurement of distinguishing physiological or behavioural traits" (Redpath, 2005: 6) and include the use of technologies such as "fingerprinting, iris scanning, facial imaging, hand geometry, voice recognition and signature verification" (Redpath, 2005: 6). Secondly, and more importantly, narrowing down a definition of "the people" is a far harder task than defining "biometrics." As will be shown in the coming chapter, "the people" is a notoriously difficult concept to define in spite of its centrality to democracy and by extension, democratic theory which forms the theoretical basis of this study. The primary research question of this study is also rooted in the question of who "the people" are.

[2] This question is a continuation of the same findings from the research study conducted in fulfilment of my Honours Degree.

Therefore, “the people” here is taken to refer to that group of people within a democratic state that enjoys access to the democratic process (participation), which I have elsewhere defined as “the procedure through which a change in government takes place on the basis of free choice exercised by members of the governed groups via the institution of elections” (Bosman, 2019: 6), as well as the set of rights that is considered democratic, possession of which, follow from living in a democratic state. This refers specifically to the rights commonly associated with citizenship i.e. political, social, and civil rights (see Scherz, 2013; Marston & Mitchell, 2004), but also includes the right to free speech and freedom of assembly most commonly thought of when considering democratic rights. The terms *demos* and “the people” will be used interchangeably.

With regards to the supplementary research questions, “surveillance” will be understood as the monitoring of an individual or group of individuals by either state or non-state actors without their explicit consent. Lastly, the notion of “the common good” is a concept with multiple interpretations from different schools of thought. While the supplementary research questions of this study do refer to the notion of “the common good,” it is beyond the scope of this study to contribute to theoretical discussions on its precise meaning. For the purposes of this study, “the common good” is taken to refer to the “justification of political authority that pertains to a complete political community rather than subjects taken individually” (Duke, 2017: 877).

1.7 Research Methodology

1.7.1 Research design

A mixed-method qualitative research approach, relying on the correlational and descriptive research approaches, was chosen for this study. Davis (2014: 76) writes that the fundamental motivation of correlational research is to “establish whether a relationship, association or interdependence between two or more aspects of a situation exists.” Descriptive research involves describing “the characteristics of phenomena, relations between variables or relationships between phenomena” (Davis, 2014: 75).

1.7.2 Data collection

The study has focused on the *processes* in which biometrics are used by states. These have been identified firstly as the use of biometrics in the state’s interaction with its own citizens, and secondly, specific attention was paid to the use of biometrics in the state’s interaction with non-citizens, especially through processes of migration management, including refugee

movements and travel monitoring. In terms of the state's biometric interaction with its own citizens, the study has focused on social welfare distribution by the state in South Africa, the e-Zwich programme in Ghana – what Breckenridge calls "the world's first biometrically regulated money supply" (Breckenridge, 2010: 642), and the use of biometrics to determine citizenship in Israel through the Israel Biometric Project – an initiative deemed instrumental in the "development of Israel as a surveillance society" (Marciano, 2019a: 99). The South African case study is of particular interest to the questions asked in this study since biometrics, once used for the express purposes of distinguishing those who did not form part of "the people," have become a widely used tool for democratic inclusion, affecting both citizens (the people) and non-citizens. In terms of the state's interaction with non-citizens vis-à-vis biometrics, the study has drawn on the United States and the European Union since their use of the technologies have not only impacted their domestic affairs but have had "implications […] for governments and travellers worldwide" (Redpath, 2005: 9). The study has relied on literature produced from primary studies conducted on the use of biometrics in each of the five geographic focus areas. Journal articles and books, professional literature produced by institutions dedicated to the study and development of biometrics, and material on the subjects made available by government institutions made up the bulk of the sources drawn on in the conduction of this research study.

The rationale for selecting the five geographic focus areas described above is as follows: firstly, South Africa was chosen precisely for its centrality in the development of biometrics as a tool of government. This phenomenon had global ramifications (see Breckenridge, 2014) and is therefore worth examining. Secondly, Ghana was chosen due to its pioneering use of biometrics in the banking sector. This forms part of a global development whereby post-colonial states are calling on biometrics "to provide bureaucratic and financial services to an illiterate population" (Breckenridge, 2014: 216; see also Breckenridge, 2010).

Israel was chosen as an area of focus due to the particular significance it has attached to biometric identification. With clearly demarcated territorial borders still in question, biometric identification has become a way of defining who belongs in the state while simultaneously furthering the security ambitions of the state. The United States was selected as an example due to the role it has played in advancing the use of biometrics in the Global North, but also for the impact of its precise application of biometrics on countries everywhere (see Breckenridge, 2014). Lastly, the European Union was chosen for its application of biometrics in mitigating one of its biggest challenges: migration. Europe has become a popular destination

for refugees and asylum seekers and biometrics has become the method of choice for managing the migrant population.

The data collection method chosen for this study was the non-reactive approach, relying on a common non-reactive research method: qualitative content analysis (Strydom & Bezuidenhout, 2014: 191). Inductive reasoning forms the basis of qualitative content analysis and enables the researcher to "develop theories or test existing theories" (Strydom & Bezuidenhout, 2014: 191). This research method is ideally suited to research that involves primarily gaining information from "journals, diaries, books, brochures, written documents, transcripts, news reports and visual media" (Strydom & Bezuidenhout, 2014: 191). The study relied exclusively on secondary data as source of information. Secondary data refers to "[pre-existing] data that have been collected for a different purpose or by someone other than the researcher" and includes data collected for prior research studies (McGinn, 2012: 2). Secondary data is useful in cases where a researcher seeks to expand on an original study and answer new questions (McGinn, 2012: 2).

1.8 Limitations of the research

The research study has been exclusively concerned with issues pertaining to democracy. It is therefore limited to biometrics used by *democratic states*. Although biometric technology is used in undemocratic and authoritarian contexts – China is an excellent case study – these cases are excluded from the scope of this particular study. The study was also limited in terms of methodology, since it involved exclusively secondary research; no primary data in the form of interviews, for example were collected for this study. McGinn (2012: 2) writes that qualitative researchers relying on the analysis of secondary data often experience limitations due to a "limited relationship with the participants and context for the data." The precise experience of participants in an original research study is not always made clear in secondary data (McGinn, 2012: 2).

Furthermore, field research on biometrics is notoriously complicated due to "difficulties of access" (Kloppenburg & Van der Ploeg, 2020: 64). Biometrics technology is generally used in "sensitive contexts such as security, border control, or asylum management," thus making it hard to get close enough to study these systems in the field (Kloppenburg & Van der Ploeg, 2020: 64). Field research was also complicated due to the limitations imposed by the current global COVID-19 pandemic. A decision was made, in light of the latter constraint, to engage with secondary literature rather than to undertake fieldwork.

1.9 Ethical concerns

As a result of the chosen research methodology, the research study did not involve interviews or surveys and therefore did not involve human participants. Consequently, there have been no ethical concerns arising from my research.

1.10 Outline of the Research Report

This introductory chapter has sought to provide the necessary background for this Research Report. It has focused on the history of biometrics and the road to the development of its digital and automated incarnation. It has also detailed the Problem Statement and Rationale, illustrating the type of questions that this Research Report is concerned with. With these questions and areas of concern in mind, the study aims to provide an extensive review of existing narratives of biometrics use, reflecting on existing critiques and newly emerging areas of focus. In so doing, the study seeks to determine whether the increasing use of biometrics is in any way changing traditional understandings of who "the people" are and how this group is to be determined.

In Chapter Two, I embark on an integrated theoretical approach and literature review. Here, I aim to situate "the people" in the body of democratic theory and review existing narratives used to explain how this group is traditionally constituted. This chapter focuses specifically on some of the key issues highlighted throughout the questions asked in Chapter One, namely understandings of "the people," concerns regarding the use of biometrics, and the notion of citizenship and its place within democracy as constitutive of "the people." In terms of thinking about biometrics as used by the state, a biopolitical lens with a focus on the work of Michel Foucault was chosen as the mode of analysis. Surveillance and privacy are also implicated in the study of biometrics. In order to show how democracy and privacy could be affected by the proliferation of biometric identification, elements of liberal and neo-republican theory are also incorporated.

In Chapter Three I dive deeper, extending beyond the history of biometrics to its contemporary use in the processes of state interaction with *citizens* and state interaction with *non-citizens* by highlighting some of the most interesting elements of biometrics application in the selected focus areas detailed above, drawn from secondary literature. Research findings relating to the supplementary research questions outlined in the current chapter are provided in Chapter Four. Here the study will show the stark differences in approach to biometrics in the Global North and Global South while highlighting also some of the possible consequences of biometric surveillance on democracy and the principles it holds dear. Finally, in Chapter Five,

this study will engage with the primary research question of this study and conclude by means of considering the implications of the findings as presented in Chapter Four.

Chapter Two
Theoretical Approach and Literature Review

The theoretical approach that guided this study was woven together primarily from democratic theory, in particular theoretical notions of who the *demos* is; and biopower especially as imparted in the work of Michel Foucault. The application of a biopolitical lens for analysis seems highly appropriate in the context of biometric identification technologies and the direct manner in which these technologies rely on the physical body to establish new mechanisms of control. In the particular context of state surveillance and biometric technologies acting as enabler of this function – a narrative made trite in critiques of biometrics but important nonetheless for the purposes of this study – liberal and neo-republican narratives on the value of privacy also form part of this theoretical framework. These theoretical concerns tie in with the issues raised in the literature review that follows directly from it.

2.1 Situating the *demos* in the body of democratic theory

In democratic theory, the question of who makes up the *demos* is awarded paramount importance, but while definitions of democracy abound, the notion of "the people" and precisely *how* this group comes to be constituted, is less well-defined and for the most part, ambiguous (see also Scherz, 2013). Various scholars have faulted democratic theory for being unable to provide a satisfactory answer to one of its most relevant (and enduring) questions (see for example Whelan, 1983; Kreutz, 2000; Abizadeh, 2008; Scherz, 2013). In recent years there has also been renewed interest in this question as a result of "increasing migration and globalisation" (Scherz, 2013: 1). These phenomena, by their very nature, have a direct impact on the constitution of the *demos*.

The *demos* is the essential concept around which definitions of democracy are constructed, especially as seen in the case of its most basic definition as *the rule of the people*. The idea of the rule of the people and the concept of popular sovereignty go hand in hand. Popular sovereignty itself centres on the idea of "the people" and importantly, offers some guidance in terms of how we are to think of "the people." Although he finds himself doubting the idea that people can be sovereign, a debate to be pursued elsewhere, Morris' (2000) analysis of the notion of popular sovereignty nevertheless presents a number of workable ideas with regards to understanding who the *demos* is. On Morris' account, popular sovereignty refers to "the

attribution of sovereignty to the People[3] (which need not be *a* people)" (Morris, 2000: 8, original emphasis). It is widely accepted that this type of sovereignty forms the "foundation of modern democracy" (Morris, 2000: 1).

Being sovereign is equated with being "the ultimate source of *political* authority/power within a realm" (Morris, 2000: 4, original emphasis). Popular sovereignty is associated with a very particular type of "political *authorization*" and entails "a 'bottom-up' conception of authorization" (Morris, 2000: 12, original emphasis). Contained within the notion of popular sovereignty is the concept of "political *authorization*" – the idea that "(G)overnment has authority […] to act only insofar as it is so authorized, and this authorization must come from the People governed" (Morris, 2000: 12, original emphasis). Thus, while we are made aware that the idea of "the people" is important to democracy, and while we are aware of what is expected of the people, we still do not know exactly how this group comes to exist and how it is constituted. This is because democratic theory suffers from an inherent *boundary problem* (see Whelan, 1983).

The boundary problem that so plagues democratic theory refers not to the demarcation of physical boundaries of democratic states, although it does feature in some instances, but extends to a more abstract, important concept, namely that of defining the "membership of the democratic body, or citizenry" (Whelan, 1983: 14). The idea of a democratic people as "self-legislat[ing] and self-constitut[ing]" cannot be separated from "the drawing of boundaries" (Scherz, 2013: 1). One of the most enduring and inescapable conditions for membership to the *demos* is citizenship. Attached to citizenship is a series of rights – "civil, political and social rights" (Scherz, 2013: 2). When speaking of the *demos*, however, we are speaking of a group defined specifically as "the individuals having participation rights" (Scherz, 2013: 2). Common theoretical models of democracy are all based on a shared understanding of the provision for citizen participation, but these models do not provide "clear guidance" on how exactly the citizenry is defined (Whelan, 1983: 13). As Whelan illustrates, democratic theory concerns itself primarily with the mode of participation of the citizenry i.e. the shape that democracy will take in practice. This ends in the "taking for granted [of] the prior existence of a well-defined group with respect to which the question of democratic governance arises" (Whelan, 1983: 15). Three common conceptions of democracy illustrate the issue to which Whelan refers.

[3] Morris uses the capitalised "People" to refer to "the people" in the same way as I have established here: referring to that group of people with access to the democratic process (participation) and associated trinity of political, civil, and social rights.

Firstly, democracy considered as "*participatory*" implies that the citizenry as a whole has access to "involvement in public affairs" (Whelan, 1983: 14, original emphasis). A second model grounds democracy in majoritarian rule. On this view, a decision is considered democratic when, at the end of a vote, the decision preferred by the majority of the collective wins the day (Whelan, 1983: 14). A third common model of democracy revolves around the principle of "*consent*;" on this view, the legitimacy of government is inextricably tied to consent from the governed (Whelan, 1983: 15, original emphasis). Whether democracy is participatory, majoritarian or grounded on the principle of consent of the governed, it is still deeply related to the notion of "the people". Therefore, apart from their shared focus on "the people," these models of democracy share a shortcoming in that none of them explain exactly how membership to these groups is to be determined.

Whelan (1983: 14) argues that the participatory model of democracy "presupposes an answer to the question: who may participate?". Similarly, the majoritarian model does not answer the question "how do we delimit the group within which […] votes are to be counted and a majority preference identified?" (Whelan, 1983: 14). It is also unclear in which way "consent ought to be determinative" (Whelan, 1983: 15). This is a fundamental shortcoming inherent to democratic theory; its sole focus is seemingly on its own "internal decision-making arrangements, taking for granted the prior existence of a well-defined group" (Whelan, 1983: 15). Whelan argues that regardless of the democratic model followed, the basic premise of democracy remains the same: it is based on the understanding that "collectively binding decisions are made, [and] laws and policies are enacted" based on the wishes of the people, a group that is "set apart" on the one hand "for the purposes of self-government from other people or peoples, who are correspondingly excluded" and, on the other hand, "*bound* together" (Whelan, 1983: 15, original emphasis).

The *demos* as such can therefore only exist in relation to that which is excluded from it. Whelan (1983) identifies three main principles offered by democratic theory as possible solutions to the boundary problem. The first of these is the *all-affected principle*, often described as "the most intuitively plausible proposal" for determining the boundaries of the *demos* (Whelan, 1983: 16). According to the all-affected principle, decision-making power over a "particular law, policy or decision" should rest with only those persons who are affected by the outcomes of these decisions (Whelan, 1983: 16). Determining the *demos* on the premise of the all-affected principle therefore requires that the power of decision-making is bestowed upon those persons "*qualified* to be citizens" by virtue of their proximity to a particular issue and its outcome (Whelan, 1983: 16, my emphasis). Their proximity to the decision in question

is what sets them apart from other people who therefore would not qualify to be included in the decision-making process for that particular scenario, at that particular time. By drawing on the all-affected principle, it would in theory be possible to determine "the appropriate scope of participation," along with the majority and "the consent requirement" (Whelan, 1983: 16-7). Whelan, however, maintains that in spite of the strength that the all-affected principle may carry, it is nevertheless "an untenable proposal" (Whelan, 1983: 17).

