

Biopolitics, Necropolitics and Algorithmic Governance: A research report

**Research Philosophy and Literature Review
Final Assignment**

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Abstract

This article analyzes the interfaces between biopolitics, necropolitics, and algorithmic governance and how life and death and social order in society are increasingly mediated by digital technology in contemporary times. Drawing on influential work by Foucault, Agamben, Mbembe, Esposito, Rose, and newer scholars, this article considers how algorithmic governance prolongs biopolitical governance and necropolitical exclusion through systematic literature review and AI-assisted thematic analysis. Surveillance, public health governance, refugee crises, and drone warfare are highlighted as key fields. Findings reveal how algorithmic systems extend biopolitical power significantly, produce new necropolitical dynamics, and render people disposable. This article concludes by propounding policy recommendations for enhancing transparency, equity, and accountability in the deployment of algorithmic governance and advocating for frameworks based on democratic values and human rights.

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1. Introduction

Governing in the 21st century entails increasingly intense mediation by digital algorithms and data infrastructures. State surveillance and predictive policing, health applications and credit score systems—algorithmic governance in other words, the use of computational algorithms to facilitate or enable decision-making—have come to be at the center of population management (Ajana, 2013; Lyon, 2014). This process entails inherent concerns regarding power and control in the era of the digital Zuboff, 2020, as governments and corporations increasingly accumulate and process vast amounts of personal information in real-time and use it to shape social behavior and policy in new and innovative ways. These trends are closely in alignment with the theoretical paradigms of biopolitics and necropolitics, concerned with how power exercises control over life and death respectively (Foucault, 1985; Mbembe, 2003).

At the heart of this inquiry lies a fundamental question: How do algorithmic systems enhance the capacities of states and institutions to "make live and let die" (Foucault, 2003) or determine "who may live and who must die" (Mbembe, 2003)? Michel Foucault's theory of biopolitics conceptualizes power over life deployed at the level of populations rather than individuals. In contrast to classic power structures based on sovereign authority (the power to decide life and death), biopolitics maximizes health, reproduction, and longevity via public health systems, demographic policies, and risk management (Foucault, 1985). Achille Mbembe's necropolitics builds on this by suggesting power is not only interested in the production of life but also in the administration of death - directly through violence, or systemically by exclusion or abandonment (Mbembe, 2003).

Both frameworks are central to understanding contemporary algorithmic governmentality, in which platform-based data sort people by risk and predictive policing algorithms identify "high-risk" individuals and allocate access to resources and rights via automated decision-making systems (Ajana, 2013; Rose, 2007). These digital systems function as modern instruments of sovereignty in determining who receives care and protection versus who faces surveillance, exclusion, and potential algorithmic violence (Agamben, 1998).

The current study examines the biopolitical and necropolitical dimensions of algorithmic governance in a critical manner. This paper adopts the following structure:

1. **Theoretical Foundations:** This section outlines key concepts in biopolitics, necropolitics, and supporting frameworks including the state of exception, immunopolitics, and surveillance capitalism.
2. **Methodology:** This section describes the systematic literature review and AI-assisted thematic analysis used to synthesize cross-disciplinary perspectives from political theory, surveillance studies, sociology, and technology studies.
3. **Case Studies:** Algorithmic governance in major domains - including security and surveillance, border management, corporate platforms, and public health - is analyzed through concrete examples such as China's Social Credit System and surveillance policies during pandemics.

4. **Policy and Resistance:** We study resistance movements against algorithmic governance and recommend policies to enhance transparency, accountability, and ethical governance of digital infrastructures.

Based on biopolitical theory, surveillance studies, and discourses on digital sovereignty, this project aims to contribute to ongoing debates around Big Data, artificial intelligence, and the governance of the coming times (Lyon, 2014). Algorithmic governance increasingly sets the boundaries between life and death and between inclusion and exclusion, and is consequently an area of pressing examination.

2. Theoretical Foundations

A firm understanding of the theoretical basis is key to appreciate how algorithmic governance reinforces and reworks biopolitical and necropolitical power. This chapter engages with the core concepts of biopolitics, necropolitics, the state of exception, immunopolitics, surveillance capitalism, and ethopolitics from influential scholars such as Michel Foucault, Giorgio Agamben, Achille Mbembe, Roberto Esposito, Nikolas Rose, and Shoshana Zuboff. These theories provide insight into how digital infrastructures govern life, exercise power over it, and produce new patterns of social exclusion.

2.1 Biopolitics: The Governance of Life

Michel Foucault's biopolitics theory describes the shift in governance from sovereign power - power to decide life and death - to power over life at the level of the population (Foucault, 1985). In his book *The History of Sexuality, Volume 1* (1978) and his 1975–76 series of lectures, *Society Must Be Defended*, Foucault contrasts biopower with previous exercises of sovereignty where power was exercised through threatening death. In contemporary times, governance instead tries to "make live and let die," in other words, to optimize health, reproduction, and social productivity and exclude those who are unproductive and deviant (Foucault, 1985).

