

Bachelor Thesis

Artificial Intelligence at Europe's borders: Improvement to the Status Quo or mere Technosolutionism?

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Submission Date: 27.06.2023

Word Count: 11.986

Public Governance across Borders (B.Sc.)

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Abstract

Artificial intelligence (AI) technologies increasingly crosscut all sectors, urging scholars and legislators to address the ethical and legal challenges that the deployment of such systems invokes. EU policymakers are currently working to finalise the AI Act regulation, which will undoubtedly shape the future of AI systems' usage and dissemination across the EU, including its external borders. AI usage in border control has been subject to controversy and is considered high-risk.

This thesis examines the problematisation of AI governance for border management in the political and legislative discourse. Hitherto, a Foucault-inspired Discourse Analysis guided by the 'What's the Problem Represented to be?' approach was conducted using qualitative coding. Various official documents on the regulation proposal, border, and AI governance were analysed. Results indicated increasing convergence of the dominant risk management security paradigm with a rationalised, calculation-based pre-emption for border digitalisation and a technosolutionist problematisation of AI usage that places disproportionate attention on the design of ethical AI and questionable oversight mechanisms, while the biopolitical nature of border control and surveillance technologies is made apolitical through normalising discourses of digital data doubles and the informatisation of the body for border-crossing purposes.

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List of Abbreviations

AFSJ	Area of Freedom, Security and Justice
AI	Artificial Intelligence
AIA	Artificial Intelligence Act
CCLJHA	Committee on Civil Liberties, Justice and Home Affairs
cco	code co-occurrence
CIMCP	Committee on the Internal Market and Consumer Protection
crf	column-relative frequency
DGCNECT	Directorate-General for Communications Networks, Content and Technology
DGHome	Directorate-General for Home Affairs
EC	European Commission
EES	Entry/Exit System
EP	European Parliament
ETIAS	European Travel Information and Authorisation System
EU	European Union
eu-LISA	European Union Agency for the Operational Management of Large-Scale IT Systems in the Area of Freedom, Security and Justice
FDA	Foucauldian/Foucault-inspired Discourse Analysis
Frontex	European Border and Coast Guard Agency
IBM	Integrated Border Management
MEP	Members of the European Parliament
PKN	Power/Knowledge Nexus
R&D	Research and Development
SIS/SIS2	Schengen Information System (Two)
TEU	Treaty of the European Union
TFEU	Treaty on the Functioning of the European Union
VIS	Visa Information System
WPR	‘What’s the Problem Represented to Be?’-Approach

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Table 1	Adjusted WPR Questions
Table 2	Coding Scheme

1. Introduction

In April of 2021, the European Commission (hereafter: Commission) published a draft regulation proposal to harmonise artificial intelligence (AI) development, deployment, and usage across the European Union (EU). At the time of writing (18.06.2023), less than a week has passed since members of the European Parliament (MEPs) “adopted Parliament’s negotiating position on the AI Act” (European Parliament 2023/2023) and are now entering the trilogue phase to finalise the law. The regulation is an important step towards EU-wide standardisation of AI systems from development to deployment. Substantially, its objective specifically targets regulation of primarily those systems that can be identified as high-risk via the AI Act’s (AIA) risk-based regulatory approach, although its material scope encompasses all AI systems (Veale & Zuiderveen Borgesius, 2021). Through the risk-approach, depending on the risk that an AI application poses to safety, health, European fundamental rights and values, it will be subject to higher or lower regulatory requirements, such as conformity assessments or transparency of its working processes (Rostalski & Weiss, 2021). Central to the regulation is the *high-risk category* for AI systems – with migration, asylum, and border control as recognised high-risk fields of application.

In the EU, policies for internal and external border controls, immigration, and asylum all fall into the domain of the Area of Freedom, Security and Justice (AFSJ) to which Article 3(2) of the Treaty of the European Union (TEU) and Articles 67 to 89 of the Treaty on the Functioning of the European Union (TFEU) are devoted. For external border management, the central instruments are the Schengen Borders Code regulation, the Schengen Information System (SIS) database with its accompanying legal instruments¹, and the European Border and Coast Guard Agency (Frontex) as the main agency responsible for managing and monitoring the external borders in cooperation with member states (Bux & Maciejewski, 2022). The EU’s border management has increasingly been digitalised, particularly through the large-scale IT-systems managed and operated under eu-LISA – including the Visa Information System (VIS), SIS2, Eurodac, and the not yet fully operational but forthcoming European Travel Information and Authorisation System (ETIAS) and Entry/Exit System (EES). While the use of technology for border control is not new, the introduction of AI technologies intensified and accelerated its dissemination and scope of application (Mügge, 2023), ushering in an era sometimes characterised by technosolutionism (Vavoula, 2021). Significantly, a trend in border control towards “institutionalisation of *normalization* [sic] in the form of European Union technologies and regulations” (Neal, 2009, p. 20) has long been observed, and the concept of *risk* that has been moving the EU towards more biopolitical and technocratic border governance is reiterated and calcified in the risk-approach of the AIA. This risk concept, manifested in risk assessment and calculation tasks first executed by Frontex (Neal, 2009), now increasingly delegated to machine learning (ML) systems, is reminiscent of the much-studied migration-security nexus that claims the relationship between migration issues and themes of security that are constructed to make a potential security threat out of people on the move (Farani & Akram, 2020). Indeed, Pallister-Wilkins (2016) points out, has much “of the suffering and death [...] at Europe’s borders [been] the result of European border policies instituted over the last 20 years” (p. 312). Inhumane treatment of migrants and asylum seekers is well-recorded (Kilpatrick & Jones, 2022; Molnar, 2020; R. Andersson, 2016), as are stories of discriminatory practices against particularly non-white migrants (Morrice, 2022).

Between the EU’s New Pact on Migration and Asylum including reforms that employ advanced technological systems based on AI in the context of migration management (European Migration Network, 2022), Frontex’ ambitions to secure the borders with AI (Forti, 2021), and

¹ Regulation (EU) 2018/1862 on police and judicial cooperation in criminal matters, Regulation (EU) 2018/1861 on border checks, and Regulation (EU) 2018/1860 on the return of illegally staying third-country nationals.

the upcoming AI act including provisions on high-risk systems used for border control, it is questionable how such technologies affect the aforementioned problems. Furthermore, the use of AI technologies for border control is a matter of both scientific and societal relevance, as it raises important ethical and regulatory questions. Artificial systems lack inherent moral capacity, making it crucial for scientists, developers, policymakers, and deployers to assume responsibility for ethical design and usage from the outset, including the decision of when certain use cases or systems are or are not appropriate for use. R&D is an essential element in responsible AI development and dissemination. This includes considerations such as fairness, transparency, accountability, and the coherence with fundamental rights. The rapid advances in the technology since the fourth quartile of 2022 have further increased expert considerations that we might already have more advanced technology than we can currently understand and govern (Bubeck et al., 2023), which further highlights the urgency for ethical considerations.

The uncertainty surrounding the impact of these technologies on society and particularly vulnerable groups necessitates critical investigations of their implications – moreso given the EU's desire to establish itself as a global leader and standard for AI regulation with the upcoming AI act. Migration and border security issues, which have a history of discriminatory practices and human rights violations, make the implications of AI for border management especially significant. Considering the literature on the potentially detrimental effects of AI (Zuiderveen Borgesius, 2018; Ntoutsi et al, 2020.; Köchling & Wehner, 2020). This research therefore explores the power relations and power/knowledge nexus regarding the new technology and its discourse, and how the problematisation of governing AI in border management at the legislative and political level influences them, and how the AIA reflects this. The goal of this bachelor thesis is therefore to investigate the research question: *In light of the upcoming AI act, how does the political and legislative discourse surrounding the digitalisation of the EU's external borders problematise the use of artificial intelligence technologies for border control?* Four primary sub-questions have been developed to guide the analysis in answering the main research question:

- (1) *How is the issue of governing artificial intelligence (AI) systems for border control conceptualised in the EU's political discourse?*
- (2) *How do technosolutionist and security-related conceptual logics underpin how the implicit and explicit use of AI at the EU's borders is discursively framed and how is this justified?*
- (3) *What does the discourse about AI in border control omit?*
- (4) *How might the AI-Act impact the use of AI systems at the EU's external borders according to what the discourse depicts as appropriate problem-solutions?*

2. Analytical Framework and Theoretical Background

The vast body of literature on the topics of AI and migration management both individually and in combination makes clear the plurality of suitable theoretical foundations to choose from when conducting research in these areas. As this thesis thematically straddles ideas on technology – including its role and impact in society – and on population management via border control – including themes of security and migration – the aim here is to develop a solid theoretical and conceptual basis for a complementary framework that serves as the discourse analysis’ theoretical lens. This shall be achieved with the help of Bacchi’s ‘What’s the Problem Represented to Be?’-approach (WPR) as an analytical framework. Michel Foucault’s accounts of the Power/Knowledge Nexus and Biopower, the concept of Technosolutionism from the Science and Technology Studies, and Wichum’s formulations of Security and Security Technologies provide the conceptual foundation for the framework.

2.1. WPR

The WPR is a poststructuralist, Foucault-inspired and critical analytical strategy chiefly used for policy analysis. It aims to uncover “the underlying contingent knowledges, discourses, and assumptions that give each policy its specific shape, produce ‘targets,’ and generate different types of power relations” (Larsson, 2018, p. 104) by problematising the productive power of policies and governmental practices. Its point of departure is that policy problems and subsequent policy proposals are implied, constituted, evoked and made in policy practices and formulations (Sebeelo, 2022). The framing mechanism by which some thing, one, or situation is presented as a problem and that Bacchi (2016) calls *problematisation* is also a discursive practice or act with meaning-making function in the sense of Foucault (Archibald, 2020). This problem-questioning methodology has been asserted as useful and compatible with critical approaches, especially Foucault-inspired ones, due to the epistemological proximity and its enabling capabilities for interrogating the hidden values and power relations that shape policies (Riemann, 2023; Archibald, 2020). Flexible and distanced from discursive analyses that only interrogate rhetoric and speech patterns, the approach has been applied for various policy fields and document types, including legal documents (e.g., Carson & Edwards, 2011; Tawell & McCluskey, 2021). This is crucial for the methodology to discursively analyse legal as well as policy documents from a power-revealing perspective, as poststructuralist discourse analyses such as FDA are less commonly used on legal texts. Despite their rarity, they can serve well to understand how discursive meaning-making and power relations become manifest and calcified by way of their legal embedding. As this framework investigates how and why policies are a certain way, with what impacts, implications, and problem-perception, it further serves ideally to examine one in the making, such as the AIA.