The all-affected principle is not suited to determining "the people" - understood as the self-governing group of people responsible for decision-making in the state - but can only work when applied on a much smaller scale (Whelan, 1983: 18). As Whelan rightly points out, "(P)olitical democracy" is concerned primarily with the democratic state, generally considered to be "responsive to the collective preferences of the people" (Whelan, 1983: 18). Relying on the all-affected principle would therefore mean that for every decision to be taken, states would have to decide afresh on the "constituency of voters or participants for every decision" (Whelan, 1983: 19). What this effectively means is that citizenship would shift in between decisions, ultimately becoming an impermanent categorisation (Whelan, 1983: 19; see also Scherz, 2013).

Whelan notes that citizenship is most commonly understood as determined vis-à-vis the territorial boundaries of the state, and by extension, as a permanent categorisation since it effectively becomes territorially-bound (Whelan, 1983: 19). This is another proposal identified by Whelan through which the *demos* is commonly determined. The territorial reading of "the people" is especially evident of the inescapability of the concept of citizenship when referring to the *demos*. The territorial reading of the people holds that citizenship is ascribed to "some established community of people" within a particular territory who, by virtue of being citizens, are "entitled to participate in public business" (Whelan, 1983: 19). This reading of citizenship does away with the requirement to qualify for participation based on the degree to which a person could be affected by a decision, and introduces instead, the idea of majority rule (Whelan, 1983: 19). This reading of citizenship in fact offers the citizen more agency in that they are able to decide for themselves whether to participate in the decision-making process or not, regardless of their proximity to the issue on which they have to vote (Whelan, 1983: 19).

Through this reading of citizenship we encounter the other – literal – side of the boundary problem: that of drawing the "geographical borders" of the territory in question (Whelan, 1983: 21). The question of geographical borders should not precede that of the drawing of the borders of membership, however, as Whelan maintains, "in modern states it comes for the most part to the same thing" (Whelan, 1983: 21). Settling on the geographical borders of states can never

be a democratic process since, as we have just established, geographical borders are constitutive of what Abizadeh has termed the "civic borders" or "civic boundaries" i.e. the boundaries of membership and thereby, the *demos* (Abizadeh, 2008: 46). If the geographical borders are what determine the boundaries of membership, then the boundaries of membership logically cannot precede it (see Whelan, 1983: 22).

What the territorial reading of citizenship imparts above all is the clear revelation that "collective decisions" can be taken in a democratic fashion only "once the collectivity has been defined" but the demarcation of "the bounds of the collectivity, whose existence democratic theory simply presupposes," naturally cannot be done in a democratic fashion (Whelan, 1983: 22). Whelan describes this state of affairs as "more than a minor shortcoming of democratic theory" (Whelan, 1983: 22). Precisely because democratic principles are not capable of solving this contradiction, certain "non-democratic principles" such as "historical tradition, nationality, [and] economic rationality" are used to defend the demarcation of boundary lines instead (Whelan, 1983: 24).

The final principle identified by Whelan as commonly proposed by means of answering how the *demos* is constituted is the consent principle. The basic tenet of consent theory is that the legitimacy of "governmental authority" hinges on whether the governed, or those subject to that authority, have "consented to its existence in some fashion" (Whelan, 1983: 24-5). Here, consent is to be understood as a "deliberate choice" made by the *demos* by engaging in the democratic process (Whelan, 1983: 25). The act of participation in the democratic process is equivalent to consent and the final decision should ultimately mirror "the will of the majority" (Whelan, 1983: 25). The idea of consent as constitutive of the *demos* is famously encountered in the work of the contract theorists – Hobbes, Locke and Rousseau – who all saw the birth of the state, its government, and its people as the result of the collective surrendering of power by a coherent group, the people, to the candidates it saw most fit to oversee the business of government and safeguarding of the state and the people (see also Whelan, 1983: 25).

The contract theorists, however, failed to determine how exactly "the people" as a group comes to be formed and "like most modern democratic theorists," as Whelan maintains, formed their arguments "by presupposing the existence of a community, in the sense of a collection of individuals residing in a delimited territory" (Whelan, 1983: 25). The consent principle thus falls into the same trap as the common models of democracy in that it also takes for granted the existence of the people as somehow always already determined. Whelan does however, identify in consent theory an idea that aligns with one of the basal assumptions of democratic theory viz. the idea that the people "should be a group that each individual member has joined,

or to whose authority he has consented" (Whelan, 1983: 25). This idea of individual agency "conjures up" for Whelan the related notion of "voluntary association" (Whelan, 1983: 25; see also Scherz, 2013). Democracy therefore emerges as the most logical "mode of governance" for "associations" formed in this voluntary manner (Whelan, 1983: 25). At first glance consent theory on this reading seems to be a perfectly reasonable argument for the formation of the people, but it just as quickly runs into a problem that ultimately disqualifies it viz. that of scale (Whelan, 1983: 26).

Voluntary association to an established community still confronts the issue of a boundary and, as Whelan rightly imparts, boundaries are double-sided which means that "the inclusion of some means the exclusion of others" and as a result, both included and excluded are impacted by their existence (Whelan, 1983: 22). In order for consent to function through the idea of voluntary association, boundaries would have to be "open and fluid" in order to allow those who have become "dissatisfied" with the group to leave and in turn, to also allow for the admission of new members who choose to join the group (Whelan, 1983: 26). This process is only possible for small-scale associations and cannot be applied to the state since it directly opposes its core identity as "territorial and compulsory associations" (Whelan, 1983: 26). States are entities with "jurisdiction over all residents from the time of their birth or arrival within their borders" (Whelan, 1983: 26). This authority is paramount for states to achieve two of its most basic tasks, namely that of "apprehending criminals and exercising compulsory adjudication over disputes between individuals" (Whelan, 1983: 26). Because the principle of voluntary association and the notion of consent as such require flexible boundaries, consent theory represents a further hurdle for democratic states precisely because of the influence that territorial boundaries play in determining the *demos*.

It is especially evident in consideration of cross-border migration where prospective members find the boundaries of both the state and the realm of democratic participation already "settled" (Whelan, 1983: 26). Whelan maintains that even where such boundaries are "unsettled," the delineating of these boundaries is "not a matter to which the principle of consent is readily applicable" (Whelan, 1983: 26). Migration, according to Whelan, does not "alter the established territorial boundaries" of the state, but it could, while still remaining true to established democratic practice, decide "the more important question of the composition of communities" (Whelan, 1983: 27). Consent is something that, for Whelan, happens over time and instead of being "the basis of the existence or of the boundaries of the state," takes shape in states that have been established "by other means (usually force), as a consequence of good government" (Whelan, 1983: 27). The *demos*, on Whelan's reading of democratic theory, is a

bounded entity and as such he ultimately finds voluntary association incompatible with the modern state and with the boundaries of participation present in it (see Whelan, 1983). The idea of the bounded *demos* is a common reading in democratic theory. In consideration of the issues of migration and the border, and linking to the preceding discussion on consent, Abizadeh maintains that discussions of the border are surrounded by "fundamental tension" between the basic principles of liberalism and democracy (Abizadeh, 2008: 38).

A typical liberal reading of the border would be one that advocates for "open borders" however, in line with Whelan's thesis, democracy in turn "requires a bounded polity whose members exercise self-determination, *including control of their own borders*" (Abizadeh, 2008: 38, my emphasis). Abizadeh maintains that because of "a liberal regime of human rights", many states are now "grant[ing] foreigners legal rights […] and standing in judicial proceedings concerning entry" (Abizadeh, 2008: 38). However, as Abizadeh argues, the rights regime has come to be regarded as "constraints upon, and in tension with, the right of a democratic people to unilaterally control its own boundaries" (Abizadeh, 2008: 38). This is because the notions of state sovereignty and that of popular sovereignty are ultimately in conflict with one another (see Abizadeh, 2008). State sovereignty demands that the state be the only body with "control of entry policy, including of movement, immigration, and naturalization," and for Abizadeh, this view is irreconcilable with popular sovereignty (Abizadeh, 2008: 37) since it contradicts the inclusion in self-determination of the idea that the *demos* should determine its own borders.

On Abizadeh's reading, the boundary problem presents a number of contradictions for the "traditional democratic theory of bounded popular sovereignty" (Abizadeh, 2008: 46). This concerns in the first place, an issue of incoherent legitimacy in that popular sovereignty dictates that it is "the will of the people" that bestows legitimacy upon political authority, but "the people" were not responsible for the constituting of the very borders that are responsible in turn for their existence as a group (Abizadeh, 2008: 47). A second concern arising from the boundary problem, as identified by Abizadeh, is "the externality problem" (Abizadeh, 2008: 47; see also Scherz, 2013). Once again, it is concerned with legitimacy. In any exercise of power, especially political power, "legitimacy requires justifying the exercise of power to those over whom power is exercised" (Abizadeh, 2008: 47). Viewing the *demos* as bounded, prevents this justification from taking place since "by virtue of what a (civic) border is conceptually" (Abizadeh, 2008: 47) its formation is necessarily the result of "an exercise of power over persons who, in the very act of constituting the border, are excluded from the membership to whom power is justified" (Abizadeh, 2008: 47). Whelan rightly acknowledges that the

existence of boundaries have an impact on both the included and the excluded. However, a traditional reading of state sovereignty determines that "whatever justification is required for a particular entry policy is simply owed to members" (Abizadeh, 2008: 38).

Those excluded from the boundaries, "foreigners," are not regarded as in need of such justification and therefore are not permitted to have any say in the "entry policy" of a country (Abizadeh, 2008: 38). This is precisely the phenomenon that Abizadeh takes issue with. If, as has been established, both members and non-members are affected by the boundaries that "regulate membership" (Abizadeh, 2008: 38), could the all-affected principle not be invoked? Abizadeh argues that it cannot since the fact of being affected by a state policy, is not the same as being *subjected* to it and therefore Abizadeh argues that what popular sovereignty actually requires is that "the exercise of political power be democratically justified to all those over whom it is exercised" or, in other words, "to all those *subject* to state coercion" – the all-bound principle (Abizadeh, 2008: 45, my emphasis). On Abizadeh's reading, the *demos* is not bounded since the all affected principle, *all* being the operative word here, does not specifically apply to "*citizens* (members)" but rather refers to "all *persons*" (Abizadeh, 2008: 45, original emphasis). The logical conclusion for Abizadeh, and also his main contribution to the body of literature on democratic theory, is therefore that we are dealing instead with an "*unbounded demos*" (Abizadeh, 2008: 45, original emphasis). Abizadeh's "unbounded demos" thesis states therefore that "*the democratic justification for a regime of border control is ultimately owed to both members and non-members*" (Abizadeh, 2008: 44, original emphasis; see also Scherz, 2013).

2.2 Biopower

The concept of "biopower" is primarily associated with Michel Foucault who uses it in order to explain the rationale behind the exercise of modern state power (see also Ajana, 2013). Foucault maintains that the modern state is an elaborate display of the exercise of "biopower," a form of power that emerges during the classical period (in reference here to the seventeenth and eighteenth centuries) in response to societal changes that ultimately impel a break from the form of power prevalent until then: "sovereign power" (see Foucault, [1976]1998; see also Foucault, [1976]2003; Bosman, 2020a). Sovereign power is defined through the "juridico-political theory of sovereignty" (Foucault, [1976]2003: 34; see also Bosman, 2020a) and as classically understood, extended to the sovereign ruler "the right to *take* life or *let* live," (Foucault, [1976]1998: 136, original emphasis; see also Foucault, [1976]2003: 240-41; Bosman, 2020a). Although significant, sovereign power was a *conditional* power and could

only be exercised in "defense of the sovereign, and his own survival" (Foucault, [1976]1998: 135; see also Bosman, 2020a).

Sovereign power as such is inherently concerned with the individual, rather than a collective; its focus is on the well-being of one, the sovereign, and it is also very much directed at the individual, illustrated most famously by Foucault through the retelling of the torture and execution of Damiens for conspiring to commit regicide in *Discipline and Punish* ([1975]1995). Foucault finds sovereign power "dissymmetrical" in that the sovereign "exercised his right of life only by exercising his right to kill" (Foucault, [1976]1998: 136; see also Foucault, [1976]2003; Bosman, 2020a). Furthermore, sovereign power amounts also to "a right of seizure: of things, time, bodies, and ultimately life itself" (Foucault, [1976]1998: 136). It is expressed most clearly as a "privilege to seize hold of life in order to suppress it" (Foucault, [1976]1998: 136).

Biopower in contrast, is not centred on the sovereign right to kill or to suppress life. Whereas sovereign power was concerned with its own survival, biopower concerns itself with the survival of society. It emerges precisely at the moment of "a parallel shift in the right of death" that results in "a life-administering power" that takes as its focus the collective, and works instead as "the right of the social body to ensure, maintain, or develop its life" (Foucault, [1976]1998:136; see also Bosman, 2020a). Foucault traces its development on the one hand, to "the rapid development of various disciplines" as well as "the emergence, in the field of political practices and economic observation, of the problems of birthrate, longevity, public health, housing, and migration" in the seventeenth century (Foucault, [1976]1998: 140; see also Bosman, 2020a). On the other hand, Foucault maintains, biopower was born from a "demographic expansion" that took place in the eighteenth century, leaving "the art of government" to confront "the problem of population" (Foucault, [1978]2002: 215; see also Bosman, 2020a). The art of government of which Foucault speaks has become known as his thesis of governmentality (see Foucault, [1978]2009; see also Bosman, 2020c). Governmentality aligns perfectly with biopower and takes "the population" as its most central focal point while also relying on the "political economy as its major form of knowledge, and apparatuses of security as its essential technical instrument" (Foucault, [1978]2009: 108; see also Bosman, 2020c).

As a result of these developments "numerous and diverse techniques for achieving the subjugation of bodies and control of populations" were born (Foucault, [1976]1998: 140). The birth of these techniques of subjugation represents "the beginning of an era of 'biopower'" (Foucault, [1976]1998: 140). Biopower is comprised of two "poles:" the first, known also as

disciplinary power, Foucault describes as "an *anatomo-politics of the human body*" (Foucault, [1976]1998: 139, original emphasis; see also Bosman, 2020a). This pole relates to "the body as machine" and pertains to "its disciplining, the optimization of its capabilities, the extortion of its forces, the parallel increase of its usefulness and its docility, [and] its integration into systems of efficient and economic controls" (Foucault, [1976]1998: 139; see also Foucault, [1976]2003; Bosman, 2020a). The second pole, "*a biopolitics of the population*," relates to the collective as opposed to the individual body, "the species body […] imbued with the mechanics of life and serving as the basis of the biological processes" namely "propagation, births and mortality, the level of health, life expectancy and longevity, with all the conditions that can cause these to vary" (Foucault, [1976]1998: 139, original emphasis; see also Bosman, 2020a). Together then, this individualising disciplinary power and biopolitics aimed at the collective, form biopower and allow it to centre itself on the protection of "the existence of everyone" (Foucault, [1976]1998: 137; see also Bosman, 2020a).

Biopower has transformed the motto of sovereign power and should be read as "a power to *foster* life or *disallow* it to the point of death" (Foucault, [1976]1998: 138, original emphasis). As I have argued elsewhere, it is clear from the reading of Foucault's first volume of *The History of Sexuality* ([1976]1998) and *Society Must Be Defended* ([1976]2003) that the birth of biopower did not lead to the complete eradication of sovereign power, but still allows for the inherent sovereign right of death to be exercised by merely giving it a new justification (see Bosman, 2020a). Foucault acknowledges this fact himself and in order to account for this, introduces the notion of State racism (Foucault, [1976]2003: 254; see also Bosman, 2020a; Ajana, 2013). He sees State racism, a racism that has become wound up with the innermost operations of "a State that is obliged to use race, the elimination of races and the purification of the race, to exercise its sovereign power" as the ultimate "mechanism that allows biopower to work" (Foucault, [1976]2003: 258). While it may be geared primarily at the preservation of life, biopower still needs to "let die" in order to do so and when so doing, it reaches for sovereign power (Foucault, [1976]2003: 254; see also Bosman, 2020a; Ajana, 2013: 36).