Biopolitical power exists in public health policy and systems and risk management policy and programs and impacts the very fabric of human existence. Foucault argues that by norming and standardizing lifestyles and behaviors, biopower regulates individuals by seemingly benevolent means such as public health programs, education systems, and fiscal policies (Lyon, 2014; Rose, 2007). It also creates inclusions and exclusions on the basis of categories and determines who receives state protection and who does not.

2.2 Necropolitics: The Politics of Death

Achille Mbembe extends the work of Foucault by incorporating the idea of necropolitics and highlighting how power operates by exercising power over death (Mbembe, 2003). Whereas biopolitics preserves life, necropolitics determines who can be eliminated, left behind, or subjected to direct brutality. In his seminal book *Necropolitics* (2003), Mbembe theorizes sovereignty as essentially the right to decide who should die, most notably in colonialism, racial brutality, and war.

Mbembe outlines how modern states create "death worlds" - spaces where specific populations are subjected to systematic exposure to death through war, forced displacement, and/or economic marginalization (Mbembe, 2019). These include occupied territories, refugee camps, drone warfare, and racialized policing, all manifestations of necropolitical power in the modern age. Algorithmic governance in the age of the digital age extends necropolitics further by automating exclusion in the process of predictive policing, automated immigration enforcement, and financial algorithms withholding access to essential resources (Ajana, 2013).

2.3 The State of Exception: Legalized Emergency Rule

Giorgio Agamben broadens Foucault's biopolitics by viewing the state of exception as a state where law is suspended in emergency situations and the sovereign exercises unlimited power (Agamben, 2005). In *State of Exception* (2005), he argues that modern states increasingly use emergency powers - not as an ad hoc solution but as a permanent style of government.

Agamben credits this evolution to Carl Schmitt's concept of sovereignty in which the sovereign is "he who decides on the exception" - the sovereign who determines when legal protections no longer apply (Agamben, 1998). This evolution can be illustrated in the post-9/11 world when governments enacted sweeping surveillance programs, counterterrorist legislation, and policies of indefinite detention in the interest of national security (Lyon, 2014).

The COVID-19 crisis further illustrated the expansion of the state of exception as governments implemented emergency lockdowns, contact tracing apps, and immunity passports in the digital space (Ajana, 2013). Even though such policies were justified as being for public health interests, they also raised issues of the normalization of biopolitical governance through digital surveillance (Zuboff, 2020).

2.4 Immunopolitics: Protection and Exclusion

Roberto Esposito's *immunity paradigm* offers yet another perspective on biopolitical rule. In *Bíos: Biopolitics and Philosophy* (2008), Esposito argues that societies function according to an immune system model by protecting themselves selectively by isolating or sacrificing threats to themselves as such (Esposito, 2008). This logic underlies policies from border controls to pandemic quarantines and counterterror policies where outsiders and dissenters are figured as biological threats (Ajana, 2013).

Nonetheless, Esposito cites the paradox of immunopolitics: those very instruments designed to protect life can also be instruments of exclusion and violence. This applies to biometric surveillance, refugee detention, and risk assessment by AI, all of them functioning as immunitary barriers between those who are "safe" and those who are dangerous (Zuboff, 2020).

2.5 Ethopolitics: The Governance of Selfhood

Nikolas Rose extends Foucault's biopolitics by shifting the point of interest to individuals' management of themselves in response to biopolitical power (Rose, 2007). In his book on *The Politics of Life Itself* (2007), Rose conceptualizes the theory of ethopolitics as an explanation of government through shaping individuals' ethical choices, values, and sense of self.

Compared to earlier manifestations of biopower in the practice of discipline via institutions, ethopolitics encourages individuals to internalize norms and manage their own behavior (Rose, 2007). This could be witnessed in health policy, self-tracking programs, and risk profiling at an individual level, where individuals are held accountable for their own health and wellbeing.

Rose's work is fundamental in understanding algorithmic governance in the contemporary era. For example, China's Social Credit System illustrates ethopolitics by ranking citizens based on their behavior and nudging them into compliance through self-policing. In Western societies, culture of self-optimization - fitness tracking wearables and behavioral "nudges" integrated into digital systems - reflects the manner in which biopolitical power operates in the present era in the name of individual choice (Ajana, 2013).

2.6 Surveillance Capitalism and Algorithmic Governance

Shoshana Zuboff extends Foucault's argument into the arena of Big Data and corporate surveillance and coins the phrase *surveillance capitalism* (Zuboff, 2020). In *The Age of Surveillance Capitalism* (2019), Zuboff argues that firms like Google and Facebook harvest human existence as raw material and remake it into predictive patterns of behavior and shape individual behavior for profit (Zuboff, 2020).

Whereas traditional biopolitical governance was centered on the state, surveillance capitalism is driven by corporations using algorithms to influence consumption, political behavior, and social life (Lyon, 2014). There is broad recognition of the need to manage algorithmic systems responsibly and transparently and to make them accountable and legally auditable (Zuboff, 2020). Key priorities for study include developing regulatory frameworks to ensure these systems uphold privacy and equity rather than subvert them.