WPR guides any analysis through six interrelated questions, which may however be differently weighted or selectively applied if the context and research question call for it (Riemann, 2023). Table 1 in the method chapter shows Baachi’s original formulations of them as well as their adapted versions for this thesis.

2.2. Power, Knowledge, and Biopower: Foucauldian Biopolitics

Foucault, a leading French philosopher and historian, parted from traditional conceptualisations of *power* as primarily repressive and possessed. Rather, he identified it as prohibitive, but also as productive, relational, and discursive (Khan & MacEachen, 2021), thereby arguing for power as “a web that enables certain knowledge(s) to be produced and known [...] [and] an effect of sociohistoric processes” (Cheek, 2008). The inseparable entanglement of power and knowledge hinted at here is called the *Power/Knowledge Nexus* (PKN). Foucault disputes the objectivity and neutrality of knowledge, arguing instead that “power dictates the terms of knowledge” (Moore, 2021). The PKN - with its emphasis on practiced subject-making, truth- and meaning-

constituting - integrates well into the WPR framework, as both share a poststructuralist analytical perspective. Indeed, WPR takes the substantive ideas of the PKN concept as its epistemological basis by arguing that (policy) problems, their premises and assumptions are shaped and enacted in the policy-making process, as well as any discourses surrounding it. Essentially, ontological and epistemological truths are products of power relations negotiated in these *discourse* – defined here generally as the ways in which reality and aspects of it are asserted, discussed, thought, and spoken of. Keller (2008) explains how discourse is the site where the subjects, expressions, and conditions of exclusion are negotiated through enforcement of particular truths.

Useful in the grander sphere of governmental concerns and regulatory practices is Foucault's concept of *Biopower*, which explains population control through mechanisms that subjugate the body: "The new technology [...] is addressed to a multiplicity of men [...] to the extent that they form [...] a global mass that is affected by overall processes characteristic of birth, death, production, illness, and so on" (Foucault, 2003, p. 242, as cited in Macey, 2009, p.188). When this type of power technology is enacted by governments and regulatory agents, such enactment is called *Biopolitics*. Besides sovereignty and discipline, it is one of Foucault's major rule logics. Biopolitics also refers to how populations and governable subjects are constructed by invoking differentiable categories of people and "the knowledge practices required to constitute populations as intelligible objects of government" (Scheel, 2020, p. 571). In relation to AI and border management this becomes relevant when individuals are made into data subjects and categorised as a certain type of traveller at the borders. As these concepts in particular tie in closely with Foucault's work on subjectification, they interact particularly well with WPR's investigation of the effects brought about by problem problematisations. Specifically, they aid question five's objective in the WPR framework and thereby the fourth subquestion of this research (see chapter 3.2) by giving ground to an examination of the "subjectification effects (the way in which subjects and subjectification are constituted) and lived effects (the effects on life and death)" (Carson & Edwards, 2011, p. 76).

2.3. Security Technologies

Wichum (2013) extends Foucault's work on *Security (as) Dispositifs* with a toolbox applied to contemporary (in-)security practices, regimes, and strategies. This offers a useful and more topical account of the junction between (in-)security and modern technologies, including AI. Much academic work has been devoted to securitisation processes, particularly in migration and border policy (Stępką, 2022). For this thesis, securitisation is to be understood loosely in Mügge's (2023) terms: "securitization denotes the degree to which a referent object is understood and potentially governed as security-relevant, because it is seen as a security vulnerability, a security threat, or as a tool to enhance security" (p. 5). Typically security problems are identified as products of social construction that nevertheless bear social and material consequences – for refugees, frequently existential ones (Svantesson, 2014). For Wichum and Foucault however, security and demands for it juxtapose security with power, subjectivity, and knowledge. The essential question is about the connection between certain risk problematisations and specific knowledges and technologies. This is where *Security Technologies* – or security dispositifs - are subsumed under WPR, as they examine the specific risk and security problematisations that justify a legal and policy response. Beyond that, security technologies further presume the population's security as "the constitutive counterpart to its freedom" (Wichum, 2013, p.166), with a security apparatus required for circulation of people and things to that end. Essentially, security becomes about what is subject to inclusion or exclusion - an imperative expression of power relations. When such security concerns that regulate in- and exclusion occur in tandem with population management, the connection to biopower is tight, and security technologies can act as a biopolitical tool. As technologies used for border control such as biometric identification systems are identified as circulation governing *security technologies* on the population level to serve that cause, the concept proves

suitable for analysis. Tsianos and Barra (cited in Wichum, 2013) also point out the chief contemporary enforcement of such security regimes through digitisation and dataveillance. These digitised control systems serve population management – subsumed under biopolitics– and disciplinary power that mutually produces and is (re-)produced through identification mechanisms in the data systems.

2.4. Technosolutionism

Technosolutionism means the narrative that technology is a necessary or the best functional solution for organisational deficits and social problems (Katzenbach, 2017). Morozov (2013) only called this phenomenon solutionism and states: “Recasting all complex social situations either as neat problems with definite, computable solutions or as transparent and self-evident processes that can be easily optimised – if only the right algorithms are in place” (p. 5). Selbst and colleagues (2019) assert how technosolutionism can be a potentially harmful trap, particularly when technology such as AI requires clear definitions relating to the social problem it aims to solve while the definitions in question are politically contested, shifting, or simply highly context dependent. Significantly, their claim is that while useful and responsible AI implementation is certainly possible, warning should be heeded to not fall into the solutionism trap of not stopping to consider whether such a technology is even appropriate for the issue – here, border control – in the first place simply because a technological reaction can be thought up. This narrative further frequently assumes the inevitability of technology’s uptake (Neeley & Luegenbiehl, 2008) and therefore claims the technological imperative of embracing and prioritising technology in dealing with complex issues. Regarding the security domain this has also been called the “techno-securitarian paradigm” (Jeandesboz, 2011, p. 119). Sensibility to the technosolutionist perspective and the solutionism trap aids this thesis by critically engaging with the discourse on the necessity or rationality of using AI to deal with border control operations. This perspective significantly involves and supports WPR in asking for the underlying assumptions, premises, and presuppositions of a policy or law’s problem identification and representation, as well as the how and why of particular solutions that a policy proposal suggests.

3. Methods

3.1. Data Selection and Collection

To analyse how the European discourse evokes AI as a tool for control and security in the digitalisation of border control and what power relations are produced from this the collected data consisted primarily of official Commission documents, EU publications such as reports and studies that inform policies, and legal texts. The analysis centered around the former documents on AI leading up to the AIA, the original AIA draft and the adopted amended version, and border management-related communications. As no specific official Commission document focuses on AI for border management, studies and reports on AI for migration and border control done by actors like eu-LISA, the Directorate-General for Migration and Home Affairs (DGHome), and Frontex were consulted as well. Some additional documents listed in Annex I were used for context background. All documents were taken from official sources such as EUR-Lex, official websites from the EU's institutional bodies and agencies, as well as reputable news and investigative journalism sources such as Statewatch.

The Foucault-inspired discourse analysis' (FDA) analytical merits for the discursive practices enacted by institutional and political stakeholders justifies the method's application to official policy documents and those informing them (Akdağ & Swanson, 2018). Further, Foucault (1986) himself positioned "practical texts" (p. 12-13) such as of policy documents and regulations as "key sites where governmental 'objects' and 'subjects' are produced through problematization" (Bacchi, 2015, p. 4). However, the regulation draft's analysis still required increased sensibility in applying the FDA. This is because legal text -despite being identifiable and thus interpretable as (legal) discourse that is necessarily shaped by the socio-cultural, legal, ideological, and political environments it emerges from (Goodrich, 1990) - is constrained. Specifically, Pennisi (2016) explains how legislative expressions "are required to be clear, precise, and unambiguous, on the one hand, and all-inclusive, on the other" (p. 101) and therefore the construction of legislative discourse is challenging due to the formal and scope-related requirements that need to be balanced with an appropriate expression of legislative intentions. Still, she too asserts that fundamentally the way legislative provisions are developed is based upon the nature of legal reasoning in its communicative purposes and that neither the final provisions nor their development can be divorced from the cultural, legal, and linguistic/philological environments they originated in. Goodrich (1990) stresses the implications of this with his analysis of the socially regulatory and disciplinary function of the law and its language, which is uncovered in a critical concept of legal discourse that acknowledges it as expressing, producing, and maintaining power through its language as seeking control of meanings, and as instrumental and demonstrative of domination patterns. He criticises positivistic univocal approaches to legal text as maintaining "a superb oblivion to the historical and social features of legal language" (p. 1) and instead advocates for an understanding of legal language as a social practice and discursively negotiated. He details the necessity of engaging legal manifestations of and from power and knowledge (re)producing discourses in the political sphere. Now in the final stage of its law-making process, the AIA final form is currently being negotiated with seminal implications and consequences. The circulatory, inclusionary, and exclusionary truth-making and subject-constituting nature of power (re-)production that structures discourse has been shaping its formulations. To critically examine how the draft parallels the surrounding discourse on AI, with specific regard to the application in border control, the legal text of the regulation proposal is used. As the law-making process has been progressing during the time this thesis was researched and written - with the Draft Compromise Amendments document by the Committees on the Internal market and Consumer Protection and on Civil Liberties, Justices, and Home Affairs having emerged and the process transitioning from pre-adoption by the Parliament and Council to adopted by the MEPs – and still being ongoing, this research necessarily must be restricted to a certain date.

To include the relevant Parliament amendments adopted on the 14th of June 2023, the cut-off point for the data and information collected and analysed is the 15th of June 2023. All potential changes beyond that point could not be included due to time constraints.