The following observations and questions emerge from Foucault's argument: biopower, importantly, is concerned with the management of a *population*. How might this be contrasted with "the people" and where does biometrics fit into this process? Do "the people" differ from "the population?" Should biometrics be viewed as a tool, or rather as a "[technique] of power" to borrow Foucault's ([1976]1998: 104) terminology, for the management of population, allowing us to discern between its use for different groups of people, for example a migrant population, or prison population? Do biometrics perhaps align more with the first pole of

biopower, anatomo-politics, or disciplinary power, than with the second? Since biopower concerns itself with the security and well-being of society, does the notion of biopower assist us in explaining the popular discourse on national security often used as justification for biometrics (see Ajana, 2013; Breckenridge, 2014)?

2.3 Liberal theory and neo-republicanism

Liberal theory presents the basis for possible critiques of state surveillance that can result from the use of biometric identification technology. The liberal school of thought approaches privacy from "one of two normative intuitions: liberal individualist and neo-republican accounts" (Stahl, 2016: 34). Both the liberal individualist and neo-republican schools of thought regard state surveillance as "a violation of *individual liberty*" (Stahl, 2016: 34, original emphasis), although they differ in their reasoning as to why. The liberal individualist approach relies on Berlin's concept of "negative liberty" and argues that privacy rights are necessary in order to prevent personal information from reaching those who would seek to interfere with "our choices or our self-presentation" (Stahl, 2016: 34). Entwined also within this approach is the strong liberal ethos of the right of the individual "to maintain complete control over the body" (Marston & Mitchell, 2004: 94). The neo-republican tradition emphasises the idea of "non-domination" and argues that privacy rights are necessary in order to prevent domination as opposed to interference (Stahl, 2016: 34). Important to note, on this view, a state of domination results not only from action taken as a result of having the "*option* of arbitrarily interfering" but also from the fact that the option itself exists (Stahl, 2016: 34, original emphasis).

Stahl (2016) suggests a third approach to surveillance critique that focuses not on an individual account, but that speaks to the privacy rights of a collective. On Stahl's account, such individualist critiques fail to acknowledge that surveillance actually also has "social and political effects" and therefore a comprehensive approach towards the criticism of state surveillance will be one that also considers the rights of a collective placed under surveillance (Stahl, 2016: 35). This is because "individual freedom" is not the only element that depends on privacy for its protection, but "certain forms of social interaction" are also deeply dependent on the upholding of respect for privacy (Stahl, 2016: 35). In other words, as Stahl argues, "privacy is both valuable for the individual and for society" (Stahl, 2016: 35). Especially where democracies are concerned, Stahl illustrates that "indiscriminate mass surveillance" emerges as "a distinctive form of the exercise of political power over the public sphere" a phenomenon

that, as the next section illustrates, is undesirable and counterintuitive to democracy (Stahl, 2016: 35).

2.4 Dilemmas of democracy

The catchphrase of modern democracy is "that government should be by *all* the people" (Taylor, 2002: 7: my emphasis), and yet modernity's most praised form of government is not perfect; democracy has an inherent "dynamic…which pushes toward exclusion" (Taylor, 2002: 1). This is an inherent paradox that can be explained by the precise ideal for which democracy is praised. As Taylor puts it, "what makes democracy inclusive is that it is the government of **all** the people; what makes for exclusion is that it is the **government** of all the people" (Taylor, 2002: 1, original emphasis in boldface). In order to be self-governing, as Whelan (1983) argues, a "high degree of cohesion" needs to be present within a democratic society; democratic exclusion is essentially a "by-product" of this mechanism (Taylor, 2002: 1). Democratic state-building involves what Taylor (2002: 6) terms the "never-to-be-completed task of defining its collective identity." In its mission of constructing inclusion, democracy also creates exclusion. This phenomenon is clearly evident in democratic societies with an embedded historical cohesion: it is often the case that these societies experience "discomfort" with having to accept outsiders as citizens, while the exact opposite could also be true of people who are accepted over time, but still find it difficult to integrate and participate (Taylor, 2002: 7).

Kreutz posits that thus far, democracy has failed to deliver a "satisfying answer to the basic question 'who are the people?', what and who constitutes the *demos*…" (Kreutz, 2000: 156, original emphasis). Starting his analogy in Ancient Greece, Kreutz argues that what has commonly been understood as classical democracy, is more aptly termed "*ethnocracy*" (Kreutz, 2000: 155, original emphasis). "*Ethnos*" is the term commonly applied to people with a perceived shared ancestry; while this applies in the case of the ancient Greeks, they were nonetheless separated since not all "belonged to the same *polis*." (Kreutz, 2000: 156, original emphasis). Kreutz notes two important realities about the foundation of democracy in ancient Greece. In the first place, classical Greek democracy was *founded* on exclusion – only a small proportion of the population of the *polis* viz. citizens were entitled to enjoy "equal rights" while the remaining "majority of the inhabitants of a *polis* never reached the status of citizens" resulting in a total absence of or "only very limited, political rights" (Kreutz, 2000: 155, original emphasis). Secondly, Kreutz maintains that this democracy rested on "a racist basis" - membership, i.e. citizenship, in the *polis* was only granted to Greeks with very few actually grouped within the same *polis*, prompting Kreutz to conclude that the *demos* essentially also

referred to “an ethnic unity” albeit “even more exclusive than *ethnos*.” (Kreutz, 2000: 156, original emphasis).

Turning toward contemporary democracy, in particular to its foundations in the American and French Revolutions, Kreutz notes that democracy since ancient Greece has not parted with its underlying tendency towards ethnocracy: the establishment of democracy in the United States of America accompanied the “elimination” of its indigenous peoples and did not at first abolish slavery, but based its membership on certain racial, ancestral and religious criteria, while the early democratic movement in France also neglected to end slavery (Kreutz, 2000: 156). Modern democracy has an exclusionary character and Kreutz warns of “many empirical indicators” that would suggest that “a scientific, genetic definition of membership to a *demos* will ultimately become the ‘normal’ basis of citizenship in most states” (Kreutz, 2000: 156, original emphasis). The definitive requirement for membership in today’s democratic states is citizenship. However, somewhat paradoxically, becoming a citizen hinges on “membership to a collective actor on the macro-level” otherwise known as “the *demos*” (Kreutz, 2000: 157, original emphasis). Currently, membership to the *demos* is acquired in one of two ways. The first, relating to the principle of “*ius sanguinis*,” refers to citizenship conferred by virtue of being born to people who are members themselves (Kreutz, 2000: 157, original emphasis). The majority of a country’s citizens can be said to acquire citizenship in this way. Kreutz argues that this hereditary idea of citizenship is a sure-fire way of “convert[ing] a *demos* into an *ethnos*” (Kreutz, 2000: 157, original emphasis).

Secondly, and this most commonly applies to migration, one can attain membership to a *demos* after having completed a specified “waiting period” as a resident of a state as opposed to a citizen, absent political rights (Kreutz, 2000: 157). Political rights is a very important aspect of democratic citizenship and also pertains to the concept of “the people.” In contemporary society the idea of living as a resident for some time as a pre-condition for obtaining citizenship is considered a natural part of migration and state control. However, Kreutz finds this problematic. In his view a democracy risks morphing into an ethnocracy when it simultaneously includes citizens and excludes non-citizens from certain “privileges” for an extended period of time (Kreutz, 2000: 157). Already, as Smith points out, “modern ‘citizenship’ and ‘nationality’” have been treated as “fundamentally identical terms” in legal circles, evidence of a global phenomenon of “strengthen[ing] legalistic as opposed to more participatory conceptions of citizenship” (Smith, 2002: 108). Democratic states are also increasingly expected to deal with a newly emerging “power of information” that can result in the “uncontrolled manipulation of information labelled ‘public versus private’ or ‘public versus

secret'" (Kreutz, 2000: 158). For Kreutz, this power of information finds expression in "the mass and electronic media" alongside increasing "(I)nstrumental power" found to be located in "the economic, financial and technological sectors" (Kreutz, 2000: 158). The power of these sectors in contemporary democracies is the result of "intense corruption" and a weakening of the divide between legislative and executive power, resulting in an "intermix" of the two (Kreutz, 2000: 158).

For Kreutz this has become characteristic of a declining private sphere, "no longer respected by the mass media or by the executive" (Kreutz, 2000: 158). The result of this is the development of a third, separate secret sphere, "a new secrecy" (Kreutz, 2000: 158), alongside the public and private spheres, and one which threatens the existence of the latter. Thus, Kreutz posits, control over information becomes "partly taken from, partly voluntarily given up, by the individual" and offered to "secret services and private corporations" (Kreutz, 2000: 158). On Kreutz's reading, this is a sign of "a crisis of democracy," one whereby power has become increasingly concentrated, but "not effectively controlled by anyone" (Kreutz, 2000: 158). A power that has resulted in an ability to "gather and use information without any constraints," and to restrict public access to this information (Kreutz, 2000: 158).

2.5 The spheres of democracy

The distinctions above regarding the spheres of democracy are important, particularly in a (liberal) democratic context. Classical Greek democracy involved a clear division between "the sphere of the *polis*" belonging to the "free citizens," and "the sphere of the *oikos*" which essentially refers to a private sphere necessary to each of these citizens and "on which their participation in public life depended" (Habermas, [1962]1991: 3, original emphasis). However, it is not this ancient Greek conception of a public sphere and separate private sphere with which Habermas is primarily concerned. Its precise implication, however, that the private sphere is a necessary condition for the proper functioning of the public sphere, remains instructive to a practical understanding of democracy (see also Staeheli & Mitchell, 2004: 147).

In *The Structural Transformation of the Public Sphere* ([1962]1991) Habermas traces the development of a new kind of public sphere that developed alongside capitalism. Beginning in 13th-centruy Europe, "a new social order" began its development alongside the "emergence of early finance and trade capitalism" (Habermas, [1962]1991: 14). The development of this early global capitalist system saw large-scale "traffic in commodities," but also gave rise to a need for information about the movement of these commodities and thus "traffic in news" grew as a response (Habermas, [1962]1991: 16). Still intrinsically linked, these phenomena would

realise their "revolutionary power" under a subsequent mercantilist system that arose "simultaneously with the modern state, the national and territorial economies" (Habermas, [1962]1991: 17). Similar to how news media grew from global trade, an additional need for knowledge is emerging in the contemporary era, this time linked to the global movement of people and the desire of states to obtain information about these movements – both of its own citizens within and outside its borders, but also of non-citizens seeking entry. Arguably, biometrics could be exactly what provides this "news" in the current age.

Building on this emergent need for the consumption of news and information, Habermas traces the emergence of a "*bourgeois public sphere*." He describes this sphere as one of "private individuals assembled into a public body" and adds that the bourgeois public sphere "almost immediately laid claim to the officially regulated 'intellectual newspapers' for use against the public authority itself" (Habermas, [1964]1974: 52, original emphasis). The bourgeois public sphere, much like democracy itself, was an exclusionary institution, often accessible only by members of the higher – and educated - social strata (see Habermas, [1962]1991). As Habermas maintains, the bourgeois elite was "the real carriers of the public, which from the outset was a reading public" (Habermas, [1962]1991: 23). Until the emergence of the bourgeois public sphere, the press had been the domain of the state. Through it, the state had "already turned society into a public affair" (Habermas, [1962]1991: 23), effectively laying the foundation for society to convert the press into "the vehicle of public opinion" in turn (Habermas, [1962]1991: 31).

It is therefore no coincidence that we regard "newspapers and magazines, radio and television [as] the media of the public sphere" (Habermas, [1964]1974: 49). In an era of increasing digitisation, the Internet and social media could also be included on this list. It is within the public sphere "that politics and democracy take place" (Staeheli and Mitchell, 2004: 147) and, on Habermas' account, the public sphere remains the "realm of our social life in which something approaching public opinion can be formed" (Habermas, [1964]1974: 49; see also Barnett, 2004). The emergence of this sphere that enabled *public* opinion, often directed as Habermas tells us against the state itself, had significant implications and has come to shape our understanding of democracy. For the development of the public sphere itself has led to a "transformation" firstly, "of *who* holds political power" and secondly, it has changed "the nature of political power itself," having changed "*how* power is exercised" (Barnett, 2004: 185, original emphasis). However, while the prefix "bourgeois" has been dropped, the public sphere is still a place of conditional access – as with the *demos*, the public sphere centres on the inclusion of *citizens* (Habermas, [1964]1974: 49). Habermas locates the public sphere between

the state – "the locus of 'public' authority" – and the private sphere, composed of the "patriarchal family and the market economy" (Barnett, 2004: 185; see also Habermas, [1962]1991). On his view, the public sphere is essentially "an intermediating zone" between the private sphere and the state (Barnett, 2004: 186). Habermas' final conception of the public sphere can be described as a "collection" of normatively self-regulating practices that "aim at generating consensus through argumentative agreement rather than through strategic threats and sanctions" (Stahl, 2016: 37). Composed of various private individuals, the public sphere is a space where these individuals apply the "public use of their reason" in order to form public opinion (Habermas, [1962]1991: 27). Since it is independent of the state, and often times critical of the state, it is a space that also deserves protection *from* the state.

In his critique of mass surveillance by the government, Stahl (2016: 37) argues that Habermas' understanding of the public sphere presents a viable basis for the argument against such practices. In Habermas' view, democracy derives its legitimacy from a "well-functioning political public sphere" (Stahl, 2016: 37). In addition to traditional liberal accounts based on the principle of non-interference, Habermas' conception of the public sphere presents a justification for "why the political public sphere specifically deserves protection from state intervention" (Stahl, 2016: 37). According to Stahl (2016: 37), "surveillance shapes relationships" and therefore its insertion into the public sphere ultimately has to be viewed as "an intervention into the process of collective reasoning distinctive to this sphere." The idea of non-interference is most commonly associated with liberal conceptions of the private sphere, regarded as "a space of 'negative freedom' or of freedom from government or societal intrusion" (Staeheli & Mitchell, 2004: 148). In this space, it is argued, "opinions may be expressed and actions taken without state surveillance or sanction" (Staeheli & Mitchell, 2004: 148). The private sphere is considered to be the space "in which political ideas can be constructed and autonomous citizens are nurtured" (Staeheli & Mitchell, 2004: 147). The public sphere as the realm of political action and public opinion is a sphere "constituted in and through privacy" (Staeheli & Mitchell, 2004: 148). As such, arguments for the protection of the private sphere from state intervention are understandable. But it is not enough to argue only for the exclusion of, or at least minimal involvement of, the state in the private sphere; public opinion should be formed and public reason exercised in the public sphere without interference from the state, a body that stands *separate* from both these spaces.