Conclusion

Throughout this chapter, the principal theoretical frameworks on which the study of necropolitics and algorithmic biopolitics are founded have been addressed. Through the intersection of Mbembe's exclusionary violence, Agamben's emergency rule, Esposito's immunopolitics, Rose's ethopolitics, Zuboff's corporate surveillance, and Foucault's population management, we come to understand how governance by algorithms operates in practice.

The following chapter applies the theories to security, border regimes, corporate technology platforms, and public health case studies and examines the practical implications of digital governance in the real world.

3. Methodology: A Hybrid Approach to Biopolitical Analysis

The methodology in this study is a hybrid approach synthesizing systematic literature review, thematic analysis incorporating AI use and critical interpretive research. Because biopolitics, necropolitics, and algorithmic governance are interdisciplinary fields of study, this methodology allows an in-depth integration of political theory, surveillance studies, and literature on digital governance.

The research follows a qualitative literature-based methodology based on comparative textual analysis rather than empirical data collection. Using a syncretic approach to theoretical work by Foucault, Agamben, Mbembe, Esposito, Rose, Lyon, Ajana, and Zuboff, the research examines the expansion of biopolitical and necropolitical power via algorithmic governance.

3.1 Research Design and Rationale

It fits into a paradigm of critical interpretivism in emphasizing how power operates through governance structures in the digital environment. It encompasses elements of:

- **Political Economy Analysis:** Assessing how material power structures are impacted by algorithmic governance.
- **Normative Analysis:** Assessing the moral implications of surveillance in the digital age and algorithmic decision-making.

Instead of producing original empirical evidence, the study synthesizes literature in order to study structures of algorithmic power. This approach enables an interdisciplinary strategy by utilizing:

- **Political theory:** Examination of the philosophical underpinning of biopolitical rule.
- **Surveillance studies:** Examine how life and security are governed by digital infrastructures.
- **Sociology and legal scholarship:** Algorithmic governance and law studies.
- **Technology studies:** Studying the use and functionality of AI and Big Data in modern biopolitics.

Due to the fast development of digital surveillance technology, an empirical study in this context would become obsolete quickly. This study focuses on theoretical synthesis and interpretation and presents a broad and flexible approach to examining algorithmic governance.

3.2 Data Collection: Systematic Literature Review

The research employs a systematic literature review (SLR), adhering to PRISMA guidelines to achieve rigor and transparency. Steps in the research process were:

- **Database Searches:** Conducted on JSTOR, ProQuest, Emerald and Sagepub with the key words such as: Biopolitics, necropolitics, surveillance, algorithmic governance, state of exception, Big Data, society of control.
- **Inclusion Criteria:** Included sources were based on: Direct reference to biopolitical or necropolitical theory:
 - Direct reference
 - Explicit study of power dynamics in the context of governance by algorithms.
 - Peer-reviewed articles (2003-2023) with integrated key texts
- **Exclusion Criteria:** The study excluded:
 - Only technical articles on algorithms and AI with no theory.
 - Works with biopolitics as a metaphor rather than in its scholarly convention.
- **Filtering Process:** Initial searches yielded a number of hundred sources, screened down by title/abstract to a final set of ~40 key texts, balancing seminal texts and recent analysis. These have been further reduced based on their importance in our inclusion criteria.

Such a systematic approach ensures an in-depth, cross-disciplinary integration of the evolving dynamics of digital biopolitics.

3.3 AI-Assisted Thematic Analysis

To enhance efficiency and analytical depth, the study integrates AI-assisted literature synthesis, using Natural Language Processing (NLP) tools to:

Table 1: Utilized AI functions (ChatGPT-4.5)

AI Function	Application in Research
Text Parsing	Extracting recurring themes (e.g., "algorithmic control," "biopolitical norms").
Concept Clustering	Identifying intersections between biopolitics and digital surveillance.
Summarization	Condensing key arguments across multiple sources.
Theme Identification	Categorizing findings into structured research themes.

Thematic Analysis Process

Table 2: Identified key themes with AI

Theme	Description
Surveillance & Control	The normalization of digital surveillance under security and health imperatives.
State-Corporate Data Governance	The increasing fusion of state power and corporate digital infrastructures.
Necropolitical Exclusions	Algorithmic border regimes, refugee surveillance, and automated

Theme	Description
	exclusion mechanisms.
Resistance & Legal Challenges	Grassroots and institutional pushback against biopolitical surveillance.
Algorithmic Bias & Ethics	The risks of discrimination and inequality in automated governance.

While AI-assisted methods streamline literature analysis, all AI-generated insights were manually verified to ensure contextual accuracy and academic integrity.

3.4 Integration of Traditional Academic Methods

Beyond AI-assisted synthesis, the study maintains rigorous human-driven critical analysis, including:

- **Comparative analysis:** Contrasting perspectives on algorithmic governance.
- **Theoretical debate tracking:** Examining divergences between scholars (e.g., *Zuboff vs. Lyon on digital capitalism*).
- **Cross-verification:** Ensuring AI-generated insights align with original texts.
- **Strict citation integrity:** Adhering to APA style for referencing.