3.2. Data Analysis

A qualitative research design is conducive to answering the research question. More specifically, an FDA – a type of textual analysis - was conducted to reveal the contemporary systems and mechanisms of power and power reproduction. FDA is a constructionist analytical framework (Khan & MacEachen, 2021) and exemplary of interpretive research: a social science framework defined by its vested interest in understanding meanings as constituting action and reality (Bevir & Rhodes, 2005; Bhattacharya, 2008). FDA hence aligns itself with the ontological claim that reality and particularly the social world as we experience them are constructed, particularly through language and discourse (Potter, 2008): unable to infallibly perceive an objective reality, our understanding of the world is instead constrained and shaped by and within various contexts (socio-cultural, historical, political, etc.). Epistemologically then, knowledge is assumed to be neither objective nor value-free, to be “inevitably progressive, and universal” (Cheek, 2008). FDA, which is inspired by Michel Foucault’s theoretical works rather than proposed by him, employs a power lens to analyse and unveil how a certain discourse is defined, constructs reality and purports particular knowledges as truth (Khan & MacEachen, 2021). Foucault posited that power relations are embedded in these truth-making discursive processes and FDA builds on this by investigating this power-knowledge nexus through the analysis of discourses, wherein Foucauldian concepts such as biopower and governmentality provide the interpretive categories and tools to identify, categorise, and trace power relations (Cheek, 2008). This power lens proves reasonable for the analysis of how the discourse on AI for border control powerfully embeds techno-solutionist visions into the security discourse and EU policy.

As FDA does not prescribe a distinct method for the data analysis, Riemann (2023) suggests integrating it into WPR to counter common criticisms raised against it based on a presumed lack of replicability and clearness of methodological procedures. Further, a coding scheme was developed to facilitate an accountable, systematic, and coherent operationalisation of the theoretical concepts discussed previously. All documents were coded following an abductive approach to enable a theory-driven, but not constrained, analysis. The development of ex-ante codes is further crucial to preserve FDA’s strength of also making sense of silences, omissions, and absences – something often difficult to capture with coding schemes exclusively developed from the data (Khan & MacEachen, 2021). Hence, primary coding categories pertinent to the theoretical concepts of security technologies, technosolutionism, and biopolitics were developed ex-ante to organise the analysis. Related subcodes consisting of referential and suitable keywords and phrases act as indicators and markers that are applied directly to the data and then grouped into the primary categories. For example, for the theoretical concept of Biopower, keywords such as “circulation” and “migration” indicate the presence of one of its ex-ante developed primary codes “population management”. Value and versus coding are sensible choices for a discourse analysis (Saldana, 2013) that explores the discursive framing of a new technology and policy in a politically volatile and value-laden area such as border control. Significantly, “Versus Coding makes evident the power issues at hands as humans often perceive them – as binaries or dichotomies” (Saldana, 2013, p. 118) and is thus instrumental for analysing the knowledge-making and power relations in discourse that, according to Foucault (1981/2022), have inherently inclusionary and exclusionary functions. Thus, this type of coding was prioritised. Additional descriptive codes were used to capture explicit references and connections found in the text. The platform Atlas.ti is a useful tool for qualitative data analysis and was used to ease the coding and analysis. Variations in language or semantics – such as British versus US-American spelling - were accounted for. For AI-related documents that included a lot of information on areas entirely unrelated to border control, only those sections

of general relevance to the technology’s framing or potential and explicit references to border control were analysed to not distort statistical results due to redundant or inapplicable coding.

Lastly, the subquestions mentioned in the introduction will interact with the first five questions presented by Bacchi’s WPR to guide the analysis. Table 1 shows the original formulations of the questions and how they are adapted to this research. Question one corresponds to Subquestion One, questions two and three are subsumed under Subquestion Two, question four corresponds to Subquestion Three as does question five to Subquestion Four.

Bacchi’s (2009, p. 2) 6 Questions	Adaptation of Bacchi’s Questions	Research Subquestions
1) What’s the ‘problem’ represented to be in a specific policy or policy proposal?	What’s the ‘problem’ of governing AI in and for border control represented to be in the official policy documents?	How is the issue of governing artificial intelligence (AI) systems for border control conceptualised in the EU’s political discourse?
2) What presuppositions or assumptions underpin this representation of the ‘problem’?	“What deep-seated presuppositions and assumptions (conceptual logics)” (Tawell & McCluskey, 2021, p. 139) underpin this representation of the ‘problem’?	How do technosolutionist and security-related conceptual logics underpin how the implicit and explicit use of AI at the EU’s borders is discursively framed and how is this justified?
3) How has this representation of the ‘problem’ come about?	Because of what political and cultural conditions has this dominant representation of the (implied) ‘problem(s)’ come about? (Riemann, 2023)	
4) What is left unproblematic in this problem representation? Where are the silences? Can the ‘problem’ be thought about differently?	What is left unproblematic in this problem representation? Where are the silences? Which, if any, different conceptualisations of the ‘problem(s)’ are possible?	What does the discourse about AI in border control omit?
5) What effects are produced by this representation of the ‘problem’?	“What effects (discursive, subjectification, lived) are produced by this representation of the ‘problem’?” (Tawell & McCluskey, 2021, p. 139)	How might the AI-Act impact the use of AI systems at the EU’s external borders according to what the discourse depicts as appropriate problem-solutions?

Table 1: *Adjusted WPR Questions*

Table 2 shows the coding scheme with the primary codes; a more comprehensive version including subcodes can be found in Appendix III.

Major Concept	Definition	Code Categories
<i>Biopower/Biopolitics</i>	Technology and mechanisms of power that enable control over, regulation, discipline, and legibility of populations; bodily features become objects of political strategy and governance (Foucault, 2007)	Legible Data Subjects; Population Management; Subject Constructions
<i>Security Technologies</i>	Systems, tools, and logics for governing circulation processes to maximise ‘good’, minimise ‘bad’ circulation regarding security concerns (Wichum, 2013)	Identification and Surveillance Technologies; Prediction Technologies; Security Issues; Security Logics

<i>Technosolutionism</i>	Narrative, belief, trust in (eventual) supremacy of technological solutions (Vavoula, 2021)	AI Challenges; Best-Option Narrative; Inevitability; Interoperability; Modern Technologies; Performance; Technological Imperative
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Table 2: *Coding Scheme*

4. Analysis: AI's problematisation in the border management discourse

This quadrinomial chapter analyses how AI governance in border management is problematised in the EU's political and legislative discourse based on results from the data analysis. The four sections work chronologically through the proposed subquestions and associated WPR questions. The research showed that the discourse seems to problematise the requirements for ethical deployment while neglecting reflections on feasibility and suitability. Underlying technosolutionist and security-related presuppositions informed increasing overlaps between the risk management paradigm and calculative approaches. The technological imperative for AI deployment to strengthen the borders against an increasingly digital world was repeatedly found as justification, while many technical feasibility issues and limitations were ignored, significantly downplayed or addressed with questionable mitigation techniques. Potential effects of the AIA's phrasing and distinctions in section 4.4.

4.1. Problem Representation

To answer how the issue of governing AI systems used in and for border control is conceptualised in the EU's discourse, the problem representation regarding AI governance more generally ought to be considered first. This subchapter therefore begins with the general problem representation regarding AI governance that emerged from the dataset before zooming in on that in border control.

Results from the analysis revealed that conceptualisations of general AI governance are characterised by an occasionally unequal balancing act between acknowledging the potential risks and harms that may arise from the technology on the one hand and emphasis on the overwhelming necessity and benefits of it on the other. This tension is represented most clearly in the Commission documents, with 66,67% of all citations coded with the versus code 'Beneficial AI VS Harmful AI' encountered in this document group. Particularly the earlier ones paint a more disproportionate picture with the dominance of positively technosolutionist statements frequently overriding any more critical perspectives. Indeed, even where challenges, risks, opportunities, and benefits are considered in more equal terms, frequently the risks and challenges are something either explicitly presented or tacitly assumed as resolvable through legislation (EC & Directorate-General for Communications Networks, Content and Technology [DGCNECT], 2021b; EC & DGHome, 2021), human oversight (EC & DGCNECT, 2019), or by, "based on European values, [...] promot[ing] the development and deployment of AI" (EC & DGCNECT, 2020, p. 2). This representation influences the discourse irrespective of whether this discrepancy is due to candid belief or political calculation.

This balancing act can also be observed throughout all major Commission documents on AI: Looking at the distribution of all Technosolutionism-related code groups (hereafter: groups) from the earliest Communication specifically on AI from 2018 on 'Artificial Intelligence for Europe', shows that 8,6% of coding belonged to the 'AI Challenges' group, while the 'Best-Option Narrative' (24,73%) and 'Technological Imperative' (23,66%) groups together accounted for almost half of them. This trend continues with the following 'Coordinated Plan on AI', where again 'Technological Imperative' (22,5%) and 'Best-Option Narrative' (27,5%) overshadow 'AI Challenges' (12,5%). While the 2019 Communication 'Building Trust in Human-Centric Artificial Intelligence' – significantly, though unsurprising given its topic – moves considerations around 'AI Challenges' (30,30%) more into the foreground, it continues to do so alongside the persistent 'Best-Option Narrative' (33,33%). The AIA Proposal accompanying Communication from 2021 finally shows an interesting shift: Although the 'Best-Option Narrative' remains relevant at 18,46%, considerations of 'AI Challenges' (26,15%) proved even more significant. Notably, however, this put evermore urgency on the

‘Technological Imperative’ (36,92%) which dominated the post-AIA-draft communication. This is despite the emphasised consideration of various ‘AI Challenges’ (24,24%) in the 2020 White Paper, of which especially issues of ‘Opacity’ (15,38% of the ‘AI Challenges’ group’s applied codes), ‘AI Requirements’ like human-centric design and application (13,46%), and ‘Discrimination’ (11,54%) were discussed at length. Scholarship from policy evaluation teaches that the very specific problem diagnosis is what matters and effects “what we do about measuring or changing those things” (Bannister & Fransella, 1987, p. 57). Hence, subtleties like problematising the discrimination that a specific use or design of AI may cause rather than AI itself, leave a margin for solving what may just be a symptom (Archibald, 2019).