2.6 Biometrics, questions of citizenship, and democracy

Citizenship is an issue at the heart of both democracy and biometric identification. Citizenship is located at the nexus of inclusion and exclusion; it has been the "embodiment *par excellence* of claims to membership, rights, [and] freedom" for eons (Ajana, 2012: 851-852, original emphasis). However, at the same time as people have been able to seek inclusion through this channel, citizenship has also been "unavoidably and inextricably linked to acts of exclusion, inequality, oppression, if not even, violence as well" (Ajana, 2012: 852). According to Smith (2002), there are four traditional ways in which citizenship is understood. But before delving into these, it is important to reflect on Marshall's three-way division of citizenship as "civil citizenship," "political citizenship," and "social citizenship" (Marston & Mitchell, 2004: 96). Civil citizenship refers to the possession of certain "civil and legal rights (property rights)" (Marston & Mitchell, 2004: 96). Next, political citizenship relates to "the political right to vote, to associate and to participate in government" (Marston & Mitchell, 2004: 96). Lastly, social citizenship refers to "social entitlements such as provisions for health and education" (Marston & Mitchell, 204: 96). Thus, we are also familiarised with the trinity of "civil, political, and social" rights, and whereby possession of all three on some accounts, is definitive of "genuine citizenship" (Smith, 2002: 110).

The most common understanding of citizenship is also its "seminal" definition: the citizen is that "person with political rights to participate in processes of popular self-governance" (Smith, 2002: 105). Secondly, citizenship is also routinely equated with "a more purely legal status." In contemporary society especially, citizens are regarded as those "people who are legally recognized as members of a particular, officially sovereign political community" (Smith, 2002: 105). The citizen, on this reading of citizenship, enjoys certain "basic rights" and qualifies for government protection as a result (Smith, 2002: 105). However, on this reading of citizenship, the extension of political rights to the citizen is not a necessary requirement. Instead, citizenship is "effectively equivalent to possessing 'nationality' under a particular modern state," thereby focusing less on its participatory aspect even though "there remains some sense that 'citizens' are presumptively more entitled to full political rights than mere 'nationals'" (Smith, 2002: 105).

There are also certain "non-political" understandings of citizenship: as Smith maintains, it has become commonplace to refer to members of "almost any human association," political or not, as citizens (Smith, 2002: 106). Lastly, Smith posits that an understanding of citizenship as referring to "not just membership in some group but certain standards of proper conduct" can be derived from the seminal and legal understandings of citizenship (Smith, 2002: 106). On

Smith's reading, we are ultimately left with an understanding of citizenship as "membership with at least some rights of political participation in an independent republic that governs through some system of elected representatives" (Smith, 2002: 107). The possession of political rights is inescapable when we are thinking of "the people." As a self-governing group of people specifically, they would have to possess – and exercise – these rights. It is therefore not enough for "the people" to qualify as citizens on a solely legal basis. And yet the importance of the participatory aspect of citizenship seems to be waning, a phenomenon attributable to the augmentation of liberal aspects of citizenship over its republican ideals (Smith, 2002: 109).

A liberal reading of citizenship is one that views "civic membership" as the means towards achieving "self-interested personal life plans" especially those relating to "economic, religious, and familial fulfilment" with very little direct focus on the participatory aspect of citizenship, championed in turn by republicanism along with the expectation that political rights are exercised in the name of the common good (Smith, 2002: 109). Contemporary democracies ideally strive to uphold a balance between these liberal and republican ideals. However, as Smith (2002: 109) contends, the tendency has been to champion liberal ideals over republican ideals. Observation will attest to the fact that contemporary democracies are not structured in such a binary manner but in reality, have been comprised of "blended liberal, republican, or Marxian elements," all in turn intertwined with aspects of "nationalism and patriarchy" grounded in many instances in "ethnic, racial, religious and gender as well as class identities" (Smith, 2002: 109).

It is at this intersection between identity and citizenship where we encounter biometrics, and where it is made possible to analyse the effect of this technology on our conception of "the people." The history of biometrics concerns more than the mere development of a new technology; it is also inextricably linked to "issues of immigration and citizenship, [to] narratives of belonging and membership" (Ajana, 2013: 1). The overwhelming tendency in the literature has been to address biometrics and its impact from the angles of privacy, data security, and surveillance, neglecting deeper underlying concerns such as those relating to the changing nature of the relationship between the state and its subjects, as well as the issue of membership (see also Ajana, 2013: 80; National Research Council, 2010: 90).

These latter concerns, however have featured prominently in the work of Ajana (2012; 2013) and Breckenridge (2005; 2014) who, while not discarding the familiar discourse on biometrics, extend their focus to the ways in which biometrics is altering the nature of state – subject relations, and that of citizenship. Having established that citizenship and the idea of "the people" are inextricably linked, their work therefore represents a suitable starting point for

thinking about the main research question of this study. Ajana sees biometric identification as a mechanism through which "central issues, such as identity, citizenship, access, entitlement and the like, are currently being managed, organised and controlled" (Ajana, 2013: 189). Her analysis is grounded in biopolitics, drawing on the work of Foucault, Agamben, and Rose (see Ajana, 2013). Ajana regards biopolitics as a framework of analysis capable of guiding the assessment of the "characteristics, challenges and stakes" associated with a further binary that emerges from biometric governance - one also present in Foucault's analysis of biopower - that of "managing the individual-body and the population-body," generally justified on the basis of managing "risk and security" (Ajana, 2013: 189).

By drawing on the specific examples of suggested national ID programmes in the United Kingdom, the IRIS-programme implemented at Heathrow airport, and the management of refugees and asylum seekers through the EU's "Eurodac" programme, Ajana illuminates some of the "paradoxical dimension[s]" of biometric governance most evident in the way biometrics is applied to citizens and to asylum seekers and other immigrants (Ajana, 2013: 189). Citizenship is not easily narrowed down to one definition but is instead dependent on a range of "qualifying prefixes" such as "'cosmopolitan' citizenship, 'postnational' citizenship, 'world' citizenship, 'digital' citizenship' [and] 'biological' citizenship" (Ajana, 2012: 851). Biometrics itself is becoming one such qualifying prefix. Both Ajana (2012; 2013) and Breckenridge (2014) introduce us to the idea of *biometric citizenship*. Breckenridge's work in particular aligns well with the fourth supplementary research question posed in this study. As such, this section will only detail Ajana's analysis of biometrics and biometric citizenship.

2.6.1 Biometric citizenship

For Ajana, biometric citizenship is "at once a neoliberal citizenship, a biological citizenship and a neurotic citizenship" (Ajana, 2013: 158). By equating biometric citizenship with neoliberal citizenship, Ajana illustrates that "the 'biometric citizen' and its 'other'" experience biometric identification in significantly different ways (Ajana, 2012: 851; see also Ajana, 2013). The opposing *other* of which Ajana speaks are all manner of immigrants, asylum seekers and refugees in particular (Ajana, 2013: 189). The biometric citizen and its *other* exist in a "constitutive relationship" whereby the one is defined in relation to the other (Ajana, 2012: 851). Neoliberal citizenship is an unequal citizenship. It is grounded in the liberal ideals of "choice" and "freedom," and also increasingly in the idea of "active entrepreneurialism," all equally representative of the "market-driven ethos" associated with neoliberalism (Ajana, 2013: 192; see also Ajana, 2012: 866). But at the same time as it seeks to uphold these ideals,

biometric citizenship as neoliberal citizenship is also "enacted alongside the exclusionary and violent measures" of control most commonly applied to persons sorted into "risky categories" (Ajana, 2012: 851).

The neoliberal form of biometric citizenship is most evident at the border – a sight of rigid social control where the wheels of inclusion and exclusion are always turning. According to Ajana, violence directed against the biometric citizen's *other* is especially evident in "the act of naming" when assigning exclusionary descriptions such as "illegal immigrant" or "refugee" to some people (Ajana, 2012: 859). This labelling is "at once the setting of a boundary, and also the repeated inculcation of a norm" (Butler, as cited in Ajana, 2012: 859) and is considered as "intrinsically violent in terms of both its exclusionary power and its normative character" (Ajana, 2012: 859). Where asylum seekers and refugees are concerned, biometrics is essentially used as a means of "fixing the identity of the asylum seeker to his/her body" (Ajana, 2013: 65-66). Ajana illustrates this by drawing on the example of asylum management in the UK through Application Registration Cards (ARC), introduced in 2001 (see Ajana, 2013: 65). These cards contain the biometric (fingerprints) and biographical data of asylum applicants and were introduced to replace the standard paper documents given to asylum applicants. Paper documents were vulnerable to fraud and forgery and so, by linking identity directly to the body, it was believed that the ARC smart ID cards could mitigate these concerns and prevent "double-dipping" whereby welfare benefits are claimed multiple times under different identities (Ajana, 2013: 65-66; see also Van der Ploeg, 1999).

The ARC smartcard allows asylum seekers to claim social welfare support and thereby represents the "condition for gaining access to social services *as* an asylum seeker" (Ajana, 2013: 66, original emphasis). At the same time as asylum seekers are included and able to exercise social rights through the ARC smart ID card, they are nevertheless singled out as "alien" and "non-citizen" (Ajana, 2013: 66; see also Ajana, 2012: 859) and thereby excluded from membership to the wider social body or, if you will, the *demos*. The asylum applicant is linked "to the order of civility only to be reminded that she/he does not belong to it" (Ajana, 2013: 67). The ARC smart ID card is at the centre of a process that "imposes a certain institutional identity" on the asylum seeker, one that usually "interferes with the lived life of the person seeking asylum and overrides [their] singular personal history" (Ajana, 2012: 859). This dynamic is representative of the violence of biometrics for Ajana since it has become a means "through which a certain nameable identity emerges at times, against the will of the person" (Ajana, 2013: 132). For Ajana, the ARC is a prime example of the Agambenian reading

of an "inclusive exclusion" as put forward in his conceptualisation of biopower (see Ajana, 2013; see also Agamben, 1998).

Ajana formulates her conception of biometric citizenship as neoliberal citizenship by building on the work of Rose (biopolitics), who suggests that with the development in recent years of a number of "technologies of freedom," governments have been enabled to "govern 'at a distance' *through*, not in spite of, the autonomous choices of relatively independent entities" (Rose, as cited in Ajana, 2012: 853, my emphasis). This ability to subject persons to the control of the state through their own agency ultimately translates into "the art of 'governing *through* freedom'" (Ajana, 2012: 853, original emphasis). It is expressed in the ability of some, a group Ajana calls "the kinetic elite'" to *voluntarily* make use of biometric identification technologies (Ajana, 2012: 855; see also Ajana, 2013: 164).

By drawing on the specific example of the United Kingdom's Iris Recognition Immigration Scheme (IRIS) introduced in 2005, Ajana shows how biometric identification has allowed for "the flexible and speedy exercise of rights," especially that of "freedom *qua* mobility" for a select group of persons whom we can otherwise call biometric citizens (Ajana, 2012: 866, original emphasis; see also Ajana, 2013: 192). IRIS, an automated biometric identification programme was initially introduced at Terminals 2 and 4 of London's Heathrow airport (see Ajana, 2013: 124; see also Ajana, 2012). The IRIS system made it possible for "businessmen" and "frequent travellers" to skip the lengthy passport control process by allowing them to avoid physical interaction with immigration officers at the border and to instead have their identities verified by "walk[ing] up to an automated barrier, simply looking into a camera and if the system recognises them enter the UK" (Home Office, as cited in Ajana, 2013: 124).

While IRIS has since been halted (see BBC, 2012), it demonstrates, however, the inequality of biometric citizenship as neoliberal citizenship. IRIS has made it possible for a "qualified kinetic elite" (Ajana, 2013: 125) to exercise a relatively high degree of self-governance and freedom "expressed as freedom from 'state guidance'" (Ong, as cited in Ajana, 2013: 124). However, as Ajana emphasises, the freedom enabled through this form of biometric citizenship is "a *conditional* freedom" subject to the individual's willingness to submit their "biological data and fulfilling various pre-clearance criteria" (Ajana, 2012: 855, original emphasis). But at the same time as biometrics allows for the privileged exercise of rights and inclusion, it also enables "exclusionary and violent measures" of control to be exercised over those persons who are deemed "risky" (Ajana, 2012: 851). Mediated by the use of biometric identification, the "categorisation and sorting" of passengers can take place on a "*virtual* level" whereby

passengers are "pre-sorted according to those enrolled on the scheme and those who are not" (Ajana, 2012: 855, original emphasis; see also Ajana, 2013: 125).

The same process of categorisation still takes place on an "*actual* level" whereby the mobility of passengers not included in the IRIS biometric identification programme, "is filtered on the spot within airport terminals" (Ajana, 2012: 855, original emphasis; see also Ajana, 2013: 125). The removal of the immigration officer from the border control process for the elite group of biometric citizens led to enhanced control of the groups of people not registered on the IRIS system, and thereby to more intense focus on the categorisation of travellers on the actual level as described above (see Ajana, 2012: 855; see also Ajana, 2013:124-125). Importantly, inclusion in the IRIS programme was not limited to British nationals only, but dependent on risk assessment and security clearance processes, the programme also included "short-term visitors" to the UK, persons with either "provisional" or "permanent" permission to stay in the UK, and persons with relatives residing in any of the European Economic Area States (Ajana, 2012: 855 – 856).

Based on this, Ajana maintains, biometric citizens are not simply "holders of national passports" but are ultimately actors in what Sparke has termed a "new kind of transnational para-citizenship" (Sparke, as cited in Ajana, 2012: 855; see also Ajana, 2013: 125). For Ajana, this is ultimately representative of an extension of citizenship "beyond the confines of territoriality and bounded nationality" (Ajana, 2012: 855; see also Ajana, 2013: 125). The neoliberal aspects of biometric citizenship are expressed in the ability of some to exercise "individuated claims" to the neoliberal ideals of "choice, autonomy, flexibility and entrepreneurialism" (Ajana, 2013: 126). Its aim is to work for the acceptance of biometric identification technology through a reframing of control as "more about the seductive *promise* of additional freedom, privileged rights and flexible mobility" whilst moving away from "the coercive exercise of power" (Ajana, 2013: 126, original emphasis).

The second aspect of biometric citizenship identified by Ajana is that of biological citizenship. Ajana (2013: 133) refers to biological citizenship as an "umbrella term" for what Rose and Novas have described as "all those citizenship projects that have linked their conceptions of citizens to beliefs about the biological existence of human beings" (Rose & Novas, as cited in Ajana, 2013: 133; see also Ajana, 2012: 860). Ajana builds her conception on the work of these authors who rely on the "practices currently emanating from the life sciences and other related fields" to show how "traditional notions of national citizenship" are being transformed by these practices, and in so doing, leading to the establishment of "a 'new' kind of citizenship, one in which biology plays a central role" (Ajana, 2013: 133; see also

Ajana, 2012: 860). What Rose and Novas are attempting to illustrate is that modern biological citizenship "does not necessarily take a 'racialized and nationalised form' in order to reach racial purity" as it essentially did at the height of the eugenics movement (Ajana, 2013: 133; see also Ajana, 2012: 860-861). What contemporary biological citizenship seeks to achieve is the "maximisation" of "biovalue, that is to say, the rendering of life itself as a productive and profitable economic and political value" (Ajana, 2013: 134; see also Ajana, 2012: 861).

This desire to increase biovalue and the specific focus on economic profitability extracted from biological life, is deeply reminiscent of Foucault's *disciplinary power*. While using the work of Rose and Novas as springboard for the development of her reading of biological citizenship, Ajana extends their analysis to include biometric identification technologies specifically and, in direct opposition to Rose and Novas, Ajana reveals that "racial and nationalised aspects are not entirely absent from biological citizenship but take on different, and at times *implicit*, functions and dimensions" (Ajana, 2013: 134, my emphasis). The biological form of biometric citizenship aligns deeply with the workings of biopolitics. In fact, the presence of biometric identification technologies in the processes of border control and immigration management is one of its most concrete manifestations. Biometric identification embodies "a biopolitical technique for sifting through different forms of life according to their level of usefulness and legitimacy" (Ajana, 2013: 134; see also Ajana, 2012: 861). Biometrics thereby contributes directly to the "linking [of] the person's identity to her biovalue," a phenomenon especially evident in the issuing of work permits or "skilled migrant programmes" (Ajana, 2013: 134). The overarching importance of the economic profitability of the (right) human body to systems of biometric control and the "biologisation of the (non-) citizen" as a result, has meant that in practice biometric sorting has inevitably led to the re-articulation, explicit or implicit, of "the racialised and nationalised dimension" of citizenship (Ajana, 2013: 136).