This dual approach balances computational efficiency with scholarly rigor, ensuring a nuanced, interdisciplinary synthesis of the research field.

3.5 Methodological Limitations

Despite its advantages, the AI-assisted literature review presents certain challenges:

- **Risk of Misinterpretation:** AI tools may oversimplify complex theoretical arguments; manual verification mitigates this risk.
- **Selection Bias:** Some recent publications or non-English sources may have been omitted.
- **Algorithmic Oversight:** While AI detects dominant themes, it lacks critical engagement - hence, final synthesis remains human-driven.

By acknowledging these limitations, the study ensures academic rigor while leveraging AI's analytical power.

3.6 Conclusion: A Hybrid Methodological Framework

It sum, the study adopts a hybrid methodology by blending together:

1. **Systematic literature review (SLR):** Presenting an in-depth synthesis of biopolitical theory.
2. **Thematic analysis supported by AI:** Facilitating efficiency and pattern identification in synthesizing research.

3. **Traditional critical analysis:** Ensuring thorough theoretical engagement and interpretation.

Such a multifaceted approach ensures a solid cross-disciplinary framework for investigating algorithmic governance, biopolitics, and necropolitics.

The chapter applies this methodology to security, public health, border controls, and corporate surveillance case studies and demonstrates how biopolitical power operates through digital infrastructures.

4. Analysis of Findings

This chapter tests the hybrid approach established in Chapter 3 on empirical case studies and illustrates how biopolitical and necropolitical power operates through digital infrastructures. Security and surveillance, border regimes, public health governance, and corporate surveillance capitalism are instances of the extension of algorithmic governance into state and private realms.

4.1 Global Surveillance as an Extension of Biopower

The expansion of digital surveillance has transformed biopolitical governance, allowing states and corporations to monitor populations in real-time across borders. Ajana (2013) notes that digital surveillance enhances control, embedding observation into everyday technologies. Unlike traditional methods, modern surveillance operates through facial recognition, data analytics, and predictive algorithms. Lyon (2014) argues that this creates anticipatory governance, aligning with Foucault's (1977) concept of normalizing judgment, where individuals adjust behavior to conform to societal expectations.

China's Social Credit System exemplifies algorithmic biopolitical control, where behavioral data determines access to resources (Creemers, 2018). Democratic states have similarly expanded surveillance post-9/11, as seen in programs like the NSA's PRISM, which relies on corporate partnerships for mass data collection (Greenwald, 2014). Zuboff (2019) describes this as "surveillance capitalism," where corporations collect and commodify personal data, merging security and economic incentives in algorithmic governance.

Countries around the world are coming together internationally to follow the "flows" of information and people through agencies such as Five Eyes (Haggerty and Samatas, 2010). This has been described as being at the cusp of reaching a *global panopticon* (Zuboff, 2020). Foucault's original Panopticon had been a metaphor for power in the context of discipline but contemporary surveillances are networked in such a way as to produce a distributed panopticism in which individuals are watched over by multiple centers of power at once.

4.2 The Normalization of Emergency Biopolitics

Agamben (2005) warns that states of exception, initially justified as temporary, often become permanent. The USA PATRIOT Act (2001) institutionalized mass electronic surveillance under counterterrorism rhetoric, while France's post-2015 emergency laws entrenched digital tracking, corroborating Agamben's argument that contemporary governance is carried out through perpetual crisis management (Lyon, 2014).

The COVID-19 crisis also demonstrated this dynamic. Contact tracing apps, location tracking, and immunity passports were implemented in most governments on public health grounds (Ajana, 2021). Counterterrorism surveillance technology in Israel, for example, was re-purposed to track the virus with the potential for their use extending beyond the health crisis (Zuboff, 2020). Once biopolitical surveillance systems become normalized, scholars have warned that they become entrenched and redefine rights to privacy and citizen-state relations at their very essence (Esposito, 2008).

At the biopolitical level, this fits with Mbembe's (2019) contention that governments are presently acting in a permanent "crisis mentality," and exceptionalism is being used to legitimate intensified surveillance and management. Of most concern is having rollback mechanisms in place so crisis systems of surveillance are not transformed into permanent instruments of population management. Without rollback mechanisms being implemented, crisis powers risk undermining democratic accountability and making mass surveillance a structural element of governance rather than keeping it as an instrument reserved for specific threats (Haggerty & Samatas, 2010).

4.3 Biopolitics at the Border: Inclusion, Exclusion, and Necropolitical Outcomes

Borders serve as biopolitical sites where surveillance dictates mobility and security. States use biometric databases and AI risk assessments to manage migration, as seen in the EU's EURODAC system (Ajana, 2013). These technologies enforce an algorithmic sorting of populations, determining who gains entry and who remains in legal limbo (Lyon, 2014).