The conceptualisation of AI as something highly impactful smoothly connects to the underlying tension in its problem representation as urgently desirable, yet potentially detrimental to fundamental rights, but then again beneficial - and ostensibly inevitable anyway. Firstly, expressions such as “major impact” (EC & DGCNECT, 2020, p. 2) and “game-changing nature” (EC & DGCNECT, 2018a, p. 5) are followed by assertions about the necessity of investing into AI. This frame discursively justifies making the problem of AI governance a question of how to best regulate its use while not hindering its uptake. Thus, the latter is framed as inevitable through statements of non-negotiable necessity for economic, political, security, or societal-wellbeing reasons, or by reasoning the inevitability of more uptake due to its present-day proliferation. The official policy documents thereby move the question of whether to even accept, promote, and implement AI farther away from the discussion. One eu-LISA report is illustrative of this general political and cultural sentiment:

“For eu-LISA, as for any other organisation providing IT services, implementation of AI is not a question of ‘if’, but ‘when’ and ‘to what extent’. The EES and ETIAS both foresee a certain level of artificial intelligence or automation and will therefore have an immediate effect on individuals.” (eu-LISA & Cepilovs, A., 2020, p. 32)

More common however are statements like the following by the Commission:

“Like the steam engine or electricity in the past, AI is transforming our world, our society and our industry [sic]. Growth in computing power, availability of data and progress in algorithms have turned AI into one of the most strategic technologies of the 21st century [sic]. The stakes could not be higher. The way we approach AI will define the world we live in [sic]. Amid fierce global competition, a solid European framework is needed [sic].” (EC & DGCNECT, 2018b, p. 1)

The above framing as background for subsequent policy and legislative articulations concerning AI governance enables a policy framing that concludes in an affirmation of AI’s prioritisation, almost no matter the factual and acknowledged risks associated with its deployment, which the emphases in the original simplistically and vividly illustrate. Throughout the data corpus, this problem representation is further justified and amplified through normalising (“As is the case with all technologies,” in Deloitte, 2020b, p. 23) and discrediting (“today’s debates about AI are based on opinions, hearsay and assumptions,” in EC & DGCNECT, 2018a, p. 18) language when relevant risks, concerns, and challenges are discussed. Such inevitability claims invoke a tacit inclusion of AI in normality bounds (Carlson & Edwards, 2011). This technosolutionist approach persists even in legitimate acknowledgments of the risks:

“AI brings new challenges [...]. Unreflectively applying the technology [...] would therefore lead to problematic outcomes [...]. Instead, AI technology should be developed in a way that puts people at its centre and is thus worthy of the public’s trust.” (EC & DGCNECT, 2019, p. 2).

The conclusion drawn here is the linchpin in the general problem representation of AI governance – the problem is, crucially, not represented to be AI application itself. The problem represented is about harm minimisation of human-made risks, which are themselves tacitly

assumed to be fixable while still employing the technology. This is relevant considering that in all the Commission documents, besides the actual AIA, absolute prohibitions for unacceptable AI were only mentioned twice – once in the White Paper and the 2021 Communication respectively, and the AIA reflects this dearth with its prohibitions including exceptionally Orwellian applications like mind- and action-controlling techniques (Art. 5(1)(a)) or social scoring (Art. 5(1)(c)).

For application in border control this problem representation mostly continues, although the challenges are acknowledged more explicitly. Important to note here is that no Commission documents specifically discussing the use of AI in the border management domain could be found and the more general documents mainly discuss it only in passing, very indirectly through references to unspecified “security” (EC & DGCNECT, 2018b, p. 8), “areas of public interest” (EC & DGCNECT, 2020, p. 8), or the public sector, in which migration and border controls are once included via a footnote statement, or not at all. The White Paper mentions migration once outside of a footnote to briefly state the necessity of respecting fundamental rights when using AI for it. Explicit considerations are mostly delegated to footnotes and annex documents, such as the 2021 Communication’s consideration of AI application in migration as a high-impact sector. AI is conceptualised as, “if designed and used in accordance with democratic principles and fundamental rights, [...] a central technology [...] [and] essential” (EC & DGNECT, 2021b, p. 49-50) for increased security, supporting authorities, decision-making accuracy, fighting terrorism. Crucially, the problem representation emphasises the supporting function of AI in this field, stressing that human workers shall not be replaced entirely and focusing on streamlining, efficiency-boosting, and decision-aiding AI uses for border management. The 2020 Communication on the Counter-Terrorism Agenda was referenced, which also conceptualised AI’s crucial role for better threat detection and prevention. Again, the problem is represented as a matter of ensuring “trustworthy AI” to “minimise bias”, while the positive “profound impact” (EC & DGCNECT 2020, p. 5) of AI itself remains unquestioned.

The problem representation of AI in border control across the policy documents on AI received negligible attention compared to other sectoral applications, was frequently obscured or made difficult to confidently identify through generalist statements about such broadly applicable, unspecified categories and complicatedly interrelated domains like security, law enforcement, public interest and sector that can and frequently do interact with or include border control - yet not necessarily and reliably so – (Buonanno & Nugent, 2021) with little to no indications when border management was implicitly included or not. This makes the already vague and scoping problem representation of needing ethical AI even more vague for the field of border management. The amplified problem recognition of the large impact on humans subject to decisions that might be supported or made by algorithms seen in the problem representation regarding border control, coupled with the same affirmation of mitigating such risks through applications with better designs, allowed for and motivated the high-risk classification of AI systems used in migration, asylum, and border management proposed by the AIA. Despite calls for bans on automated risk-assessments and migratory forecasting tools that could be used to curtail and prevent migration (e.g., Access Now, 2023; Amnesty International, 2023), the EP’s amendments to the act did not identify such an unacceptable risk – thereby cementing the problem representation that affirms AI-solutions, with more AI-solutions to counter potential challenges.

4.2. Conceptual Logics

As outlined previously, narratives of AI-solutions as best options enable the urgency and sentiments of a categorical imperative of promoting the technology that will eventually allow for the problem representation analysed in section 4.1 to ground AI legislation. To elaborate on these technosolutionist as well as security-related conceptual logics while respecting space constraints, only the most relevant underlying assumptions and political conditions identified

in the data analysis will be considered: The increasing convergence of the risk management logic with the logic of calculation in security affairs; the border security imperative in an increasingly digitalised world necessitating legible data subjects and omnipresent monitoring; and the vision of AI-solutions optimally resolving the tension between meeting security needs and the Schengen Area's ultimate objective of free movement of people and things.

A convergence of 'Risk Management' prioritisation with 'Calculation' approaches can be seen in the EU's security logic by checking the code co-occurrence (cco) tool in Atlas.ti, which showed these codes from the 'Security Logics' group co-occur in half of the former's quotations and over a third of the latter's. The analysis' results confirm what other scholars (Stepka, 2022; Scheel, 2013; Bigo, 2014; Neal, 2009; Marino, 2021) have previously argued about the dominant risk management paradigm in European border and migration management: A tacit assumption of the real possibility to calculate security risks, to accurately predict forthcoming "migration/refugee crises (or disproportionate pressures)" (Frontex, 2022, p. 5) and thereby "support forward looking policy" (EC & DGHome, 2020, p. 6), if only the mathematical and technical capabilities are available. This 'Calculation' security logic associates with that of pre-emption in security dispositifs as Wichum (2013) points out, in that risk managing and anticipatory security strategies chiefly require probability estimations for the if, when, where, and how of risk assessments and potential threat forecasts. According to this argument, the better at prediction something is, the better it is suited for anticipating and managing risks. The underlying ontological claim states that future events and risks are sufficiently predictable to confidently base actions upon them – given enough data and capability to consider various parameters. Statistical capabilities are thereby promoted as the optimal response to uncertainty.

Although simplified, the assumption above is observable in the data corpus: While the original AIA draft did not yet include a risk definition, the amended versions definition of risk

“means the combination of the probability of an occurrence of harm and the severity of that harm [sic]” and “‘signficiant risk’ means a risk that is significant as a result of the combination of its severity, intensity, probability of occurrence, and duration of its effects [sic] [...].” (Committee on the Internal Market and Consumer Protection [CIMCP] & Committee on Civil Liberties, Justice and Home Affairs [CCLJHA], 2023, p. 137)

These definitions are seemingly used both for assessing the risk of an AI system and for the risk in risk management and assessment tools. Defining probabilities as a necessary component of risks creates necessity for stochastic and statistical assessments in an environment driven by anticipatory risk management and provides seemingly objective legitimacy to those tools promoted as most capable in this regard. Considering most AI-systems, including advanced ML techniques, build on, include, or operate with statistical models or somehow statistics-imbued models (Friedrich et al., 2021; Yu & Kumbier, 2018), this implicitly concurs with AI-solutions as optimal for risk assessment activities. In the 2023 Communication for establishing the integrated border management's (IBM) multiannual strategic policy, the Commission asserts that,

“measures to monitor accurately and consistently the movement of passengers and goods into or through the EU need to be strengthened, including through intelligence-led activities (i.e. based on risk assessment) [emphasis added]” (p. 8)

Whereby phrases like 'intelligence-led' are frequently used in the data as a proxy for AI or state-of-the-art technology including it (“[R&D] is crucial to support [IBM] with state-of-the-art solution [...]. [...] Opportunities offered by **Artificial Intelligence** [sic] should be exploited” in EC & DGHome, 2023, p. 27, 29). Similar sentiments can be found the study reports on AI in border management activities by eu-LISA (Deloitte, 2020a, 2020c), migration forecasting (Ecorys, 2021), and Frontex (2021).

Next, the ‘Border Security Imperative’ is repeatedly framed as requiring ‘Legible Data Subjects’ and constant, “24/7” (e.g., EC & DGHome, 2023, p. 4; eu-LISA & Cepilovs, A., 2020, p. 47; Deloitte, 2020a, p. 32) monitoring of the borders through uninterrupted remote operation of the large-scale IT systems that, as Vavoula (2021) identifies, are contemporarily the largest users of AI in the border management context. The IBM-related policy documents urge such omnipresent monitoring six times with affirmative expressions such as it being “the base for an appropriate reaction capability [...] [that] should be ensured” (EC & DGHome, 2023, p. 4). Two main presuppositions underly this: Firstly, data is treated almost synonymously with knowledge or as both necessary and sufficient condition for producing knowledge – especially in EU publication documents (66,67% of all ‘Data as Knowledge’ codings), which provide policymakers with detailed and targeted capability- or feasibility-studies, technical reports, suggestions and roadmaps. Framings of a data-driven approach as “ensur[ing] appropriate [...] [,] fairer decisions” (Deloitte, 2020a, p. 2, 20), with IT-systems data providing relevant authorities with “the complete, reliable and accurate information needed” (EC & DGHome, 2021, p. 8), and promotion of “data and evidence-driven migration preparedness” (Council of the European Union, 2020, p. 2) ascertain the assumption of accurate and useful information necessitating more and more data. While collecting and processing personal data, particularly biometric, is acknowledged as sensitive, it is nevertheless strongly established and deemed essential for governing circulation to detect risky individuals, justified as “necessary in a democratic society” (Regulation 2018/1240, p. 5). Results further confirmed Trauttmansdorff’s (2017) ideas on a turn towards individualisation in controlling movement wherein circulation-governing mechanisms now increasingly operate by biometrically screening, profiling, identifying, and classifying the individual person against the many databases, setting up a digital data ‘double’ for future recognition, and automating individual risk assessments. Individuals have their risk probabilities for security risks such as illegal immigration, terrorism, or crime evaluated (CIMCP & CCLJHA, 2023). Despite the data stressing that no such classifications shall occur based on sensitive personal data, a closer look unveils the loopholes and conditional nature of these interdictions. One of many examples is the lack of legal specificity for what constitutes a risk for security in ETIAS’ automatic risk assessment coupled with Article 33(4) explicitly calling for risk indicators based on sensitive data like sex and age, with Article 33(5) prohibiting risk indicators based on data like race, ethnic origin, political opinion, and the like (Regulation 2018/1240) – despite such properties being easily inferred by AI’s pattern recognition capabilities using the data listed in 33(4) (Vavoula, 2021; Köchling & Wehner, 2020). In fact, the Frontex report on AI capabilities for border control, which was published before the AIA draft, explicates the welcomed and high impact of using AI in border activities, with regulatory data protection rules being an “important barrier” (Frontex, 2021, p. 26) to that.