In contemporary society and especially in the act of biometric border control and immigration management, immigration itself has come to "substitute for the notion of race" (Balibar, as cited in Ajana, 2013: 136), a substitution that has effectively enabled discriminatory practices on the basis of "security and counter-terrorism policies" (Ajana, 2013: 136). It is increasingly the case that border control now also involves the monitoring of travellers ahead of their journeys, a process that often involves "racial, ethnic and religious profiling of those considered as 'risky' individuals and collectivities" (Ajana, 2013: 137). This type of profiling has been evident in the United States Computer Assisted Passenger Pre-Screening programme whereby persons who are intending to travel to the US are sorted into

varying categories according to a three-tier risk evaluation system based on personal data collected prior to their travels. This categorisation is known to involve race as consideration (Ajana, 2013: 137). Race is also a consideration in the decision to conduct "stop and search" checks on illegal immigrants in Europe; these checks have been known for the explicit "targeting [of] minorities and [the] singling out [of] specific groups for further investigation" (Ajana, 2013: 137).

The final aspect of biometric citizenship identified by Ajana is its neurotic aspect. Biometric citizenship as neurotic citizenship is embodied in the pre-emption of identifying certain persons as risky, ultimately leading to the idea of "governing through freedom" becoming dependent on the simultaneous "governing through mistrust" (Ajana, 2013: 144, see also Ajana, 2012: 860). The basic idea of neurotic citizenship is that alongside the traditional, rational "(neo)liberal citizen" who generally regards their rationality as "necessary […] for conducting one's life successfully and productively, and for handling the risks of the future" (Ajana, 2013: 144), is emerging a second subject, one that seems to discard its rationality and "is constantly anxious" (Ajana, 2013: 144). It is advisable to keep one eye on the future, but the reality is simply that not everything can be predicted and thus we are very much at the mercy of "the unforeseen, the unknown and the unintended" – realms that extend beyond "the limits of knowledge, rationality if not even reason itself" (Ajana, 2013: 144). The same kind of anxieties displayed by the subject are manifesting in the task of governing with ever increasing "techno-scientific developments, global movement, business ventures, 'terrorist' threat and military actions" that ultimately leave governments uncertain and anxious about the effects these developments could have on their states (Ajana, 2013: 144).

Ajana (2013: 144, original emphasis) offers the notion of "*governing through affects*" to explain the phenomenon whereby states are able to seize on the anxieties awakened by these developments in the citizen and to effectively govern through these feelings (affects). By using feelings of anxiety and angst as a governing tool, governments are effectively inciting their subjects to "manage and calibrate their conduct on the basis of their insecurities rather than rationalities" (Ajana, 2013: 146). This is leading to the creation of what Isin has termed "neuroliberalism" whereby citizens are "continuously being neuroticized and imbued with a heightened level of stress and anxiety" (Ajana, 2013: 146). Ajana notes that this is particularly evident in the case of border control where, as Isin remarks, feelings of insecurity and "anxiety about the Other" has heightened ever since "the events named after a month and day" (Isin, as cited in Ajana, 2013: 147). Not only has the deployment of biometric identification centred on physical features like fingerprints and facial recognition increased, but the control of access at

the border now increasingly also concerns "*behavioural* profiling" whereby biometric identification technologies take "affective expressions as its object of analysis and scrutiny" (Ajana, 2013: 147, my emphasis). Ajana's governing through affects is best captured in the monitoring of "emotion in motion," regarded as "an important resource for security procedures and a potential target of biometric control" at border posts and airports (Ajana, 2013: 148).

The drive towards the inclusion of the biometric subject's emotions in the process of biometric screening for verification and/or identification is suggestive of "the desire to intensify border security and control" (Ajana, 2013: 149). This phenomenon has curiously become known as "the will to 'Israelify' borders and airports" (Ajana, 2013: 149). "Israelifying" is essentially motivated by the desire to achieve a "technical and epistemic triangulation of body, emotion and thought" (Ajana, 2013: 149). In Israel, entry into the country is controlled through the use of technologies that enable such triangulation. Suspect Detection Systems, a local security firm, has developed the SDS-VR-1000 machine that assists border officials with the task of determining whether to grant entry to or submit passengers to further questioning by detecting "suspect behaviour and hostile intent" revealed in the "facial and physiological" responses passengers give to border officials (Ajana, 2013: 149-150). The argument for this mode of surveillance is that when hearing words "relevant to terrorist activities" a passenger involved in such deeds should display physical (visible) signs of nervousness and stress (Adey, as cited in Ajana, 2013: 150).

For Ajana, this mode of biometric governance is a means of returning to focus the "narrative" and "affective dimensions" that biometric identification technologies concerned only with "the singularity of the body" exclude (Ajana, 2013: 150). Aside from being reflected in the governance of the border and airports, Ajana also sees biometric citizenship as neurotic citizenship reflected in "the discourses and practices surrounding identity fraud" and the advocacy for biometric identification grounded in it (Ajana, 2013: 193). Here, the citizen is called upon to "be more vigilant, responsible and proactive in protecting their identities" (Ajana, 2013: 193). Ajana is of the opinion that together, these aspects of biometric citizenship are responsible for the "'disjoining' and 'thinning' of the very ideal and practice of citizenship" (Ajana, 2013: 158). As a result, citizenship will over time be completely "reduced to processes of identity management and the implementation of technical operations" (Ajana, 2013: 158).

What Ajana's detailing of the notion of biometric citizenship indicates is that ultimately, biometric identification has been embedded in the governance of citizenship and the border to such an extent that it is effectively "being governed *by* biometric technology" (Ajana, 2013: 16, my emphasis). Biometric governance is not one-dimensional but instead combines

numerous different "practices and thoughts" (Ajana, 2013: 15). Ajana maintains that it is therefore necessary to consider seriatim the collection of "rationales, discourses, meanings, dynamics and narratives" that drive the push for inclusion of biometrics in ever increasing societal fields (Ajana, 2013: 15). Remaining within her theoretical framework of analysis, Ajana maintains that Foucault's notion of *governmentality* is one mode of analysis that could allow for the task of wading through the web of practices and thoughts that is biometric governance, making it possible to survey "the complex relationship between government and thought, between technologies of power and their underpinning political rationalities" (Ajana, 2013: 15).

Governmentality is a notion that includes "the constitution of the self in the power nexus of society's institutions, political or otherwise" and considers the "productive aspects" of power whereby it "reconfigures the subject" (Zureik & Hindle, 2004: 113). Biometric identification cannot be separated from the gathering of knowledge. Governance itself is primarily concerned with applying "knowledge (technical, social, administrative)" for the task of managing "population groups through identification, categorization (inclusion and exclusion), and a monitoring process" aimed at the establishment of "a disciplinary, hegemonic regime based on self-normalization" (Zureik & Hindle, 2004: 114). Identification, categorisation, surveillance (monitoring) and even discipline are all at the heart of what biometric governance comprises and seeks to achieve. Ajana also seems to confirm my earlier postulation that biometrics is a very specific source of "news" in the contemporary era. On Ajana's account, biometrics can be equalled to "a form of 'new media'" or better yet, "a form of 'biomedia'" (Ajana, 2013: 21). Biometrics ultimately "transforms the body into machine-readable codes" (Ajana, 2013: 21) and transforms the body into that which is at once "medium" and "mediated" or, in other words, the body becomes "the means by which 'measurement' is performed" as well as "the 'object' of measurement" (Ajana, 2013: 23).

Chapter Three
Contemporary biometrics in practice

Building on the literature review, this chapter offers a close description of particular contemporary cases, drawing on secondary literature. Biometrics can today be found in all those "interactions with the state" as well as with "non-state institutions" that require the individual to have a firmly established identity (Gelb & Clark, 2013: 1). The former involves processes such as "voting, claiming social security payments, [and] obtaining passports" while the latter involves "opening a bank account, [or] buying a house" (Gelb & Clark, 2013: 1). Gelb and Clark argue that we can also divide the application of biometrics into two further categories, namely "functional" and "foundational" applications (Gelb & Clark, 2013: 3). Foundational applications are those applications where biometrics is used in "identity services created for the purpose of providing general or multi-purposed identification" (Gelb & Clark, 2013: 35). Functional applications on the other hand, covers the use of biometrics in processes such as "voting, transfers or enabling financial access or health insurance markets" (Gelb & Clark, 2013: 3). What all of these applications have in common is that they are intended to "further inclusion, facilitate access to rights and services, and strengthen public accountability" (Gelb & Clark, 2013: 3). The categorisation at the start of this section can also be inverted to include interactions between the state and citizens, and the state and non-citizens.

3.1 Biometrics applied to citizens

3.1.1 South Africa

South Africa boasts one of the longest, and perhaps the only uninterrupted, histories of biometric registration in the world. Biometrics has been part of the activities of every incarnation of the South African state, from the colonial state, to the apartheid state, and increasingly, the democratic state (see also Breckenridge, 2005: 270; Breckenridge, 2014). For the greater part of South Africa's history with biometric registration, the application of biometrics has been unequal and targeted specifically at the country's non-white population. Race became deeply linked to official identity with the passing of the Population Registration Act of 1950 which mandated that all South Africans should obtain an identity document with a unique identification number and "racial classification" clearly listed (Breckenridge, 2014: 168). Not only did this give rise to the country's "centralised population register" (Breckenridge, 2014: 168), but it also shows that identity registration does not always lead to democratic inclusion. The registration of the country's African population involved the

recording of "their names, locale, tax status, fingerprints and their officially prescribed rights to live and work in the towns and cities of South Africa" (Breckenridge, 2014: 138). This system of population registration would become the foundation for the "process of stripping all black South Africans of their citizenship, [and] allocating them to one of the emerging Bantustans" following the passing of the Bantu Homelands Citizenship Act in 1970 (Breckenridge, 2014: 174). This arrangement meant that the movement of Africans outside of these territories became subject to the presentation of "work permits" (Breckenridge, 2014: 174) and conveniently created a system of surveillance through which a white government could keep track of the African population.

The popular anti-terrorism/security narrative that often drives biometrics application also traces its origins to apartheid South Africa, where biometric registration was part of "deeply influential strategies of counter insurgency" (Breckenridge, 2014: 176). It was "a series of conspicuous bombings" that targeted "fuel refineries, banks and railway stations" throughout the country, executed by the special operations unit of the ANC, that motivated the eventual decision in 1981 to implement the mandatory fingerprinting of "all South Africans, white and black" (Breckenridge, 2014: 175). This was a world-first and with its establishment South Africa became home to the first "universal biometric population register" (Breckenridge, 2014: 175). Breckenridge views the development of biometric registration in South Africa, from its earliest beginnings right up to current efforts at digitising the central identification system (see Breckenridge, 2005; Duncan, 2018; Department of Home Affairs, 2020), as part of a process of mitigating "the failures of an existing system of documentary regulation," a system that Breckenridge refers to as "the archival state" (Breckenridge, 2005: 270; see also Breckenridge, 2014). The mission of every incarnation of the state in South Africa has essentially been to "overhaul the operations of the biometric identification regime in order to bolster the state's faulty grip on its subjects" (Breckenridge, 2005: 270). Current biometrics applications see the state chasing this goal through surveillance of "immigrants and citizens who illegally claim welfare benefits," and most significantly, through "a project of redistributive social justice" (Breckenridge, 2005: 270). Whereas biometrics were applied in apartheid South Africa to marginalise its non-white population, today the application of biometrics in citizen-state relations is driven not by marginalisation and exclusion, but very strongly by "a desire to repair a broken bureaucracy, to deliver grants and other benefits to the poorest and most vulnerable of its citizens" (Breckenridge, 2005: 270).

Biometrics (fingerprinting) in its digital incarnation were applied in 1990 to the system of pension benefit payments in what was then the KwaZulu homeland (Breckenridge, 2005: 272).

A lack of infrastructure and banking facilities in the rural parts of KwaZulu required innovation on the part of government in order to distribute pension payments (Breckenridge, 2005: 272). This resulted in a partnership with a private company named Cash Payment Services (CPS) that "organised the distribution of pensions using biometric identification" (Breckenridge, 2005: 272) and an innovative system of off-road vehicles, portable fingerprint scanners, and "truck-mounted dispenser[s]" to allow pensioners to receive their money. CPS used a smartcard system that "involved the prior digital registration of fingerprints" stored directly on the card as well as in a central database (Breckenridge, 2005: 272). By the end of the decade, "pensions and unemployment benefits" were able to reach more than one million people throughout South Africa and Namibia (Breckenridge, 2005: 741). For Breckenridge, this is all part of a wider process of "establishing the biometric state," a process that he ultimately deems "clearly irreversible" (Breckenridge, 2005: 272).

Various different private entities have been involved in this process of biometric distribution of social welfare grants in South Africa since 1990, and in 2014 tender irregularities between the South African Social Security Agency (SASSA) and the company Cash Paymaster Services, brought to light many of the concerns around the distribution of this vital service by a private company as well as the issues inherent to the storing of biometric data in a central database (see Duncan, 2018: 170-172; see also Breckenridge, 2005; Breckenridge, 2014). Its faults notwithstanding, the system of biometric grants delivery and wider social welfare programme in South Africa is "one of the country's most important post-apartheid achievements" and it ultimately shields "millions of South Africans from outright destitution" (Duncan, 2018: 169).

3.1.2 Ghana

Ghana has incorporated biometrics in its national identification and voter registration programmes, as well as a range of financial applications (see Gelb & Clark, 2013). Identity first became a serious policy concern in Ghana during the 1970s when the "Identity Card Decree" necessitating "all citizens to register for a Citizen Identity Card" was passed, and in the 1990s the issue of identity registration was briefly revisited (Breckenridge, 2010: 645). In 2001, precisely at the time of a renewed global interest in biometrics, the government of Ghana made public plans for the implementation of a nation-wide biometric identity registration programme (Breckenridge, 2010: 645). The programme, designed to "provide universal identity registration," formally kicked off in 2008, but was ultimately "eclipsed by the effort to target people who might use the banks" (Breckenridge, 2010: 642). The dawn of biometric

identity registration in Ghana was also the birth of one of the most interesting applications of biometrics in the finance and banking sectors: the e-Zwich programme. Ghana's e-Zwich programme represents for Breckenridge a break with traditional identification projects that were implemented with the goal of "bring[ing] to the state's attention members of the poor, rural, young and old population who very largely had slipped out of sight in the twentieth century" (Breckenridge, 2010: 644).

e-Zwich is a revolutionary banking programme that makes use of biometrically encrypted smartcards that are only accessible through the verification of the cardholder's fingerprints (Breckenridge, 2010: 642). In a country where "some 80 per cent of the population still remained outside of the banking system" after half a century of independence, e-Zwich was seen as a mode of taking control of "the paper money actually in circulation for bank capital" (Breckenridge, 2010: 650). In fact, one of the motivations most commonly stated for its development was the goal of transforming Ghana into "the first cash-free economy in the world" (Breckenridge, 2010: 642). Apart from these domestic financial concerns, e-Zwich is also said to be able to alleviate some of the regional financial challenges that impact the country. It was seen as a way of overcoming the "very limited role that formal banking institutions play in the region" (Breckenridge, 2010: 643). Secondly, e-Zwich was viewed as a mechanism to "extend the state's regulatory grasp deep into the informal and rural domains of the national economy" (Breckenridge, 2010: 643). Lastly, e-Zwich is a response to "informal and transnational practices" that has for the most part circumvented the "post-colonial state's ability to influence and tax the economy" (Breckenridge, 2010: 643).