However, border policies often produce necropolitical consequences. Mbembe (2003) argues that sovereignty governs through exposure to death, seen in migrants abandoned at sea, detained in camps, or deported to unsafe regions. The U.S.-Mexico border, where drones and AI-driven enforcement contribute to migrant precarity, exemplifies this exclusionary logic (Creemers, 2018). Such policies frame border deaths as deterrence, reinforcing systemic devaluation of lives.

4.4 Surveillance Capitalism and Private-Sector Biopolitics

In addition to state power, corporations also exercise biopolitical power by amassing and commodifying personal data. Zuboff's (2019) theory of surveillance capitalism explains how technology corporations including Google, Facebook, and Amazon influence people's behavior through predictive modeling and algorithmic governance. This private biopolitics contrasts with

traditional governance insofar as it isn't designed to optimize individuals for the good of collective health but to create profitable behavior.

Examples include:

- Social media's impact on mental health as platform algorithms silently influence emotional states and social interactions (Lyon, 2014).
- Gig economy companies using AI-based scheduling systems to regulate worker productivity effectively exercising labor biopolitics in the absence of direct state intervention (Ajana, 2013).
- The Cambridge Analytica scandal, where political views were manipulated with the help of data from Facebook to sway election results - controlling citizens through psychometric profiling (Zuboff, 2020).

4.5 Public Health Surveillance and the Immunitary Paradigm

Public health surveillance has long played a role in biopolitical governance, with the COVID-19 pandemic intensifying debates on digital health control. Esposito (2008) conceptualizes immunization as a paradoxical mechanism that protects society while isolating or sacrificing individuals deemed threats. This logic is evident in biometric surveillance and predictive health analytics that classify individuals based on statistical risk rather than medical diagnosis (Ajana, 2013).

The pandemic accelerated the integration of AI-driven health governance, with governments implementing digital tracking apps and immunity passports (Zuboff, 2020). Societies justified intensive interventions as they represented the virus as an outside threat and legitimized invasive policies in the name of public health security (Ajana, 2013). While framed as necessary, these systems introduced new social stratifications, limiting mobility and economic access based on algorithmic risk assessments (Ajana, 2021). Insurance companies and employers increasingly use biometric profiling to determine coverage, raising ethical concerns about algorithmic discrimination in healthcare (Lyon, 2014).

The securitization of health data, justified by COVID-19, could extend into climate-related health monitoring, migration control, and workplace surveillance (Esposito, 2008). The challenge remains ensuring post-pandemic health surveillance does not become a permanent tool of biopolitical governance.

4.6 Resistance and the Contestation of Algorithmic Governance

Despite expanding algorithmic governance, resistance movements challenge these structures. Civil society organizations have successfully contested mass surveillance laws, leading to rulings against indiscriminate data retention (Lyon, 2014). Technological resistance has also emerged, with

encrypted platforms gaining popularity post-Snowden as tools for reclaiming privacy (Zuboff, 2020).

During the COVID-19 crisis, activists developed decentralized, privacy-preserving contact tracing protocols to counter state overreach (Ajana, 2021). Public scrutiny led some governments to modify surveillance policies, such as Australia's revision of its COVID-19 tracking app to enhance anonymity (Lyon, 2014). These cases demonstrate that public awareness and organized opposition can influence the ethical and legal boundaries of digital governance.

Conclusion

This chapter illustrates how biopolitical governance has expanded through global surveillance, algorithmic decision-making, and corporate control. While these systems enhance security and efficiency, they also raise ethical concerns regarding autonomy, inequality, and exclusion. Addressing these challenges requires robust legal oversight, technological safeguards, and collective resistance to ensure that algorithmic governance aligns with democratic values rather than reinforcing systemic inequities (Esposito, 2008).

4.7 Thematic Intersections and Overlaps

Each of the theorists emphasizes different aspects, but strong thematic intersections emerge across their work. Many engage in an implicit dialogue: Mbembe (2003) builds on Foucault (1978) and Agamben (1998) to elaborate necropolitics, while Rose (2007) extends Foucault's biopower through ethopolitics, particularly in the context of biomedicine and biotechnology. Through this scholarship, Foucault's influence is pervasive: virtually all of the scholars (Agamben, Mbembe, Esposito, Rose, Ajana, Lyon, even Zuboff indirectly) struggle with the conceptualization of modern power as less about the imposition of death and more about the administration of life. Agamben's state of exception can be understood as legal-juridical elaboration of Foucault's biopolitics tracing the point where biopower becomes thanatopolitics - a condition of being where certain populations are left vulnerable to death through sovereign fiat (Agamben, 2005). Mbembe's work elaborates this further, proposing that Foucault's "make live and let die" must be taken literally: modern states systematically let die or actively kill certain populations, typically according to racial and colonial divisions. His work intersects with Agamben's exception (territories occupied as zones of exception) and with Esposito's immunitary logic, where necropolitics is what happens when biopolitical self-protection becomes deadly - leading to exclusion, marginalization, or genocide (Esposito, 2008).