Secondly, all this is discursively contextualised in a frame of enduring security threats: The EU faces “ever-present” terrorist threats in a “hostile security environment”, facing “disproportionate pressures” (Frontex, 2022, p. 3) at the borders. The following sentiment inspired and is echoed by the Commission’s analysed documents on border management:

"Security measures at the external border [...] need to be balanced with unimpeded passenger flow. Therefore, registrations and checks before the start of travel, the developments of risk profiles, border control [...], interoperability of databases and the use of new processes and technologies will gain importance in the next decade. Future border control and traveller management will comprise a person-centric data management concept [...]. [...] [T]he enormous number of travellers will produce a vast amount of personal data, which must be effectively processed and made searchable by new IT and AI solutions." (Frontex, 2020, p. 20)

The combination of a discursively stated state of heightened necessity for border security and efficient border management with the assumption of data as optimally producing more knowledge produces a “need to constantly shore up and strengthen the Schengen legal

framework,” which “requires [...] modern and interconnected IT systems [and] increasingly digitalised procedures” (EC & DGHome, 2021, p. 5). Notwithstanding any proven streamlining benefits, such assumptions nevertheless drive a technosolutionist border policy regarding AI and other technical applications, border processes are made apolitical and the normalisation of technical fixes reinforces itself. As Scheel (2013) pointedly put it: “The failure of technologies to deliver the promised perfect security translates into a call for the implementation of more and better technologies” (p. 585). The Commission evinces, “decisions taken by algorithms could result from data that is *incomplete and therefore* [emphasis added] not reliable” (EC & DGCNECT, 2019, p. 2).

A final assumption is that AI-solutions optimally resolve the tension inheriting the ultimate “objective of open, but well controlled and secure borders” (EC & DGHome, 2021, p. 5). Trauttmansdorff’s (2017) analysis of the physical disengagement of various border control mechanisms in favor of digital monitoring explains how digitised border management includes and excludes individuals through individualisation – enabled through ‘Identification & Surveillance Technologies’ creating ‘legibility’ (57,14% cco) and ‘digital profiles’ (65,22% cco) – which in turn enables classification and categorisation with the effect of having one’s presence authorised, or not. Especially since the visionary inception of ETIAS and in its context has the presence on EU territory, not just the border crossing action, explicitly been made the subject requiring governance (e.g., “ETIAS will [...] enable assessment [...] of whether the presence [...] would pose a [...] risk” in Deloitte, 2020b, p. 48). As he correctly notes, digitalisation processes are increasingly simultaneously attempting to curb irregular migration while facilitating and encouraging so-called ‘bona-fide’ mobility, particularly for economic benefits (EC & DGHome, 2021). By ‘simplifying/streamlining’² (9,45% of all ‘Performance’ codings) processes with individualised checks that ‘optimise’ (11,94%) ‘speed’ (10,95%), ‘efficiency’ (12,44%), and ‘accuracy’ (11,44%), the border is made less noticeable for bona fide travellers, while suspicious or ‘mala fide’ ones can mostly automatically be filtered, with authorities free to exercise discretion on relevant risk criteria (Bigo, 2014; Valouva, 2021). This is further shown by the codes ‘bona fide’ and ‘simplification/streamlining’ co-occurring in a third of the former’s and a fourth of the latter’s citations. Indicatives are also surrounding sentiments about creating “seamless travel experience” (Deloitte, 2020a, p. 17) or “facilitating [their] journeys” (EC & DGHome, 2023, p. 3) - immediately contrasted with “identifying possible security risks” (EC & DGHome, 2023, p. 3) and “increas[ing] security” (Deloitte, 2020a, p.17). This embracement of a mobile population through a reassurance that the aforementioned ‘24/7 activation’ of remote monitoring and profiling through the AI-enabled IT-systems protects from risky individuals drives the assumption of AI-solutions resolving the tension between securitisation and mobility.

4.3. Discursive Silences

The silences and ideas left unquestioned or framed as unproblematic in the problem representation are important for FDA to uncover how certain omissions powerfully impact meaning-construction and allow other issues to be neglected by policymakers. Most striking was the considerable number of technical inaccuracies, the underestimation or disregard for the complexities and limitations of harm-mitigating interventions, and silences or denial regarding the nature of certain algorithmic mechanisms. Providing an exhaustive list is infeasible here; nevertheless, some major ones ought to be discussed.

First, between the code categories and across all citations and document groups, the group ‘AI Challenges’ is at 8,84% fifth in frequency. At 17,54% (column-relative frequency [crf]) it comes first in the official AIA documents, fourth in Commission documents (11,68% crf), and, notably, eighth in EU publications (7,05% crf). Significantly, in the Commission and publications

² Code names are grammatically adjusted to fit the sentence structure.

documents it is, *inter alia*, overtaken by the ‘Technological Imperative’ (14,13% crf, only Commission) and ‘Best-Option Narrative’ (12,36% and 8,79% crf); in the publications further by ‘Performance’ (11,14% crf) and ‘Security Logics’ (8,29%). While the AIA as an instrument specifically designed to regulate high risks originating from and associated with AI can be expected to prioritise AI-related challenges, the publication documents are the most sophisticated regarding technological expertise and specifically serve decision-makers as providers of technical know-how, reflected capability and feasibility examinations, and policy-/program-informing background knowledge (see eu-LISA & Cepilovs, A., 2020, p. 3; Deloitte, 2020a, p. 1). Such documents may also inform the Commission’s communications, which are used to evaluate, communicate, problematise, and inform of certain policies, concrete measures, and programmes. They could as such be expected to address AI challenges more pointedly and accurately – particularly if foregrounding a regulation for the risks of such challenges. Instead, reiterations of the same selected challenges and labels are paramount: Of all ‘AI Challenges’ codes, ‘Human Oversight & Decision-Making’ for example ranks second (13,64%) in the regular, first (17,20%) in the normalised distribution – which mostly consists of statements about the necessity for human-oversight mechanisms, including their assumed effectiveness (“Human oversight helps ensuring that an AI system does not undermine human autonomy or cause other adverse effects” in EC & DGCNECT 2020, p. 21) and worries about AI making fully automated decisions (“various forms of bias in decision-making” in Deloitte, 2020c, p. 1). Crucially however, the directly related code ‘Automation Bias’ was found a staggering three times, of which only two were coded since one was an exact duplication from the AIA in the Council’s General Approach (2022). Automation bias is the observed phenomenon of human decision-makers assisted by computer-generated advice, decision-informing outputs such as analytics, or suggested decisions tend to become over-reliant on the technology and its outputs. This can lead to or include ignoring contradictory outputs, not or not sufficiently double-checking for missing information or the output-pathways, and generally exercising less scrutiny on the outputs (Cummings, 2015; Lyell & Coiera, 2017). Addressing this phenomenon and creating safeguards to counter the possibility of automation bias occurring is therefore critical for effective human oversight mechanisms. The AIA mentions automation bias once in Article 14(4)(b) and the amended Article 16(ab). The provisions are vague, only requiring awareness of automation bias from human overseers and for them “to be able to correctly interpret the high-risk AI system’s output” (EC & DGCNECT, 2021, p.51)– the latter also raising questions about enforceability. The data corpus’ focus on human oversight solutions to potential risks of AI (roughly 26,09% cco of ‘human oversight & decision-making’ with ‘algorithmic errors’ quotations and 15,15% with ‘High Risk AI’ quotations) corroborates Enarsson and colleagues’ (2021) findings of human oversight mechanisms becoming the “standards solution for solving the issues of transparency, bias, legal security and systemic risks relating to automation” (p. 149). Left unaddressed in the political and legislative discourse is also the lack of reliability of many overseers’ ability to evaluate the quality of a system’s output (Biermann et al., 2023; Green, 2022). This is aggravated by the fact that system capacities like accuracy are often necessarily compromised for sufficient explainability and transparency (Buiten, 2019; Zhou et al., 2022). The analysed discourse ignores this, despite the – acknowledged – heightened need for accuracy specifically in high-risk AI and instead frames more human oversight and more transparency as necessary (see CIMCP & CCLJHA, 2023, p. 52, p. 114-115). The general silence on this issue further leaves unaddressed how such potentially necessary trade-offs might be regulated in practice, as the AIA fails to elaborate on this. Considering that the AIA is specifically about regulating high-risk applications, this is highly problematic as such trade-offs are significantly undesirable in high-risk scenarios (I. A. Chen et al., 2018) like status procedures, border management, law enforcement and migration.

Secondly, “safety and security-by-design” (EC & DGCNECT, 2019, p. 5) safeguards are proposed and promoted as functional, effective harm minimisation mechanisms. Examples from official study publications that are also meant to inform EU decisions-makers like the

Commission include AI systems that themselves monitor and evaluate the ethics of other applied AI systems (Deloitte, 2020a), as well as AI use cases that automate and optimise models currently in use (Frontex, 2021). There are no relevant critical reflections on this in the data. While provisions exist on conformity assessments and system transparency requirements, exceptions exist for systems used for law enforcement and border management purposes - justified through confidentiality necessities for the border and general security imperative (CIMCP & CCLJHA, 2023, p. 13-14, 73-74). Without prejudice to the importance of confidentiality and the previous analysis, this nevertheless undermines, if not disables, the purpose of such safeguards against algorithmic error as it was purported to ground these provisions: The AIA does not promote specific fairness models or algorithmic error interventions, seemingly leaving the choice between the numerous options from the algorithmic fairness literature (for more general and technical overviews see Mitchell et al., 2021; Fu et al., 2020; Pham et al., 2022) up to the discretion of the provider or deployer. These are based upon and modelled after distinctly different valuations, criteria, and conceptualisations of justice and fairness, thereby potentially providing a loophole for deploying systems with perhaps sound, but for the specific application inappropriate fairness models. That they are usually not possible to be combined (Kleinberg et al., 2017) reinforces this. To counter this, it could be argued that the AIA specifically requires models compatible with the EU's data protection or non-discrimination laws, yet this would also be problematic as automated fairness systems have been identified as incompatible with the EU's approach to judicially assessing discrimination (Wachter et al., 2021).