When enrolling for the e-Zwich programme, the user is required to undergo a ten-print fingerprint scan. These prints are then stored "in a centralized, searchable fingerprint database" (Breckenridge, 2010: 653). This database effectively gives the state unprecedented power over the economy that is not possible through standalone national identification programmes. With the introduction of e-Zwich, the state has for the first time "real influence over the provision of banking facilities," essentially converting it into "a policed monopoly" (Breckenridge, 2010: 652). e-Zwich has also enabled the state to upgrade its payroll to an "automate[d] and control[led]" system (Breckenridge, 2010: 652). Its centralisation has also enabled a one-to-many search function and has made it possible to pick out "ghost workers" (Breckenridge, 2010: 653).

In light of election irregularities and accusations of vote rigging, e-Zwich was praised in the media as "an example of what might work to control the country's perplexing voter registration process" with the Minister of Communications later concurring and announcing plans for

biometric voting in the country (Breckenridge, 2010: 654). While the e-Zwich system may have overshadowed the national biometric identification drive, it does incorporate national identification in a very interesting way. Every bank account recorded in the e-Zwich database is also tied to a national identification number and to the user biometrics. This has given Ghana's Central Bank the unique "power to record all the transactions of all the individuals using a system" (Breckenridge, 2010: 653). This effectively means that e-Zwich now "records the biographical details, the times, places, and amounts of all transactions on the system" (Breckenridge, 2010: 653).

3.1.3 Israel

Israel makes for an interesting case study. It is essentially still a state in the making and for this reason, represents a unique opportunity to observe the use of biometrics in state building, or solving the (a) boundary problem as such. It presents also "a useful case for exploring relationships between security and new technology" (Spektor, 2020: 103). The issuing of identity cards in Israel was not unusual to the public in 2009 when the law that gives the Israel Biometric Project (IBP) its legal standing was sanctioned by the Israeli parliament. What was novel about this new system however, was that Israeli citizens would now have their traditional identity documents replaced by "biometric ID cards and passports" and be simultaneously subjected to "the establishment of a mandatory biometric database for storing their bodily information" (Marciano, 2019a: 98; see also Marciano, 2019b). The system was finally implemented in 2017 and was preceded by a voluntary pilot programme that started in 2013, before it officially entered into operation (Marciano, 2019a: 98-99; see also Marciano, 2019b; Spektor, 2020). The introduction of the IBP was not a smooth process and the biggest source of contention was the second goal of the Project: the centralised biometric database. The rationale behind the addition of biometrics in Israel's national identification system is very much indicative of neurotic citizenship as described earlier. Increasingly, it becomes clear that citizenship in Israel is also morphing into biological citizenship, and leaning perhaps more to its discriminatory side.

Advocates for the IBP both in public office as well as some private entities and individuals, and key industry players, suggested biometric identification as necessary to "prevent identity theft and ID card forgery, increase efficiency, and most centrally, enhance national security" (Spektor, 2020: 101). When the pilot programme began in Israel, it gave rise virtually instantaneously to groups such as the "Digital Rights Movement" and "No2Bio" who would very passionately and very publicly criticise the IBP (Spektor, 2020: 101). Both these

opposition groups were comprised of "academic experts and grassroots activists" who took their fight against the IBP all the way to the country's highest court and relied also on the Internet to spread its message (Spektor, 2020: 101). The critique levied by these groups against the IBP is quite interesting. Opposition groups found common ground with government on the need to include biometric identifiers in identity documents, but what it strongly opposed was the creation of the centralised database and their opposition campaign was therefore focused exclusively on removing the database (Spektor, 2020: 102).

For the duration of the pilot project, a series of "(S)ocial activists, intellectuals, cryptography experts, politicians, and journalists" were involved in public debate about the IBP (Marciano, 2019a: 99) and called the database "undemocratic, a threat to privacy and civil liberties, and most centrally, a threat to national security" (Spektor, 2020: 102; see also Marciano, 2019a). Interestingly, national security was the one element that motivated both the efforts of the proponents of the IBP to include a central database in the project, and the efforts of the opposition to exclude it (Spektor, 2020:103). By the time the IBP was officially implemented, a compromise had been reached: neither group's efforts were fully accepted or rejected – the solution of government was to keep the database, but to limit "the amount of data it contained," thereby addressing the concerns of both groups (Spektor, 2020: 103). The final product was "a mandatory database of face templates, leaving fingerprints voluntary" (Marciano, 2019a: 99).

Israel has often in recent years been referred to as an "apartheid state." While I do not purport to discuss the validity of this claim here, it is hard not to notice that the spatial and social regulation of the Palestinian people does follow a peculiar pattern that closely resembles that of apartheid South Africa. It is especially evident in the country's identification system and its application of biometrics in identification systems. Zureik maintains that in such "deeply divided societies" as South Africa and increasingly, Israel, the "control of space and people is paramount" (Zureik, 2001: 225). In both these countries, "passes and identity cards" play(ed) a critical role in the regulation of "spatial locations and movement of people" (Zureik, 2001: 225). Whereas South Africa built this system on racial divisions, in Israel it is built on "ethnicity, religion, and national origin" (Zureik, 2001: 225). Even before biometrics were introduced in Israel, national identification was prioritised and every Israeli citizen was issued an identity card that bases their national origin on "ethnic-national marker[s]" (Zureik, 2001: 214). As such, the owners of these cards are classified as either "'Jew,' 'Arab' or 'Druze'" (Zureik, 2001: 214).

Such classification impacts heavily on the notion of citizenship with "rights and obligations […] regulated according to State policies determined to a large measure by a Zionist ideological framework" (Zureik, 2001: 225). Through these identity cards and its differing classification, identity has taken centre-stage "in the debate over whether or not Israel is the State of its citizens or the State of the Jewish people" (Zureik, 2001: 214). It is also interesting to note that biometrics registration was applied to the Palestinian people in the Occupied Palestinian Territories (OPT) long before it was even considered for inclusion in the identification system for Israeli citizens (Spektor, 2020: 109). The Basel System, implemented in 1999 at the Erez crossing between Gaza and Israel, is used to regulate the movement of Palestinians from the OPT to Israel through "Israeli work permits, paired with biometric work permit cards and biometric verification at checkpoints" (Spektor, 2020: 109).

3.2 Biometrics applied to non-citizens

3.2.1 United States of America

Although the biometric registration of citizens has been suggested at various points in the history of the US, most recently the inclusion of biometric identifiers with drivers' licenses, the country's predominant focus has been on the application of biometrics as an arm of its national security directed mainly at non-citizens (see Breckenridge, 2005; Breckenridge, 2014). Biometrics in the US, especially fingerprinting, has normally had an "outwards" facing focus and has been aimed at "legal and illegal immigrants," while its inward focus has been on "marginal populations of criminals and welfare recipients" (Breckenridge, 2014: 210). The application of biometrics involving citizens further spans the "compulsory registration of government employees, of members of the military, and even the licensing of some professionals" (Breckenridge, 2014: 202). The country's increased outward focus has been of particular global significance. As is the case with much of what transpires in the US, the rapid incorporation of biometrics in the country's migration and travel management systems following the terrorist attacks of September 11, 2001 had a ripple effect still felt around the world a decade later. In the immediate effort to better secure its borders, the US targeted the visa system first.

Through the "US Visitor and Immigrant Status Indicator Technology" (US-VISIT) programme, the US mandated the collection of "biographic, travel and biometric information (photograph and fingerprint)" of all non-citizens who enter the country (Redpath, 2005: 9). The granting of a US-visa is dependent upon biometric registration. Visa applicants are expected to provide their fingerprints and photographs at American consulates in the countries from where

the visa application is lodged, and this biometric data is then checked against the Department of Homeland Security's "Automated Biometric Identification System" database to determine whether a visa will be granted or not (Redpath, 2005: 9; see also Breckenridge, 2014). Upon arrival in the US, if a visa were granted, the traveller's biometrics are again verified (Breckenridge, 2014: 196). This overhaul of the visa system also affected the longstanding "visa waiver programme" and after 9/11 participating countries were expected to include biometrics in travel documents as a pre-condition for entering the US (Redpath, 2005: 9). This effectively meant that countries not previously considering biometric identification, or those who were considering but had not yet implemented any concrete biometric programmes for use on their citizens at least, now had to acquire the necessary infrastructure and implement such programmes in order to enable their citizens to still travel to the US.

This forms of part a further underlying motivation of the US viz. that of establishing "a global system of fingerprint gathering" (Breckenridge, 2014: 196). The US Secretariat of Homeland Security, established in the immediate aftermath of 9/11, has been one of the most "powerful advocates of global biometric identification" (Breckenridge, 2014: 196). Apart from the collection of fingerprints from foreign nationals through migration oversight programmes like US-VISIT, the US has also actively been collecting fingerprints in those countries where its military has been deployed. Remaining true to its "military and national security" approach to biometrics, soldiers in such countries as Iraq and Afghanistan had collected "fingerprints from bomb fragments, [and] from civilians" while diplomats have been responsible for their collection "from police officials and embassies in Egypt" (Breckenridge, 2014: 201).

3.2.2 European Union

As a result of the changes in US immigration, countries in the EU were deeply affected by the new regulations and had to introduce biometrics into the passports of its citizens. Officially, the inclusion of biometrics in passports was also motivated by a desire to "render the passport more secure […] and at the same time, to establish a reliable link between the genuine holder and the document" (Redpath, 2005: 10). But plans for biometric identification systems for use in migration management, asylum in particular, existed for some time before 9/11 and the US biometrics revolution. After many discussions about the construction of a digital database of fingerprints "of anyone seeking access to one of the European Union's countries on grounds of political persecution," the European Council decided finally in 1997 on the implementation of just such a programme - "Eurodac" (Van der Ploeg, 1999: 296).

Eurodac was a response to the significant challenges EU countries faced when it came to the rejection of asylum applications. A significant number of asylum seekers whose applications had been rejected, "disappear[ed] into an illegal existence during the period between the end of the legal proceedings and their immanent eviction" (Van der Ploeg, 1999: 297). In other cases, EU countries were not able to evict such persons at all due to insufficient proof of identity resulting in the refusal of asylum and of re-entry into the country of origin (Van der Ploeg, 1999: 297). Eurodac is an outgrowth of the wider commitments made at the Dublin Convention in 1990, where EU member states decided that "the first country where the applicant arrives was to be responsible for their application" (Van der Ploeg, 1999: 298; see also Ajana, 2013: 49). This prevented member states from "passing refugees on to [one] another" and also prevented asylum seekers from lodging multiple applications for asylum in different EU countries simultaneously (Van der Ploeg, 1999: 298). Eurodac became operational in 2003 and contains the fingerprints of all asylum seekers aged 14 and up in a digital database (Ajana, 2013: 49-50) alongside their "gender, date of fingerprint taking, and a reference number" (Van der Ploeg, 1999: 299). While the anti-terror narrative began to shape immigration control even in the EU (see Redpath, 2005), Eurodac's initial purpose was to determine whether a person applying for asylum in one country, had not also done so in another (Ajana, 2013: 50).

It would later expand to the management of persons found illegally entering the EU, representing an expansion of the Eurodac programme "beyond [its] initial intended target, and in ways that collide with the original Dublin Convention" (Ajana, 2013: 50). Ajana notes in line with Van der Ploeg's reading of the system (see Van der Ploeg, 1999), that the governing of both asylum seekers and illegal immigrants through the Eurodac system ultimately results in "the conflation of foreigners and refugees with criminality and illegality" and fuels the flames of "discourses of fear and otherness whereby criminality and asylum are placed side by side" (Ajana, 2013: 51). A case in point is the Netherlands, where a single database contained fingerprints of both asylum seekers and those suspected of crime, sans "legal or technical separation" (Ajana, 2013: 51). Such practices are indicative of a very significant phenomenon: instead of reading programmes like Eurodac and other immigration management systems as "determining any preexisting identity," Van der Ploeg maintains that we should view them rather as "ways to *establish* identity, in the sense that 'identity' becomes that which *results* from these efforts" (Van der Ploeg, 1999: 300, original emphasis).

3.3 Concerns around and attitudes toward biometrics

As already alluded to, and linking directly to the problematic history of biometrics, the use of these technologies can perpetuate a cycle of exclusionary identification (Kloppenburg & Van der Ploeg, 2020). It can also enable mass surveillance by the state. Duncan (2018: 165) argues that the fact that a link between "physical characteristics" and "identity management" exists in the first place does not bode well for privacy, and subjects "some of the most personal features of an individual" to the prying eyes of the state, enabling the "interfer[ance] with a person's bodily autonomy and hence privacy." The global web of biometric identification systems now represents "a system of hidden and fragmented biological control" (Lebovic, 2015: 842). Furthermore, Lebovic (2015: 843) argues that biometric identification technologies have become a novel part of daily life, enhancing the "growing fusion of security, information, and identification systems." The biometric identification system represents "the inherent measure of modernity" in "the age of control" (Lebovic, 2015: 843).

One of the most cited concerns regarding the use of biometrics is privacy and data security. Centralised biometric databases are a particularly sensitive point. In order to fulfil its key functions, biometric identification depends on the compilation of databases containing biometric data.[4] Unlike biometrics data stored on a chip in the case of smart cards, and where live presentation of the biometric for verification simply rely on a one-to-one match, centralised biometrics databases used for one-to-many matches store significantly large amounts of personal data which could include biographical, location data etc. on top of biometrics data. The vulnerability of computers, networked computers especially, to hacking cannot be ignored. Furthermore, when these databases become shared between departments or even countries, the risk increases. There is a possibility that stored biometrics data "may also be used for purposes for which it was never intended when the person enrolled" (Duncan; 2018: 168; see also Ajana, 2013; Breckenridge, 2005; Irish Council for Bioethics, 2009). This phenomenon, known as "function creep," (see Duncan, 2018: 168; Ajana, 2013; Redpath, 2005) directly links to another concern arising from the use of biometrics in general viz. "social sorting," a process whereby individuals are categorised "according to their physical characteristics" and could lead to what amounts to authoritarian discrimination based on "characteristics such as race, gender or age" (Duncan, 2018: 168; see also Ajana, 2013).

[4] There are examples of instances where databases have not been required, however these are very exceptional cases of biometrics application (see Gelb & Clark, 2013: 49).

But it is not all negative. As the above examples indicate, in spite of its global proliferation, biometrics use is not homogenous and different states place more emphasis on different aspects of biometrics, for example choosing to prefer social security and welfare applications over the more exclusionary surveillance-security aspects. Leading biometrics researchers, Gelb and Clark (2013), point to a stark difference in focus between biometrics use in rich and low- and middle-income countries. The focus in rich countries, or those of the Global North, is primarily on issues of security, whereas in low- and middle-income countries, those in the Global South, biometrics is increasingly applied in "national identity systems" and "public service delivery" (Gelb & Clark, 2013: 2; see also Duncan, 2018). In this latter set of countries, biometrics use spans "civil registries to voter rolls, health records to social transfers, [and] public payments to pension payments" (Gelb & Clark, 2013: 2). Prizing "non-security" issues like national identification over security is a result of the underlying condition of an "identity gap" present in low- and middle-income countries as opposed to rich countries (Gelb & Clark, 2013: 1).