Esposito and Rose converge in critical terms as they extend Foucault. Both Esposito's immunitary paradigm and Rose's ethopolitics explore the manner in which life becomes the target of political strategy. Their areas of focus differ, however: Esposito (2008) is concerned with the philosophical paradox of protection and exclusion, whereas Rose (2007) is concerned with the manner in which individuals internalize biopolitical imperatives within themselves in order to optimize and govern themselves. Esposito explains the manner in which societies construct "immunity" through

exclusion of threats, whereas Rose explains the manner in which neoliberal governmentality encourages individuals to regulate themselves according to dominant norms. Together, their positions highlight that biopolitics takes place on various levels - structural (state policy, security legislation) and subjective (self-discipline, ethics of self-care).

In the context of digital governmentality, Ajana, Lyon, and Zuboff apply such theoretical ideas to the contemporary surveillance state. Ajana (2013) employs biopolitical theory to apply it to 21st-century security systems and argues that digital surveillance does not displace disciplinary power but combines with it. Lyon (2014) builds on this through the analysis of post-Snowden mass surveillance and illustrates how analysis of big data makes biopower. While biopolitical critique highlights the risk of digital observation, practical solutions are scarce. Little is discussed on responsibly governing algorithmic systems and making them transparent, accountable, and subject to legal scrutiny (Zuboff, 2020). Research priorities are as follows:er into a preemptive control where populations are sorted algorithmically on the basis of risk patterns rather than individual past. Lyon's "control motif" of big data governmentality finds echo in Ajana's call for Deleuze's "society of control" as indicating the shift towards decentralized, networked power (Ajana, 2013; Lyon, 2014). Zuboff (2019) then takes the analysis further beyond state-driven surveillance to economic drivers of digital governmentality in the rise of surveillance capitalism. She argues that tech firms like Google, Facebook, and Amazon wield a new "instrumentarian power," where behavior is not shaped through coercion but through algorithmic enticement - a conceptualization echoing Foucault's disciplinary technologies scaled up to populations through digital automatization.

An important overlap between Zuboff and Rose is in the way each of their theories focuses on individual engagement with systems of governance. Zuboff (2019) describes how surveillance capitalism nudges individuals towards commercially or politically desirable outcomes using behavioral data, whereas Rose's ethopolitics considers self-tracking in health and personal optimization. In either case, power is wielded through the illusion of choice - people willingly wear tracking devices, willingly give up personal data, and willingly engage with algorithmic rule but are nudged towards desirable behavior. This observation leads towards one of the dominant threads throughout the literature: power systems of the contemporary era tend to work through willing engagement rather than overt coercion (Rose, 2007; Zuboff, 2020).

One of the most compelling intersections of theme is the activity of racialization and exclusion in biopolitics. Foucault (1976) established the theme of state racism as a constitutive force of biopolitics, one that Mbembe (2003) elaborates upon through the illustration of racial hierarchies as the foundation of necropolitical power - from colonizing wars to border regimes in contemporary times. Agamben (1998) does so impliedly through his explanation of the way some groups are subjected to *homines sacri* - people deprived of legal protection and existing in bare life. Similarly, Esposito's immunitary paradigm suggests groups are marked through exclusion as they expel unwelcome populations for the sake of security. Ajana (2013) elaborates such concepts into border politics in contemporary times through the illustration of the way in which migrants and asylum seekers are filtered out through biometric surveillance and automated risk assessment. Even Zuboff's surveillance capitalism has racial undertones - though it does not sort populations according to race explicitly, it does sort people according to economic usefulness such that some populations are neglected or disproportionately exploited within digital regimes of rule.

A Framework for Biopolitics in the Digital Age

These works collectively construct a multi-layered framework for understanding biopolitics in the 21st century:

Layer 1: Theoretical Foundations

Foucault's biopower as the base concept (managing life), Agamben's state of exception (suspending legal protections), and Mbembe's necropolitics (deciding who may live and who must die). Esposito and Rose refine these theories by examining immunity-based exclusions and self-regulation through ethopolitics.

Layer 2: Mechanisms and Domains

How these powers manifest in governance: Agamben and Mbembe focus on war zones and states of emergency, while Rose and Esposito examine medicine, public health, and social norms. Foucault traces biopolitical control through institutions such as prisons, hospitals, and statistical administration.

Layer 3: Digital Transformation

Ajana, Lyon, and Zuboff illustrate how these mechanisms have been reshaped by digital technology. Surveillance no longer operates through visible institutions like schools or prisons but through hidden infrastructures - biometric ID systems, algorithmic governmentality, and corporate data extraction.

Layer 4: Actors and Power Dynamics

Classic biopolitics focused on state actors (governments, police, bureaucracies). In the digital age, corporate actors (Google, Facebook, Palantir, Amazon) and decentralized networks have joined or even surpassed states as primary biopolitical agents. Power is now distributed between government surveillance, corporate control, and algorithmic systems, raising new questions of accountability and regulation.