Thirdly, one crucial omission is the inherently discriminatory nature of binary classifications of persons as they are necessary for applications such as, for example, ETIAS' or SIS2's hit-alerts (Deloitte, 2020a) when a risk suspicion is detected. Mathematically and algorithmically, the discriminatory issues inherent in binary classifications have long been established (Asparoukhov & Krzanowski, 2001; Li & Tong, 2020; Krzanowski, 1975). Indeed, this is precisely why the field of algorithmic fairness has emerged: To reveal and redeem "such biases in statistical and machine learning models" (Mitchell et al., 2021, p. 142) to make inevitable – by technical or purpose constraints, as when necessarily one person must be selected instead of another like in hiring processes – discrimination or the highly infeasible prevention thereof, more fair or appropriate. The AIA acknowledges the inherently high-risk nature of AI usage for border management by virtue of affected persons' "vulnerable position and [...] dependen[ce] on the outcome of the actions of the competent public authorities" (EC & DGCNECT, 2021a, p. 28), yet along with the remaining data corpus it remains silent on the uncomfortable reality of many desired use cases (see Frontex, 2021; Deloitte, 2020a; eu-LISA & Cepilovs, A., 2020) necessarily involving some sort of discrimination through classification and that direct or proxied personal data is required for purposes of reliable, accurate identification (I. A. Chen et al., 2018). Although the ETIAS regulation does acknowledge the latter for its own system (Regulation 2018/1240), the general discourse does not engage at all with this inherent tension, instead continuing to erroneously assume discriminatory outputs could be entirely salvaged through human oversight and design interventions. Regardless of normative evaluation, this is a critical point that ought to be addressed to ensure on what political, strategic, and evidential basis, for example, decision for risk indicators that guide the algorithmic classifications have been made (see also Binns, 2018).

4.4. Effects of Problematisation

At the time of writing, MEPs have voted for the AIA, now awaiting the Council's decision. Thus, its tangible, manifest effects on AI governance in border management cannot yet be assessed. Notwithstanding, discursive and possible subjectification effects emerging from the problematisation and its envisaged solution, both in and leading up to the AIA, can be considered and potentially forthcoming lived effects hypothesised for future evaluations. In WPR, the three effect types usually interrelate to some degree.

The discursive effects of the problem representation, meaning the “effects which follow from limits imposed on what can be thought and said” (Bacchi, 2009, p. 15), follow from the analyses in subchapters 4.2 and 4.3. The premise in both FDA and WPR is that dominant discourses hinder alternative interventions and solutions when they fall out of its discursive bounds (Baachi, 2009; Khan & McEachen, 2021). Here, the underlying convergence of calculation and the risk management security paradigm effects this. Recognition of the severe impact inaccurate or otherwise fallible outputs may have on affected individuals indeed shows efforts to tackle AI-incurred risks and strengthens the priority of regulative actions to prevent or limit them. Yet by also discursively treating data, generally, as knowledge sources and more data as approaching more accuracy or truth, algorithmic solutions and safeguards operating with the technology are constructed as the ideal counter. Moreso, stressing that the systems are employed for increased accuracy compared to the status-quo (“Enhance the accuracy and speed of the assessment” in Deloitte, 2020a, p. 91) discursively denies, delegitimises, or disempowers doubts of the general suitability of algorithmic solutions, if only done right.

Concerning biometrics, the discursive and legal distinction between authentication/verification and identification as significantly distinct in nature and appraisal allowed for non-negligible differences in their legal effect. In legally sorting biometric identification and categorisation but not verification systems into the high-risk category, the general function of biometrics is discursively – and eventually, legally – neutralised and normalised as only specific technical mechanisms and use cases are rightly considered high-risk. Demonstrative of this discursive effect are the evaluative denotations and terms used in the amended AIA to distinguish verification systems from others, such as “which merely compare” and “verification systems [...] whose sole purpose is to confirm” (CIMCP & CCLJHA, 2023, p. 135-136). From a lived effect perspective, this distinction to the effect of different legal provisions and restrictions strikes as odd, as any legitimised usage of either requires instalment of infrastructure for biometric procedures, with identification and verification tasks typically operated under the same system and not being mutually exclusive (Veale & Zuiderveen Borgesius, 2021; Federal Office for Information Security, n. D.; Y. Chen & Fondeur, 2009). In terms of subjectification – which assumes that “the human subject is partially constituted through discourse” (Carson & Edwards, 2011, p. 82) – a related effect could be the normalised and naturalised association of risk with affected persons’ and groups’ individual or cultural identity, as the discourse repeatedly claims to ensure that parameters for risk assessments are not based on highly sensitive characteristics. Further, the systems for decision-support and risk-assessments blur the lines between identification and control – so subjectification and material consequences – since they specifically check for and classify individuals as suspicious or high-risk which, even if a human takes the final decision, significantly contributes to the decision-making of who is authorised to enter EU territory and who is not. Indeed, ETIAS automates positive travel authorisation, thereby directly contributing to what parts of the population are allowed to circulate.

Another issue is the discourse’s and AIA’s vagueness on the applicability of law enforcement provisions on border management. While the political discourse frequently discussed them in tandem (see EC & DGCNECT, 2021b, p. 37, 49-51), the AIA does not specify interrelation beyond “including the safeguarding against and the prevention of threats to public security” (CIMCP & CCLJHA, 2023, p. 140) in its law enforcement definition. For lived effects, this is relevant considering that Article 5(1)(ba) of the AIA prohibits individual and collective risk-assessments of natural persons, while Annex III of the regulation categorises such systems in border control as high, but not unacceptable risk. The phrasing “intended to be used by *or on behalf of* [sic]” (CIMCP & CCLJHA, 2023, p. 123-125) in Annex III produces more ambiguity, since law enforcement relevant usages are not the exclusive purpose of most large-scale IT-systems, yet law enforcement activities potentially being triggered is envisaged, (see e.g., Regulation 2019/1896, Art. 2 (16), 3 (1)(j), 28 (2)(i); Regulation 2018/1240, recitals 15, 40-43,

Art. 4; EC & DGHome, 2020, p. 17-18). As the eu-LISA infrastructure provides constant monitoring and risk assessments, the AIA currently provides insufficient legal certainty on whether such systems would present an unacceptable or high risk. Despite being a market regulation instrument, the AIA's substantive objective of governing high-risk AI includes sectors like law enforcement and border management. The lacking legal certainty can thus be considered a problem with potentially real effects on affected people who may still be subjected to unacceptably risky algorithmic risk assessment, which makes sector-specific regulation necessary.

5. Conclusion

5.1. Answer to the Research Question

This thesis aimed to answer the central research question of how, in light of the upcoming AIA, the political and legislative discourse surrounding the digitalisation of EU's external borders problematises the use of AI technologies for border management. Two major perspectives gauged from the research's results are significant to the answer: first, both the political and legislative discourses problematise AI usage as an issue of good and sufficient governance and regulation, with the relevant risks that might emerge from AI deployment being – with few exceptions such as subliminal manipulation techniques and mass surveillance through remote biometric identification – salvageable given sufficient safeguards in the design and through human oversight mechanisms. Second, the discourse is distorted by the economic considerations that, naturally, drive most of the EU's AI policy forward, especially the AIA as market regulation tool, while in the border management field it is distorted by the generally heightened lack of specificity about the technological capabilities and state-of-the-art applications that are being envisaged, encouraged, and described as currently active, with no sector-specific legislative proposal of its own. These two elements of the answer together produce a problematisation of AI governance in border management that is encumbered by lack of legal certainty in the envisaged AIA provisions, especially concerning overlaps and interactions with law enforcement activities, disproportionately more assertions of the undisputed good of AI compared to widely neglected critical reflections on the technical limitations and problems involved. All this is done in a context where AI-enabled large-scale IT-systems are already or soon to be operational and which serve to fully or semi-automate the control of mobility. The AIA is primarily a market regulation tool that nevertheless tangentially aims to regulate the application of AI in high-impact sectors like border control, without specifically targeting any of its more sector-specific issues and requirements. Instead, it is subsumed under very general provisions with questions raised about legal certainty for this particular sector, as well as about the suitability of the proposed solutions and safeguards to encounter the sectors automatic high-risk classification.

5.2. Limitations

Both a strength and limitation of the research was that it worked heavily with a piece of legislation that has been undergoing the lawmaking process from start to finish of the project and beyond. Advantageous was that it works on something highly topical and up to date, ensuring that the research is indeed novel even when the theoretical approach might not be. As border management and the digitalisation thereof have been variously analysed from a security perspective, this type of topical research helps produce still new insights and theoretical. It also produced more insights into the usefulness of the WPR-approach used on policies still undergoing the lawmaking process, whereas most studies utilise it for analysing already existing policies and legislation (e.g., Carson & Edwards, 2011; Tawell & McCluskey, 2022). However, this also invited notable limitations and challenges, the most glaring one evidently being the potential for certain insights to lose their topical relevance in case relevant formulations or provisions end up being changed before publication of the final AIA's form. Although this is a bigger issue in research dealing with ongoing processes like this, it may nonetheless be argued that such is the nature of research on all political programmes and legislations that may change, be terminated, amended or not be in force as time progresses. Additionally, investigating the political discourse, communications, and policy-supporting deliverables before and after the AIA proposal instead of only investigating the lawmaking process and the legislative proposal itself helped mitigate this. It is further mitigated as, although not in its final form, MEPs nevertheless voted positively on the Parliament-amended version before the finalisation of this thesis, with which many of the largest changes expected to emerge during the legislative process have likely already become evident. Regardless, to

what extent this thesis' criticisms remain will depend on the final version that is up to co-legislators rather than the Commission that proposed it. The focus on discourse and use of FDA still enabled the research to produce more valid than speculative results as discursive conditions, developments, and effects can be more reliably researched without being limited by a lack of litigations or other material or manifest consequences. Without prejudice to the aforementioned are concerns of neutrality and impartiality always present in interpretative research, especially when lacking a systematic methodology like FDA. Effort was made to increase validity, reliability and coherence of results through the application of a systematic analytical framework like the WPR-approach on the one hand, and qualitative coding on the other. Another limitation here was the sheer size of the dataset with many long sections that had to be filtered due to lacking relevance. Generally, qualitative coding is usually done by more than one researcher to bring more validity to the results. As a thesis, this was impossible, yet would have otherwise been desirable.