Perhaps something is to be said here of the nature of the state, especially the post-colonial state. Civil registration and written record keeping are far better established in the Global North, whereas the post-colonial states of the Global South inherited broken systems of civil registration from colonial-era governments (see Breckenridge, 2014; see also Gelb & Clark, 2013). Those in the Global North are accustomed to "(C)itizenship mediated by writing," while in the former colonies, "a mimetic state has begun to develop" (Breckenridge, 2014: 205). Using a term made popular by Frederick Cooper, the state in post-colonial Africa has often been described as a "gatekeeper" state (Breckenridge, 2014: 5). The gatekeeper state is typically "defined by its control of the flow of resources, fiercely delimiting the transfers of benefits" (Breckenridge, 2014: 214). It is also "constitutionally disinterested in and incapable of knowledge about the vast majority of its subjects" (Breckenridge, 2014: 214). Not motivated by the biopolitical impetus to concern itself with "the well-being of the population," the state in Africa was instead "built in an informational void" (Breckenridge, 2014: 5).

As a result of this void on which it was built, the post-colonial state found itself unable to "track the individual body or understand the dynamics of the social body" (Cooper, as cited in Breckenridge, 2014: 5). The state in Africa was built for the sole purpose of managing trade, a status quo that has evolved remarkably little except for the post-colonial state's "ability to 'defend the gate' undergoing significant variation" (Breckenridge, 2014: 6). Under apartheid, the role of gatekeeper took on an extreme form of biometric government centred on the "meticulous control of the labour districts, the policing of work-seekers as they entered the cities, [and] careful biographical registration of white (and eventually Indian and Coloured)

citizens, but comprehensive disregard for Africans in the countryside" (Breckenridge, 2014: 214). What this indicates is that the state in South Africa was built on "a racially defined limit on the will to know" which, according to Breckenridge (2014: 214), is precisely what "created the opportunities, indeed the necessity, for biometric government in the present." As the examples of the US and the EU illustrate, the state in these and other localities in the Global North is also starting to serve a "gatekeeper" function, albeit somewhat different to the shape it has taken in the post-colonial state. It is for this reason that biometrics in the US, the EU, and the Global North more broadly, is "designed to target individuals and populations that have been significantly stripped of the rights and statuses of citizens" (Breckenridge, 2014: 203). Democratic consolidation is also a factor to consider. Biometric government is no easy task and is "fraught with error and inconvenience which is difficult to sustain in a vigorous democracy" (Breckenridge, 2014: 215). Resistance to these technologies is far more prevalent in the well-established democracies of the Global North than it is in the younger democracies of the Global South (see Breckenridge, 2014).

Chapter Four
From Review to Application: Seeking answers to the supplementary research questions

The focus of the preceding two chapters has been on elements of biometric identification that stand out as both innovative and concerning. By reflecting on the real-world adoption of these technologies in the contemporary cases discussed in the previous chapter, and with the literature review in mind, I aim in this chapter to highlight some of the concerns and advantages of the application of biometrics by engaging with the four supplementary research questions of this study. Working of course towards the larger question of this study, this chapter forms the basis on which the formulation of an answer to the primary research question of this research report may begin to take shape.

4.1 How might the use of biometric identification technology impact on democratic inclusion and exclusion?

Democratic inclusion proper will be a type of inclusion that provides for the requirements of the rights of participation, social and civil rights. Both inclusion and exclusion from these rights are tied to *identification*. Without identification, people remain "administratively invisible" (Breckenridge, 2010: 644) and in order to be included, it is necessary for a person to be administratively visible, in other words, often before they are accepted by their community, in contrast to what democratic theory would sometimes have us believe, the individual needs to first be made *visible to the state*. Traditionally this is done through paper-based civil registration processes such as "the administrative recording of births, marriages and deaths" (Breckenridge, 2010: 644; see also Gelb & Clark, 2013).

The reality is, however, that these processes, especially the registration of birth through which most people can lay claim to these rights, do not always take place as intended which means that many people lack this administrative visibility and thereby the ability to legitimately lay claim to citizenship and citizenship rights (see Gelb & Clark, 2013). This is especially relevant in the case of less-developed countries (see Gelb & Clark, 2013), but essentially affects the poor everywhere, who "face dangers produced by a state that can barely see them at all" (Breckenridge, 2010: 644-645). What should be deduced from this therefore, is that it is not the act of including biometrics in the creation of one's official identity – the identity used by individuals to "identify themselves when interacting with formal institutions like governments, employers and banks" (Gelb & Clark, 2013: 5) – that either facilitates inclusion or exclusion,

but rather the fact that one possesses such an identity in the first place. Wherever biometrics has been included in identification systems, it is always done in the belief that such systems are "secure […] as personal information can be used to incontestably identify a person" and, importantly, that biometric "security measures will stamp out identity fraud and theft" (Duncan, 2018: 166). Biometrics is therefore intended to augment existing identification systems while identity itself forms the basis of either exclusion or inclusion.

In their study of biometrics use across a wide spectrum of countries in the Global South, Gelb and Clark found strong evidence to suggest that biometrics in "economic and social programs" can enhance "efficiency, governance, and inclusion" (Gelb & Clark, 2013: 3). Indeed, as the preceding examples of South Africa and Ghana indicate, the introduction of biometrics in social welfare and financial applications was accompanied by an increase in the number of persons with access to such rights as banking and social welfare grants since these programmes essentially increased the visibility of persons otherwise unknown to the state. Even in Israel, where identity cards issued to Palestinians in the West Bank and Gaza have become "the symbol of surveillance *par excellence*," its "empowering effect" cannot be ignored in that the cards have allowed Palestinians to "lay claims to certain rights vis-à-vis the occupation authorities […] and Israeli legal system itself" (Zureik, 2001: 224, original emphasis). All these examples lead back to the same conclusion of *identification* as that which makes the individual visible to the state. The state can only interact with citizens and non-citizens once they have been identified.

But this is the flip-side of identification. The reason for the existence of such immigration management programmes as US-VISIT and Eurodac is the same reason behind why some immigrants prefer to go unnoticed. Once the state is able to identify a person with reasonable certainty, it is also able to legitimately exclude them based on the criteria for inclusion laid out in such programmes. Gelb and Clark note the same, stating that "robust identification has increased the risk of exclusion" (Gelb & Clark, 2013: 3). This is as clear now as it is from the use of biometrics in apartheid South Africa. But biometrics can create exclusion, or rather complicate inclusion, in ways that paper-based identification cannot. Biometrics assumes that every body is the same, and therefore certain criteria or standards are put in place in order to govern the registration of persons in such systems. These standards rely heavily on the physical condition of the body (see Marciano, 2019a). Biometrics gives rise to a "particular type of biometric discrimination" that is rooted in and simultaneously definitive of "bodily incompetence associated with such 'physical irregularities' as skin tone (race) and skin condition (class, age, health)" (Marciano, 2019a: 99). The results of the IBP trial illustrate this

clearly. Some of the participants in the trial were unable to register their biometrics since they "fail[ed] to meet biometric standards primarily because of their age, disability, or skin tone" (Marciano, 2019a: 108).

Trial results from the second stage of the pilot programme showed that 97,5% of participants successfully registered the required biometrics; some 2,5% of participants "were partial or failed registration" and lastly, 0,09% of participants were defined as "biometrically ineligible" since they did not meet the biometric standards for enrolling and failed to register any biometrics (Marciano, 2019a: 108). While it may not seem like much, these percentages translate to 5,000 and 183 people respectively who were not able to adequately register or register at all (Marciano, 2019a: 108). The biometric standards responsible for defining registration as "full, partial or failed," thereby leave certain persons in a vulnerable state of exclusion and without "biometric representation" (Marciano, 2019a: 108). Without traditional fail-safes in place, the biometrically ineligible stands to be excluded from any meaningful interaction with the state and perhaps quite sinisterly, we should not overlook the possibility that standards can be put in place precisely to exclude certain groups.

A person's ability to check the boxes of biometric standards when registering is therefore not only an indicator of the "technical relationship between individuals and their biometric representations, but rather a political enactment of either acceptance/inclusion or rejection/exclusion" (Marciano, 2019a: 106). Those who have difficulties in registering biometrically include also manual labourers, who "may not have well-defined fingerprints" and would therefore need to register with different biometrics (Duncan, 2018: 167; see also Hosein & Nyst, 2014). Breckenridge notes that "a simple cut" on the finger is enough to prevent a fingerprint from registering acceptably and, in the case of the social grant delivery system in South Africa, it is not unusual "for grant-holders to actually lose the finger that was originally chosen to secure the payment card" (Breckenridge, 2005: 274-275). The biometric identification and verification process itself can also give rise to inclusion and exclusion illegitimately through occurrences such as "false matches" also called "false positives," or "false negatives" whereby individuals are mistakenly recognised and included or mistakenly not recognised and excluded by a biometric identification system (Duncan, 2018: 167; see also Ajana, 2013; Kloppenburg & Van der Ploeg, 2020). The blind-faith approach to these identification systems as tamper-proof should also be challenged. Especially because automated data systems are virtually always also networked systems, the risk of hacking is always present in the background and where biometrics is concerned, the stakes are so much higher: when a biometric database is breached, the identity of those contained within it is

undoubtedly compromised since it is not possible for them to "replace their fingers, eyes or voices" (Duncan, 2018: 167; see also Spektor, 2020). Duncan notes that this exposes the individual to the risk of becoming what evokes Orwell's *newspeak* somewhat, "an 'unperson,' unable to prove that they are who they say they are" (Duncan, 2018: 167).

A final comment – if we consider the tasks of these technologies carefully, alongside its origins, it becomes clear that biometrics is, as Lebovic posits, "defined by the act of exclusion" (Lebovic, 2015: 857). One-to-many and one-to-one searches all essentially serve as tools for finding irregularities and persons who do not belong and are therefore excluded. It confirms inclusion in systems that rely on verification like the e-Zwich and social grants deliveries in South Africa, or even in the case of travellers given privileged access. But in the case of identification most commonly applied in immigration and law enforcement, these technologies do the job of exclusion and where it does identify some people (asylum seekers or refugees for example), it places them in Agamben's inclusive state of exclusion. The proliferation of biometrics is also empowering legislators "to hide its exclusionary end-result and pretend that the decision for its adoption is made on an individual, equal, and practical basis, disregarding color, class, or ethnic belonging" (Lebovic, 2015: 857).

4.2 With the surveillance potential of biometric technologies in mind, what risk does this pose for the future of democracy, and do certain biometric technologies better enable surveillance than others?

Before the advent of biometrics and networked computer systems, all states were involved in surveillance activities. This is because the core activities of the state, "(C)itizen construction, border policing, and people counting are essentially surveillance activities" (Zureik, 2001: 205; see also Liberatore, 2007). The introduction of computerised biometrics into these systems, born out of "the urgent desire to complete and centralise the state's knowledge of its citizens," has served to augment the basic surveillance function of the state and has enhanced the scope of what the state can know, in many ways realising what Breckenridge calls the "fantasy of administrative panopticism" (Breckenridge, 2005: 271). Panopticism, a concept introduced by Foucault, is paramount to how we think about surveillance (see also Ajana, 2013).

Foucault built this concept on Bentham's "panopticon," described simply as a model for a self-disciplining prison. Prisoners are placed in cells that surround a guard tower located in the centre of the building. Guards in the tower are able to see the prisoners in their illuminated cells at all times, but are never visible to the prisoners and as such the prisoners are never sure that they are in fact being observed, thereby leaving them in a perpetual state of domination and

fear, which in turn forces them to always be on their best behaviour (see Foucault, [1975]1995; see also Bosman, 2020b). This "discipline-mechanism" at the heart of Bentham's thesis is what Foucault views as applicable to society as a whole, thereby leading him to formulate the notion of "panopticism" – "a functional mechanism that must improve the exercise of power by making it lighter, more rapid, more effective, a design of subtle coercion for a society to come" (Foucault, [1975]1995: 209; see also Bosman, 2020b).

While surveillance has always been a common state practice, authors note a drastic rise in its "number and intensity over the past two decades," undeniably driven by the events of 9/11 (Marciano, 2019b: 127; see also Duncan, 2018). Duncan notes a significant phenomenon taking shape as a result of this development: across the world, states have been "turning themselves increasingly into one-way mirrors" (Duncan, 2018: 167). Just as in Bentham's panopticon, the state is able to "see into more aspects of people's lives, while [its] own actions are becoming more opaque" (Duncan, 2018: 167). Biometrics has become a unique enabler of this retreat of the state into a secret sphere. Biometric surveillance relies not only on identification, but involves the use of these systems to also "monitor, and control individuals and populations" (Marciano, 2019b: 128).

In practice, some biometrics better enables this function than others. The starting point of its surveillance function is the central database. Centralised biometrics databases can be used by the state to "build up a profile of individuals that could be used against them […] if they are considered to be threats to government interests" (Duncan, 2018: 167). All manner of biometric data collected on terror suspects are stored on "international databases so that their movements can be tracked" between countries (Duncan, 2018: 167). If a central branch of the state is able to monitor the e-Zwich transactions of every individual enrolled in the system because it is linked to the national identification database, then it would also be possible to create and connect other databases, allowing the state to expand its surveillance grasp. The collection of "latent" fingerprints in war zones by the US, stored in a database and used when checking the fingerprints of visitors to the country, is also an example of fingerprint surveillance (see Breckenridge, 2014: 196-197).

Once they have been collected and stored, the state does not need to interact directly with the individual for surveillance using fingerprints, unlike iris scanning, which is a rather up-close-and-personal experience, not suited for covert surveillance of the kind relevant here (see Marciano, 2019b). But it is facial recognition technology especially, that is at once the liberal and republican's biggest Orwellian nightmare, and the realisation of Foucault's wildest dreams of panopticism. Facial recognition has received special attention in the literature for the kind

of surveillance it allows, especially through everyday devices like CCTV cameras (see Zureik & Hindle, 2004; Marciano, 2019b). Whereas an individual is usually fully aware of their biometrics being recorded in the event of fingerprinting and iris scanning for example, facial recognition goes by unnoticed. The central database containing the biometric identifiers of citizens in many countries contain at a minimum a facial image. It is also the biometric "most suited to the practicalities of travel document issuance" according to the International Civil Aviation Organisation (Redpath, 2005: 7). In what would amount to function creep, states can use these databases in conjunction with facial recognition technology to monitor their citizens as they go about their daily lives. Facial recognition enables what Stahl terms "indiscriminate mass surveillance," which introduces "a distinctive form of the exercise of political power over the public sphere" (Stahl, 2016: 35). It is for this reason that opponents of the IBP were against its establishment in Israel, with the Israel Digital Rights Movement calling "the ability to identify passersby or protestors" as the biggest risk introduced by this technology (see Marciano, 2019b: 129). This is a direct assault on the liberal idea of autonomy over the body since the individual consented to the use of their biometrics for one purpose, but would not have been able to consent to its use for additional purposes.

In this way, central databases become what Duncan describes as "powerful mechanisms of social control" and especially I argue, when combined with facial recognition, fulfil Foucault's ideal in that "fear that the state is watching may make citizens more subservient" (Duncan, 2018: 167; see also Bosman, 2020b). Marciano maintains that the introduction of novel surveillance forms like biometric surveillance, is "facilitat[ing] a *qualitative change*" in that it changes "what we can do with information" (Marciano, 2019b: 133, original emphasis). The most obvious concern for the future of democracy arising from state surveillance is that the line between democracy and totalitarianism could be crossed. This is not something that can happen overnight, but will take many years to materialise. It is therefore vital that citizens remain vigilant to the developments taking place around them. It cannot be denied that surveillance can enhance security, but it should not expand at the cost of democracy. Liberatore (2007: 111, my emphasis) suggests that spotting the intentions of governments with regards to surveillance is very clear: "if *security* is the primary policy goal and discourse, a limitation of democratic debate […] might take place." If however, "democracy is the primary discourse, security measures will be heavily scrutinised and contested" (Liberatore, 2007: 111).

4.3 Many states claim that invasive biometric identification technologies are employed in the interest of state security, but often results in a disregard for privacy. Can an invasion of privacy in the name of "the common good" cause respect for other democratic rights and principles to break down?