Together, these perspectives depict a multi-faceted biopolitical regime in the 21st century: one where the governance of life is omnipresent - operating through legal exceptions (Agamben), violent exclusions (Mbembe), self-discipline (Rose), community immunity (Esposito), digital surveillance (Ajana, Lyon), and corporate behavioral manipulation (Zuboff). This evolving form of algorithmic governance requires new theoretical and regulatory responses, as biopolitical control increasingly shifts away from the state and into the hands of transnational corporations and decentralized algorithmic infrastructures.

4.7 Summary

The study reveals that biopolitical rule has been extended through globalisation and digital observation with dominant patterns being:

- Normalization of surveillance for security and health reasons
- State and corporate power are combined in algorithmic governance.
- Institutionalization of border watch as a necropolitics strategy.

- Greater public resistance to data-driven control systems

These considerations highlight the essential requirement for democratic accountability and open regulatory processes to ensure that biopolitical rule does not undermine civil liberties but instead serves to maintain public welfare (Esposito, 2008).

5 Limitations

5.1 Theoretical Limitations and Debates

One of the biggest limitations of biopolitical scholarship is the applicability of conventional theories to the digital world. Foucault's theory, developed in historical contexts like 18th-19th century Europe, cannot account for current algorithmic governance and AI decision-making that are unintentional and founded on statistical correlations (Ajana, 2013). Joshua Clover (2020) argues that biopower is not contemporary enough to explain scenarios where economic imperatives become stronger than the imperatives of safeguarding life (Lyon, 2014).

Similarly, Agamben's (2005) state of exception theory has also been met with criticism. Even as his thesis suggests that states of exception become permanent states of being, some authors are of the opinion that not all crises end in authoritarian domination - democratic institutions are usually capable of curbing abuses (Mbembe, 2019). His politicization of COVID-19 response (equating lockdowns with political domination) was widely debunked since Heading 1 most of the public health regulations were genuinely needed (Esposito, 2008).

Likewise, Mbembe's (2003) necropolitics, which was initially formulated in contexts of war and colonality, has the tendency to be overstretched. Any inequality labeled as necropolitical can lose conceptual force (Mbembe, 2003).

In addition, Esposito's immunity paradigm has been successful in describing crisis management but has also been criticized for being too metaphor-dependent - not all exclusions are necessarily harmful and some forms of "immunity" (e.g., social resilience) are beneficial (Esposito, 2008). Comparative analysis of testing when each theory is most effective would be useful in the literature rather than strict adherence to one model only (Lyon, 2014). This research attempts such synthesis, proving that each theory points towards different elements of modern governance.

5.2 Biases and Gaps in Literature Coverage

Historically, research on biopolitics has been focused on Western democratic societies with knowledge gaps regarding digital surveillance in the Global South (Ajana, 2013). There are greater studies of China's Social Credit System or data governance in the EU compared to biometric surveillance in South America or Africa where privacy norms and post-colonial politics differ (Mbembe, 2019). Western theoretical models are implemented in some studies without local socio-political contexts being adequately addressed (Lyon, 2014).

A further gap is intersectional analysis. Biopolitics necessarily intersects with race and class but is not often analyzed for the ways in which digital surveillance disproportionately impacts marginalized groups. Recent work highlights predictive policing in the United States as one example of Black and Latino populations being disproportionately policed using discriminatory algorithms (Zuboff, 2020). Increased work with critical race theory and feminist theory would expand our understanding of who is most regulated or excluded in digital regimes of governance (Ajana, 2013).

5.3 Methodological Concerns

The majority of research is very abstract and makes broad claims about surveillance with little detailed empirical foundation (Esposito, 2008). Other theoretical research makes claims about digital governmentality without technical realities to ground them, and case studies are usually derived from single events with no relevance to general theoretical contexts (Lyon, 2014). This can lead to confirmation bias where research is interpreted through one theoretical framework only - e.g., states of exception being ubiquitous or all surveillance being panoptic (Ajana, 2013).

There is also no correspondence between technical competence and social theory. Few biopolitical scholars are studying AI algorithms in detail but it is crucial to understand machine learning biases for measuring algorithmic governance (Zuboff, 2020). There is also a demand for incorporating Science and Technology Studies (STS) approaches with biopolitical analysis so that one can better understand how digital infrastructure produces power (Mbembe, 2019).

Additionally, with the accelerating expansion of digital observation, studies are likely to be reactive in nature with respect to already changed patterns (Esposito, 2008). More scenario studies would be capable of predicting near-future biopolitics such as brain-computer interfaces or global repositories of DNA (Ajana, 2013).

6. Conclusion and Recommendations

The research has demonstrated that biopolitics remains crucial for understanding contemporary governance, particularly against the background of globalization and digital surveillance. In the 21st century, life is increasingly mediated through global systems and digital infrastructures. Foucault's early work on population management, normalization, and surveillance remains applicable as states and corporations deploy data-driven governance for the promotion of health, security, and productivity and the embedding of surveillance in everyday life (Ajana, 2013; Lyon, 2014). Others like Agamben, Mbembe, Esposito, and Rose expand on these concepts to analyze algorithmic governance, states of exception, and necropolitics.