Finally, the state of EU-legislation on AI being in its infancy means only time will tell if and how the stated criticisms are addressed in perhaps forthcoming legislative proposals, with reasons for why law enforcement and border-specific rules have not been proposed simultaneously with the AIA market regulation– as was done for the General Data Protection Regulation (2016) and the Law Enforcement Directive (2016) – warranting their own dedicated research.

5.3. Discussion and Implications for Theory and Future Research

The analysis chapter focused more on the WPR connections and the direct results from the data analysis, which it gathered with codes developed according to the theoretical background, that is, Foucault's concepts of biopower and biopolitics, Wichum's idea of security technologies, and the STS concept of technosolutionism. By doing so, the research contributes to the extant literature on the digitalisation and security nexus in European border management, the biopolitical nature of digital border control, and of a technosolutionist paradigm in EU policy-making (Scheel, 2013; Bigo, 2014; Bello, 2020; Beduschi & McAuliffe, 2021; Vavoula, 2021; Hall & Williams, 2021). The analysis yielded additional insights for scholarship on the EU's development of a regulatory security state in digital security domains (Kruck & Weiss, 2023) by showing how continuously yet subtly technosolutionist logics factor into policy- and law-making. The tentative expressions of concern and acknowledgements of risks superficially appear to refute the presence of technosolutionism, however the analysis indicated that technosolutionism influences policy-relevant discourse in a less utopian and more circular fashion: After a new technology is introduced and promoted, its risks are laid out to prompt discussion on mitigation techniques, and eventually more technological solutions are proposed and chosen. By specifically looking at the discourse surrounding technological applications in a security field, more insights for studies on the digitalisation of border security and the use of technologies to govern inclusion and exclusion of certain people more and more were generated. While most such studies focus only on biometrics (Scheel, 2020) or only migration and not general border management (Forti, 2021; Nedelcu & Soysüren, 2020), this research took a broader perspective that reflects the scale and current state of regulatory and policy developments that the EU itself is taking. Previous theoretical and analytical research on how certain technologies are used in the service or particular security logics (Wichum, 2013) was complemented by an empirical look at what the roadmaps and contemporary uses of AI-powered technologies for security and population managing purposes at the borders are. Indeed, the results do indicate that more population and movement governance at the borders is being delegated and executed via digital means, of which AI is envisaged to optimise current and future applications. While this does abstractly align with Foucault's ideas on biopower and biopolitics – particularly through the informatisation of the body and enabled governance thereof through the growing use of biometrics at the borders (Frontex, 2022) – the analysis also showed that despite the various conceptual and thematic overlaps, the direct application of the

concept suffers from the fact that, evidently, Foucault thought it up without a technological or digital expression of it in mind. This nevertheless relevantly contributes to the current literature on border management that still frequently references biopolitics (Scheel, 2020; Marino, 2021; R. Andersson, 2016) by identifying that the concept might still be somewhat useful - particularly as a means to an end as in this research where the theoretical insights were leveraged to generate an additional dimension for the coding process – yet caution should be practiced to unreflectively apply it where more dematerialised things such as the digital or data sphere are the main research object.

The investigation of how political discourses impact and shape law that necessarily enshrines and enacts power relations, provides rights and freedom to some while constraining, limiting, and sanctioning others, proved a fruitful application of FDA to researching legislation. The WPR approach proved useful in bringing coherence and structure to an otherwise more methodologically unspecific method like FDA. Both proved rather compatible with a combination of value, versus and descriptive coding to capture the underlying, meaning-making and problem representation-driving belief systems and attitudes (value codes), the tensions and proclaimed distinctions, incompatibilities, and opposing objectives in policy formulation (versus codes), and the to reliably track what is mentioned where, when, how often, and in combination with what and what not (descriptive codes). Regardless, the literature on discourse analyses, including Foucault-inspired ones, shows occasional combinations with the WPR-approach (Carlson & Edwards, 2011; E. Andersson, 2022) but no combination of a similar utilisation of all three could be found. The combination's effectiveness for this research makes further refinement and application by other scholars desirable to test its usefulness and, if reproducible, drive its refinement as a new way to systematise discourse analyses.

Lastly, future research on the AIA's impact from a hindsight perspective would be important to complement this research's forward-looking perspective. It would further be interesting to see how the EU develops sector-specific rules on the juncture of AI, border management, and law enforcement. More interdisciplinary analyses of discursive and subjectification effects brought about by certain legal and policy conceptualisations of specific technological techniques from a more technically precise perspective than was possible here also appears valuable, for example regarding the difference between biometric identification and verification algorithms. Finally, future research could, based on insights from this research on the problematisation of AI governance, investigate how different directorate-generals of the Commission do or do not fluctuate in their problem representation and to what effect once the size of existing EU-legislation on it has grown.

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Appendix I – Data used for the Data Analysis: Document Groups

Artificial Intelligence Act Official Deliverables

1. **European Commission & Directorate-General for Communications Networks, Content and Technology.** (2021a, April 21). *Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts.* (Legislative Proposal 52021PC0206). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52021PC0206>
2. **Council of the European Union.** (2022, December 6). *Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts - General approach (6 December 2022)* (Report COD/2021/0106). https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CONSIL:ST_15698_2022_INIT
3. **Committee on the Internal Market and Consumer Protection & Committee on Civil Liberties, Justice and Home Affairs.** (2023, May 9). *Draft Compromise Amendments on the Draft Report. Proposal for a regulation of the European Parliament and of the Council on harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union Legislative Acts.* https://www.europarl.europa.eu/meetdocs/2014_2019/plmrep/COMMITTEES/CJ40/DV/2023/05-11/ConsolidatedCA_IMCOLIBE_AI_ACT_EN.pdf

Commission (COM) Documents (excluding the AIA proposal)

4. **European Commission & Directorate-General for Communications Networks, Content and Technology.** (2018a, April 25). *Communication from the Commission to the European Parliament, the European Council, the Council, the European economic and social committee and the Committee of the regions: Artificial Intelligence for Europe* (Report COM/2018/237). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2018:237:FIN>
5. **European Commission & Directorate-General for Communications Networks, Content and Technology.** (2018b, December 7). *Communication from the Commission to the European Parliament, the European Council, the Council, the European economic and social committee and the Committee of the regions: Coordinated Plan on Artificial Intelligence* (Report COM/2018/795). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018DC0795>
6. **European Commission & Directorate-General for Communications Networks, Content and Technology.** (2019, April 4). *Communication from the Commission to the European Parliament, the European Council, the Council, the European economic and social committee and the Committee of the regions: Building Trust in Human-Centric Artificial Intelligence* (Report COM/2019/168). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2019:168:FIN>
7. **European Commission & Directorate-General for Communications Networks, Content and Technology.** (2020, February 19). *White Paper: On Artificial Intelligence – A European approach to excellence and trust* (Report COM/2020/65). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0065>
8. **European Commission & Directorate-General for Migration and Home Affairs.** (2020, December 9). *Communication from the Commission: A Counter-Terrorism Agenda for the EU: Anticipate, Prevent, Protect, Respond* (Report COM/2020/795). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0795>
9. **European Commission & Directorate-General for Communications Networks, Content and Technology.** (2021b, April 21). *Communication from the Commission to the European Parliament, the European Council, the Council, the European economic and social committee and the Committee of the regions empty: Fostering a European approach to Artificial Intelligence* (Report COM/2021/205). <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM%3A2021%3A205%3AFIN>
10. **European Commission & Directorate-General for Migration and Home Affairs.** (2021, June 2). *Communication from the Commission to the European Parliament and the Council: “A strategy towards a fully functioning and resilient Schengen area”* (Report COM/2021/277). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0277>
11. **European Commission & Directorate-General for Migration and Home Affairs.** (2022, May 25). *Policy document: developing a multiannual strategic policy for European integrated border management in accordance with Article 8(4) of Regulation (EU) 2019/1896* (Report COM/2022/303). <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM%3A2022%3A303%3AFIN>
12. **European Commission & Directorate-General for Migration and Home Affairs.** (2023, March 14). *Communication from the Commission to the European Parliament and the Council: establishing a multiannual strategic policy for European integrated border management* (Report COM/2023/146). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2023%3A146%3AFIN>

EU Publications

13. **Deloitte.** (2020a). *Opportunities and challenges for the use of artificial intelligence in border control, migration and security: Volume 1 - Main report.* Publications Office of the European Union. <https://data.europa.eu/doi/10.2837/9236102020> [Report for the European Commission]
14. **Deloitte.** (2020b). *Opportunities and challenges for the use of artificial intelligence in border control, migration and security: Volume 2 - Addendum.* Publications Office of the European Union. <https://data.europa.eu/doi/10.2837/11116> [Report for the European Commission]
15. **Deloitte.** (2020c). *Opportunities and challenges for the use of artificial intelligence in border control, migration and security: Management Summary.* Publications Office of the European Union. <https://data.europa.eu/doi/10.2837/38032> [Report for the European Commission]
16. **Ecorys.** (2021). *Feasibility study on a forecasting and early warning tool for migration based on Artificial Intelligence technology.* Publications Office of the European Union. <https://data.europa.eu/doi/10.2837/222662> [Report for the European Commission]
17. **eu-LISA & Cepilovs, A.** (2020). *Artificial Intelligence in the operational management of large-scale IT systems: Research and technology monitoring report – Perspectives for eu-LISA.* Publication Office of the European Union. <https://data.europa.eu/doi/10.2857/58386>