At the same time as states sought technological solutions to the problem of surveillance in the interest of national security in the wake of 9/11, the "general public" has become more accepting of "the 'intrusion' of the state into the private sphere in the interest of national security" (Redpath, 2005: 5). This relaxing of the individual right to privacy in the name of national security or "public safety and law enforcement" is often the result of biometrics applied by governments "under the pretext of upholding the common good" (Irish Council for Bioethics, 2009: 89). The concern is that states might abuse this compromise by their subjects, extending security applications beyond "the exigencies of the situation" (Redpath, 2005: 12) and that eventually, the individual's right to privacy, amongst others, could be "overshadowed by, and in many cases subjugated to, the security interests of the state" (Redpath, 2005: 5).

From the above discussion on biometric surveillance, it becomes clear how biometric identification could be considered an invasion of privacy. It is common for opponents of biometrics to cite the risks it poses to "civil liberties, namely privacy, right to information, dignity, and for the balance between executive and legislative powers" (Liberatore, 2007: 111). I would like to approach the issue from the perspective that biometric identification poses risks for the democratic values of transparency, participation, and self-determination.

The introduction of biometric identification technologies can be found to violate the principle of transparency firstly, in cases where function creep is committed. While it may not be able to account for how "the people" is formulated, legitimate government and government policies are dependent on the consent of the governed. Withholding the purposes for which their biometric data will be used from the persons subject to biometric registration goes against transparency and violates their right to information. Transparency is also violated in cases where the functioning of biometric technologies is kept private. Indeed, as Marciano argues, "not only laymen but even social scientists and surveillance scholars rarely understand how biometrics actually work" (Marciano, 2019b: 133). This is because biometrics forms part of "a growing array of *enigmatic technologies* that shape our black box society" (Marciano, 2019b: 133, original emphasis).

While not at risk as a result of the introduction of biometric identification technologies, the level of participation of "the people" in decisions to introduce these technologies should also

be considered.[5] In many ways, the "biometrics public sphere" is a bourgeois public sphere. Precisely what is meant by security, will determine who has access to debates about the ways in which it is to be achieved. Security does not necessarily mean "citizen security," but in the majority of cases "state security" (Valverde, as cited in Zureik & Hindle, 2004: 115) – two elements that are vastly different. Precisely because of a prevalence of state security as what is at stake, citizens are for the most part excluded from debate on security measures, debates "monopolized by experts and professionals who by-pass public participation and design 'top down' security solutions" (Zureik & Hindle, 2004: 115). This directly opposes the idea of bottom-up governance expected from popular sovereignty and leaves the legitimacy of the implementation of these systems questionable (see also Irish Council for Bioethics, 2009).

Lastly, I view biometric identification technologies as counter-intuitive to the idea of self-determination. Here I am not referring to the right of a group of people to form a state, but to something very different: the right of the individual to determine who they are and accordingly, how they will be identified. Before the introduction of biometric identification in asylum management programmes, immigration officials determined the legitimacy of the refugee's claim by drawing "above all [on] credible life- and 'flight-stories'" (Van der Ploeg, 1999: 298). With the introduction of automated biometrics identification, these "personal stories" that would normally have been considered by officials, have "become surplus information that is simply irrelevant to the new rationale of biometrics" (Marciano, 2019b: 129).

Biometric identification has produced "a new body-mind hierarchy" that "redefine[s] bodies as information." (Marciano, 2019b: 128; see also Irish Council for Bioethics, 2009). In this new hierarchy, biometrics "communicate[s] directly with the body" and circumvents the mind, thereby creating "mute individuals whose bodies speak for them," restricting their ability to "participate, consent, or even speak" (Marciano, 2019b: 128). Ajana maintains that biometric identification has altered Descartes' *cogito*, by "lay[ing] claim to the idea that identity can 'objectively' be determined through the body and in ways that are somewhat independent of consciousness" (Ajana, 2013: 88). Whereas "I think therefore I am" promoted the idea that "the body has little relevance to identity," biometric identity opposes this idea, proclaiming instead "I am that" – "*that* name, *that* fingerprint," for example (Ajana, 2013: 88, original emphasis). Biometric identification ultimately "disregard[s] the fact that body requires mind" (Ajana, 2013: 88).

[5] A similar argument is made by Diaz-Rodriguez (2014).

4.4 Biometric identification technology has found global traction. However, different states emphasise different aspects of the potential uses of biometric identification technology when opting for the technology. What does this reveal about the underlying reasons for their decisions?

In the research study conducted in fulfilment of my Honours degree, I included biometrics among a list of electronic voting technologies. A common pattern emerging from the literature was that countries in the Global South more readily applied technological solutions to difficulties experienced with elections and other processes than those of the Global North (see Bosman, 2019). By drawing on studies conducted by Hosein and Nyst (2014) and Cheeseman, Lynch, and Willis (2018), I attributed the openness of the Global South to biometrics to firstly, an oft misplaced belief that technology is the answer to all problems (see Bosman, 2019; see also Cheeseman, Lynch & Willis, 2018). This belief is reflected also in the application of biometrics in the Global North, as expressed here in the drive for biometric border control (see also Bosman, 2019).

Furthermore, as Hosein and Nyst (2014) point out, implementation of biometric identification technologies in the Global South is driven with great enthusiasm by aid and other donor organisations. I noted that this often removed or limited the independence of these countries' election management bodies to decide on the most appropriate technology for their electoral systems – voter registration and verification in particular – or even if technology was necessary at all (see Bosman, 2019). Concerns of surveillance and the violation of privacy were also relevant in this donor-driven biometrics frenzy (see Bosman, 2019; see also Hosein & Nyst, 2014). Another revelation was clear: Western entities responsible for the introduction and promotion of biometrics in the Global South, offered these technologies as solutions to a range of problems, when in their own countries, these technologies were seen as dangerous, and not used on citizens, citing primarily concerns of privacy and surveillance (see Bosman, 2019; see also Breckenridge, 2014). Where they are applied to citizens, such as in passports for example, they are what Breckenridge (2014: 202) calls "hobbled biometrics," relying only on "one-to-one matches of existing documents of identity."

Here I wish to build on my earlier findings to note that the conclusion as to why the Global South is more open to biometrics is not as simple as either faith in technology or donor-driven hype, but extends in fact to deeper, and far more significant reasons. The first is that identified by Gelb and Clark, cited earlier in this paper, viz. an identity gap. The processes of (paper-based) civil registration are far more "robust" in the wealthy countries of the Global North than they are in the Global South (Gelb & Clark, 2013: 1). As a result, citizens of the Global North

are more likely to have at least a basic form of identification such as a birth certificate providing them with the necessary administrative visibility enabling them to exercise their citizenship rights (Gelb & Clark, 2013: 1). In the Global South, many individuals "lack any official documentation" which means that administratively, "these individuals do not formally exist," and find themselves "excluded from the many points of engagement between a modern state and its citizens" (Gelb & Clark, 2013: 1).

Biometric identity registration has become a popular solution to overcome this problem and to make up for the void left by underdeveloped and insufficient traditional modes of civil registration, the perfection of which would take years to achieve (Gelb & Clark, 2013: 1). Gelb and Clark note that the developed countries of the Global North are inclined to use biometrics primarily in applications that are "security and policing"-related (Gelb & Clark, 2013: 12), whereas countries in the Global South primarily turn to these technologies for "developmental applications" (Gelb & Clark, 2013: 12) and "non-security applications" (Gelb & Clark, 2013: 2). This can also be seen from the findings of this paper, although it is possible, as the case of Israel illustrates, for states to focus on both these areas in their application of biometrics.

Breckenridge maintains that precisely because of the "limited forms of identification that exist in the former colonies," opposition to biometric identification technologies is generally less than in "the liberal democracies of the North" (Breckenridge, 2014: 216). Through biometrics, states in the Global South are able to "direct resources at the poorest populations" and "offer intensely individualised identification" (Breckenridge, 2014: 166). In the Global South, biometrics is therefore applied in order to further inclusion, whereas in the Global North its application centres on exclusion. The application of biometrics in the Global South is indicative of something larger and more significant though. While Ajana extensively details the development of biometric citizenship in the West, Breckenridge shows that the same development is taking shape in the Global South, preceding that of the West and also forming part of something greater – the development of *the biometric state* (see Breckenridge, 2014).

The "system of biometric government" in South Africa has, according to Breckenridge, produced "a special kind of welfare state" which "in turn, came to provide a model for a new global infrastructure of registration, and a new global system of biometric citizenship" (Breckenridge, 2014: 166). The hope is that this kind of citizenship will be "an effective remedy for the most serious problems of inequality and injustice, directing life-saving resources to the very young, the weak and the old" (Breckenridge, 2014: 167). Breckenridge cautions however, that the biometric state will pose a series of "political problems" in that it aims to "leave no familiar textual traces, no paper trail at all" (Breckenridge, 2014: 218). The prime motivation

behind biometric registration is “the identification of those who cannot write” (Breckenridge, 2014: 218; see also Breckenridge, 2010). However, Breckenridge cautions that the fact that “biometric technologies are fundamentally […] antithetical to writing” should not be overlooked (Breckenridge, 2014: 216). If it is the aim of the biometric state to rid itself of the written forms of documentation of Breckenridge’s earlier identified archival state, then it is also eliminating “the only meaningful tool available to remedy its shortcomings” (Breckenridge, 2014: 216). While he acknowledges the many benefits of biometric identification, Breckenridge remarks that “the poor in Africa” and indeed wherever else biometrics is applied to meet the needs of the poor, can better manage “the politics of literacy” than they can “negotiate the mute politics of centralized and automated biometric registration” Breckenridge, 2010: 656).

Chapter Five
Conclusions and Implications

Biometrics, in spite of its many security-centred motivations, is not merely a security tool but is instead a tool for maintaining democracy's inherent push to exclude. Deeply tied to the one thing that determines inclusion or exclusion – identity – biometrics proves irrefutably that different identities also equal differential access to rights. This was clearly evident from the system of biometric registration in apartheid South Africa and is equally identifiable in the current biometric registration of both Israelis and Palestinians. It is also true of the biometric registration of migrants in Europe and the US.

In discussing the *demos*, we cannot part with the narrative of citizenship. The meaning of citizenship itself has been altered by the increased application of biometrics and it now refers to multiple types of membership and no longer exclusively to that group of people with political rights. Of course, it is not the technology itself that has this transformative power, but this transformation is taking shape due to the application of biometrics by people who have the power to apply it as such. If anything, biometrics is applied where persons are concerned more with the legal status of the citizen, than with facilitating their participation. The idea of biometric citizenship is simultaneously group- and individually-oriented, but often leads to more benefits and privileges for the individual, than for the group.

Biometrics has also exacerbated some of the existing methods for determining the boundaries of membership. Rather than singling out the group called "the people," biometric identification is seemingly only interested in those who are not part of this group, and where decisions on whether to include them need to be taken. But in order to do so and to determine who does not belong, the state needs to also have a record of who already belongs. This could be taken as one answer to the main research question of this study. Biometrics discards all except for one of the traditional answers provided for how "the people" is constituted viz. territoriality. In Israel, where territorial borders are still hotly disputed, biometrics has been incorporated to demarcate borders while simultaneously being used to delineate the boundaries of membership.

The specific identity attached to a fingerprint or facial image is directly linked to the benefits of membership, or exclusion from it. The all-affected principle is very clearly not applicable in the case of biometrics applied in immigration management. Even though they are affected by it, "non-nationals" who wish to enter countries like the USA for example with strict biometric

border control processes in place, "do not have the opportunity to feed into the development and implementation of biometric systems" (Redpath, 2005: 10).

One could perhaps argue that by deciding to go through with travel plans or alternatively by applying for a biometric passport one is consenting to such programmes, however this is clearly evidence of the privilege of some who are able to choose and exercise such freedom whereas others, refugees or asylum seekers, do not get to exercise such freedom but merely have to accept the trade-off in search of better opportunities. What we are witnessing in the increasing incorporation of biometric identification in border management is an exacerbation of the territorial explanation for constituting the *demos* as well as a reassertion of state sovereignty even if this violates popular sovereignty.

Even those states like South Africa that do not typically rely on biometrics for border control, have in recent years expanded its biometric regime to include border control (see Duncan, 2018). It can also be argued that biometric identification is exacerbating the non-democratic justifications for the boundary lines of the *demos* and the territorial state, especially nationalism, and increasingly religion. By reading the application of biometrics through a biopolitical lens it can be concluded in line with Marciano (2019b: 133, original emphasis), that biometrics no longer represent just "*another means* of inspection," but rather "a *new form* of control."

In answering the primary research question of this study – "In what way is the increasing use of biometrics contributing towards a reframing of how 'the people' is conceptualised in contemporary democracies?" - we could perhaps also ask, how is biometrics affecting the boundary problem? Has it brought democratic theory any closer to its resolution? The simple answer is "no." Biometrics has essentially complicated the boundary problem even more through its emphasis on the body, and by essentially changing the very nature of the border itself. It has turned the boundary problem on its head by introducing additional borders. Apart from being used to manage the physical borders of states, the digital nature of these technologies and the global database integration made possible by networked computers, biometrics now also governs a "virtual border" (Redpath, 2005: 8).

By collecting biometric data from travellers ahead of their journeys, officials are doing what takes place at a physical border, but on a virtual level. More significantly however, encapsulated perfectly in the idea of "*the body as password*" imparted to us by surveillance scholars (see Marciano, 2019b: 128, original emphasis; see also Kloppenburg & Van der Ploeg, 2020; Irish Council for Bioethics, 2009), in these cases the body itself has become "the carrier

of the border" (Kloppenburg & Van der Ploeg, 2020: 62), directly linked to whether a person will be granted access or denied access (see also Stenum, 2017).

This essentially refers to the contemporary biometric reality of the "*informatization of the body*" causing it to "serve as [the gateway] to physical and virtual spaces" (Marciano, 2019b: 128; see also Irish Council for Bioethics, 2009). The physical borders of states have always had "different political significance for different individuals and groups," but the advent of automated biometrics "introduce[d] […] a new level of discrimination" (Marciano, 2019b: 130). Not only has biometrics turned the body into information, but it subjected the border to the same transformation, "rendering the border less visible and more easily permeable for specific individuals," while exacerbating what Van der Ploeg calls the border's "stopping power" for different individuals (Marciano, 2019b: 130). Biometrics has been around for a very long time, but its contemporary automated incarnation has given it revolutionary new abilities for both good and bad, and for determining inclusion and exclusion.

Perfect for exercising disciplinary power over the individual, and for maintaining biopolitical control over groups, biometrics is perhaps the perfect manifestation of biopower, and as such can be expected to be around for an even longer time. Biometrics operates both as an autonomous technology of power in true Foucauldian fashion, but at the same time is also used as a tool to bridge the problem of connecting citizen with state and thereby, the protections and rights resulting from such connection.

In Chapter Four I described biometric identification as having both innovative and concerning aspects. That, perhaps, is an ideal description of biometrics. Furthermore, I would suggest that the real danger biometrics could pose for democracy lies precisely in that description. Not only is biometrics innovative in the way in which it can be used to enable the inclusion of individuals in a range of necessary interaction with the state, but it has at the same time presented innovative new ways of excluding individuals. The danger therefore lies in the type of innovation a state is searching for, and ultimately, the way in which – and the projects for which – these technologies are going to be used will be indicative of the true intentions of the state, and should act as a warning sign for citizens who can, through demanding their participation in the decision surrounding the application of biometrics, determine the overall direction that their democracies will take once these technologies are introduced. It is not a matter of being for or against these technologies, but rather in opposition to authoritarian applications of biometrics.

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