Agamben (2005) illustrates the way in which the state of exception has become permanent as a mode of governance, especially in the context of security threats and health crises. Expansion of digital surveillance, initially proposed as an emergency intervention, often becomes entrenched in ways that radically transform governance systems (Esposito, 2008; Mbembe, 2019). Mbembe's (2003) necropolitics illustrates the way in which sovereign power makes decisions about whose lives are not worth living, as seen in refugee surveillance, border controls, and global health disparities. Esposito (2008) discusses the immunitary paradigm, illustrating the way in which

interventions that are intended to safeguard society - such as digital surveillance - end up undermining basic freedoms.

Biopolitical rule is no longer exclusive to nation-state government but has become more transnational. Surveillance models and technologies are being exported, remade, and implemented across the globe with the production of global regulatory systems that cross state boundaries. China's biometric systems of surveillance have been influencing governance in Africa and parts of the Middle East, for example, and pandemic-based digital health technologies have established new global standards for population tracking (Ajana, 2013). These are representative of the demand for the reconsideration of biopolitical government in an era where public and private actors collaborate in governing life.

6.1 Theoretical and Practical Implications

The double character of digital biopolitics is foregrounded in this research: it can enhance life - public health, security, and efficiency - while it also makes new forms of domination like mass surveillance, lack of autonomy, and exclusion through algorithms possible (Zuboff, 2020). Resolving such issues requires balancing technological advancements with strong regulatory mechanisms.

Theoretically, biopolitical theory must evolve to account for algorithmic decision-making, AI bias, and global systems of surveillance (Lyon, 2014). Research in the future must integrate knowledge from technology studies, critical data ethics, and global governance to conceptualize power within digital infrastructures more effectively.

In practical terms, societies need to develop robust legal and ethical mechanisms for governing digital surveillance. Without transparency, legal checks and bounds, and public accountability, digital systems can reinforce exclusionary governance models and amplify power differentials (Ajana, 2013).

6.2 Emerging Frontiers

The rapid expansion of biotechnology and digital tracking poses new challenges for biopolitics. A new question is bio-digital convergence - implantable sensors, biometric wearables, and genetic data ownership (Zuboff, 2020). Who owns private biomedical data? Can states mandate health implants for security or public health purposes? Research in the future must answer such questions (Ajana, 2013).

A further crucial field is that of climate biopolitics. With increasing global warming, states are set to implement population-level health interventions that influence migration, resource allocation, and digital surveillance (Esposito, 2008). Compared to the traditional nation-state biopolitics, climate-based governance may require international cooperation, which is not adequately covered in current biopolitical theories (Mbembe, 2019).

Interdisciplinary research that crosses environmental studies, technology policy, and political theory is required to forecast the ways in which governance systems are likely to adapt to such challenges.

6.3 Recommendations for Future Research

While biopolitical critique highlights the risk of digital observation, practical solutions are scarce. Little is discussed on responsibly governing algorithmic systems and making them transparent, accountable, and subject to legal scrutiny (Zuboff, 2020).

1. Empirical Research on Algorithmic Regulation – Future research should combine social theory, law, and data science to examine real-life examples of algorithmic decision-making and long-term public responses to digital surveillance (Lyon, 2014).
2. Cross-Cultural Comparisons – Study of the manner in which different societies accept or resist surveillance will help overcome Eurocentrism and formulate more advanced theories of global biopolitical rule (Mbembe, 2019).
3. Resistance and Agency – Research should explore the ways in which groups and individuals resist regimes of surveillance and reveal adaptive strategies and legal challenges (Lyon, 2014).
4. Normative Models – Experts must develop ethical and legal models for AI-based surveillance so that privacy of data and protection of rights are ensured (Esposito, 2008).
5. Foresight in technology – Preemptive policy-making is crucial for foreseeing biopolitical threats in upcoming technologies like biometrics, AI, and digital identities (Zuboff, 2020).
6. Inclusive Biopolitical Theory – future studies should incorporate postcolonial and feminist theories to better understand how digital rule affects disproportionately marginalized groups of individuals (Mbembe, 2019).

Closing such gaps will enable the creation of regulatory systems that reconcile technological progress with core rights.

6.4 Final Reflections

The future of biopolitical governance in the digital age presents profound stakes. How societies regulate, implement, and resist digital biopolitics will shape the trajectory of freedom, security, and inequality. Whether digital surveillance serves as a tool for public well-being or an instrument of control will ultimately depend on how power is structured, contested, and governed (Esposito, 2008).

Through continued research, interdisciplinary collaboration, and proactive policymaking, societies can work towards a biopolitical governance model that prioritizes transparency, fairness, and human dignity (Zuboff, 2020). Ensuring that technological advancements serve the public good rather than reinforcing oppressive power structures will be the defining challenge of digital biopolitics in the decades to come.

Although I might have missed the overall tasks of reviewing different philosophical approaches to research and outlining my research design in detail, this study strongly deals with philosophical aspects, synthesizing the latest key-contributions in the domain.

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