Non-AIA Legal Texts

18. **Regulation 603/2013.** *Regulation (EU) No. 603/2013 of the European Parliament and the Council of 26 June 2013 on the Establishment of 'Eurodac' for the comparison of fingerprints for the effective application of Regulation (EU) No 604/2013 establishing the criteria and mechanisms for determining the Member State responsible for examining an application for international protection lodged in one of the Member States by a third-country national or a stateless person and on requests for the comparison with Eurodac data by Member States' law enforcement authorities and Europol for law enforcement purposes, and amending Regulation (EU) No 1077/2011 establishing a European Agency for the operational management of large-scale IT systems in the area of freedom, security and justice (recast).* <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:32013R0603>
19. **Regulation 2018/1240.** *Regulation (EU) 2018/1240 of the European Parliament and of the Council of 12 September 2018 establishing a European Travel Information and Authorisation System (ETIAS) and amending Regulations (EU) No 1077/2011, (EU) No 515/2014, (EU) 2016/399, (EU) 2016/1624 and (EU) 2017/2226.* <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018R1240>
20. **Regulation 2019/1896.** *Regulation (EU) 2019/1896 of the European Parliament and of the Council of 13 November 2019 on the European Border and Coast Guard and repealing Regulations (EU) No 1052/2013 and (EU) 2016/1624.* <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R1896>

Other Policy/Programme Deliverables

1. **Council of the European Union.** (2020, July 8). *Impact of Digitalisation on Migration Management – Presidency discussion paper.* <https://data.consilium.europa.eu/doc/document/ST-9322-2020-INIT/en/pdf>
2. **Directorate-General on Migration and Home Affairs.** (2021). *Rules on law enforcement, migration and asylum in the AI proposal* [Slide show]. Fifth Meeting of the Commission's Expert Group on Artificial Intelligence in the domain of Home Affairs. Statewatch. <https://www.statewatch.org/news/2021/september/european-commission-artificial-intelligence-act-aims-to-decrease-administrative-burden-on-home-affairs-authorities-in-order-not-to-hamper-innovation/> [Presentation for the European Commission]
3. **Frontex.** (2020). *Strategic Risk Analysis: 2020.* https://frontex.europa.eu/assets/Publications/Risk_Analysis/Risk_Analysis/Strategic_Risk_Analysis_2020.pdf
4. **Frontex.** (2021). *Artificial Intelligence-Based Capabilities for the European Border and Coast Guard: Final Report.* https://frontex.europa.eu/assets/Publications/Research/Frontex_AI_Research_Study_2020_final_report.pdf
5. **Frontex.** (2022). *Strategic Risk Analysis: 2022.* <https://doi.org/10.2819/76165>

Appendix II – Atlas.ti Data

		AIA Official... 4 247		COM Docu... 12 525		EU Publicati... 5 587		Non-AIA Le... 3 108		Other Polic... 5 241		Totals	
AI Challenges	13 222	60 17,54% 2,43%	86 11,68% 3,48%	57 7,05% 2,31%	6 2,21% 0,24%	10 3,18% 0,40%	219 8,86% 8,86%						
Best-Option Narrative	8 199	19 5,56% 0,77%	91 12,36% 3,68%	71 8,79% 2,87%	7 2,57% 0,28%	11 3,50% 0,44%	199 8,05% 8,05%						
Identification & Surveilla...	18 249	57 16,67% 2,31%	49 6,66% 1,98%	71 8,79% 2,87%	25 9,19% 1,01%	46 14,65% 1,86%	248 10,03% 10,03%						
Inevitability	5 67	4 1,17% 0,16%	45 6,11% 1,82%	14 1,73% 0,57%		4 1,27% 0,16%	67 2,71% 2,71%						
Interoperability	11 163	11 3,22% 0,44%	38 5,16% 1,54%	65 8,04% 2,63%	35 12,87% 1,42%	14 4,46% 0,57%	163 6,59% 6,59%						
Legible Data Subjects	5 109	28 8,19% 1,13%	22 2,99% 0,89%	32 3,96% 1,29%	16 5,88% 0,65%	11 3,50% 0,44%	109 4,41% 4,41%						
Modern Technologies	14 263	14 4,09% 0,57%	87 11,82% 3,52%	99 12,25% 4,00%	21 7,72% 0,85%	39 12,42% 1,58%	260 10,52% 10,52%						
Performance	12 148	9 2,63% 0,36%	35 4,76% 1,42%	90 11,14% 3,64%	3 1,10% 0,12%	11 3,50% 0,44%	148 5,99% 5,99%						
Population Management	7 236	39 11,40% 1,58%	42 5,71% 1,70%	70 8,66% 2,83%	34 12,50% 1,38%	50 15,92% 2,02%	235 9,51% 9,51%						
Prediction Technologies	6 40	9 2,63% 0,36%	2 0,27% 0,08%	19 2,35% 0,77%	1 0,37% 0,04%	9 2,87% 0,36%	40 1,62% 1,62%						
Security Issues	9 151	12 3,51% 0,49%	42 5,71% 1,70%	22 2,72% 0,89%	45 16,54% 1,82%	29 9,24% 1,17%	150 6,07% 6,07%						
Security Logics	6 201	31 9,06% 1,25%	40 5,43% 1,62%	67 8,29% 2,71%	35 12,87% 1,42%	26 8,28% 1,05%	199 8,05% 8,05%						
Subject Constructions	21 236	17 4,97% 0,69%	53 7,20% 2,14%	83 10,27% 3,36%	37 13,60% 1,50%	46 14,65% 1,86%	236 9,55% 9,55%						
Technological Imperative	8 200	32 9,36% 1,29%	104 14,13% 4,21%	48 5,94% 1,94%	7 2,57% 0,28%	8 2,55% 0,32%	199 8,05% 8,05%						
Totals		342 100,00% 13,83%	736 100,00% 29,77%	808 100,00% 32,69%	272 100,00% 11,00%	314 100,00% 12,70%	2472 100,00% 100,00%						

Columns show the document groups. The number underneath and to the left in the header indicates the number of documents in the group. The number to the right shows the sum of citations in that group.

Rows show the primary code groups/categories. The number to the left of the circle indicates the number of individual codes grouped up in the code category. The number to the right of it shows the aggravated number of codings from that category.

Cells show three numbers. The bold one in the center indicates the total numerical amount of codings from a category in the respective document group. The percentage right underneath it indicates the column-relative frequency of that code. The percentage in the lower right corner indicates the table-relative frequency.

Appendix III – Coding Guidebook

MAJOR CONCEPT	CODE CATEGORY	CHARACTERISTICS & CODES
Biopolitics	<i>Population Management</i>	Captures forms of remote & active movement governance. Codes: “circulation”, “migration”, “border control management”, “omnipresence”, “processes”, “authorized VS unauthorized presence”
	<i>Subject Constructions</i>	Captures labels, differentiations and categories of individuals. Codes include “criminal”, “bona fide”, “low-risk VS high-risk”, “refugee”, “irregular migrant”, “TCN VS Citizen”, “terrorist”, “traveller”, etc.
	<i>Legible Data Subjects</i>	Captures valuations of the digital, biometric, systematic legibility of individuals, references embodied data ‘doubles’ through collecting, storing, associating a digital identity profile. Codes: “legibility”, “digital profile”, “biometric identity”, “Systematic (ID) check necessity”
Security Technologies	<i>Identification and Surveillance Technologies</i>	Applies to actual systems, devices, technical tools or techniques used in border control to identify and surveil persons and the border. Codes include “Identity Management”, “Biometric Data & Processing”, “Verification & Authentication”, “Monitoring”, “Remote Biometric Identification”, “Robotics”, “Tracing/Tracking”, “Screening”, “Situational Awareness”, “Automated Border Control (Checks)”, “Speech Recognition”
	<i>Prediction Technologies</i>	Applies to actual devices, systems, and tools used for predictive and/or analytical purposes, as well as normalisations and valuations thereof. Codes include: “Abscondment assessment”, “criminal offence”, “migration forecasting”, “normalisation”, “forecasting/prediction”
	<i>Security Issues</i>	Applies to the language in securing discourses that surround security problems, concerns and risks in and around external border control and AI. Codes: “crime”, “illegal migration”, “terrorism”, “safety”, “unspecified security threat/risk”, “harm through technology”, and “traveller & migratory movement flows”, “instrumentalised migration”, “human trafficking”
	<i>Security Logics</i>	Applies to the security logics put forth in and underpinning securing discourses. Codes: “border security imperative”, “calculation”, “exceptionality”, “protection”, “risk management”
Technosolutionism	<i>Interoperability</i>	Refers to references and mentions of eu-LISA and its systems, as well as associations and valuations of its functions and benefits. Codes: “information sharing”, “24/7 activation”, “data management”, “eu-LISA” “ETIAS”, “EES”, “ECRIS-TCN”; “Eurodac”, “SIS II”, “VIS”, “Eurodac”
	<i>Inevitability</i>	Technodeterminist narratives about the natural or man-made inevitability of AI, references to its uptake and normalisation thereof. Codes: “AI revolution”, “Inevitability”, “AI uptake”, “Normalisation”
	<i>Technological Imperative</i>	Technosolutionist discourses, frames and narratives that stress the necessity, urgency, and importance of embracing and prioritizing AI solutions, deployment, and development. Codes: “AI Prioritisation”, “Necessity-Political”, “Necessity-Economic”, “Necessity-Security”,

		“Necessity-Societal Wellbeing”, “Beneficial VS Harmful AI”
	<i>Best-Option Narrative</i>	Technosolutionist language and discussion that frames AI solutions, deployment, and proliferation as, ideal, overtly beneficial or best option to address challenges, or exclusively/nearly exclusively mentions benefits and downplays challenges. References to and promotion of ethical AI. Codes: “Benefits the Affected”, “Well-equipped EU”, “AI solutions”, “Opportunities”, “Economic considerations”, “Ethical AI”, “Data as Knowledge”
	<i>Performance</i>	Refers to mentions and characterisations /framings of AI performance. Codes: “Accuracy”, “Decision-Making Aid”, “Effectiveness”, “Efficiency”, “Explainability/Transparency”, “Fairness”, “Intelligent”, “Optimisation”, “Robustness”, “Simplification/Streamlining”, “Speed”
	<i>Modern Technologies</i>	References to, mentions, labels, recommendations, and conceptualisations of technologies, techniques, and devices mentioned. Codes include: “AI”, “analytics”, “computer vision”, “machine learning”, “risk assessment tools”, “statistical approaches”, “unspecified”, “IT tools”, etc.
	<i>AI Challenges</i>	Captures language and discursive formulations, valuations and assessments of challenges, risks, harms, as well as possible mitigations thereof that come with AI usage. Codes include: “Automation bias”, “Abuse of AI technology”, “discrimination”, “human oversight & decision-making”, “(fundamental) rights impact”, “opacity”, “AI requirements & expectations”, “harm minimization approach”, “high risk AI”