TURUN
YLIOPISTO
UNIVERSITY
OF TURKU

Theoretical roots, rationalisations, and legal contradictions of predictive policing

Reflections from the Italian case

Carlo Gatti

TURUN YLIOPISTON JULKAISUJA – ANNALES UNIVERSITATIS TURKUENSIS
SARJA – SER. B OSA – TOM. 741 | HUMANIORA | TURKU 2025

TURUN
YLIOPISTO
UNIVERSITY
OF TURKU

THEORETICAL ROOTS, RATIONALISATIONS, AND LEGAL CONTRADICTIONS OF PREDICTIVE POLICING

Reflections from the Italian case

Carlo Gatti

TURUN YLIOPISTON JULKAISUJA – ANNALES UNIVERSITATIS TURKUENSIS
SARJA – SER. B OSA – TOM. 741 | HUMANIORA | TURKU 2025

University of Turku

Faculty of Law
Doctoral programme in Law

Supervised by

Professor Anne Alvesalo-Kuusi
University of Turku

Asst. Prof. Daniel Jiménez Franco
University of Zaragoza

Docent Miriam Tedeschi
University of Turku

Reviewed by

Professor Iñaki Rivera Beiras
University of Barcelona

Associate Professor Simone Tulumello
ICS-University of Lisbon

Opponent

Associate Professor Simone Tulumello
ICS-University of Lisbon

The originality of this publication has been checked in accordance with the University of Turku quality assurance system using the Turnitin Originality Check service.

ISBN 978-952-02-0354-2 (PRINT)
ISBN 978-952-02-0355-9 (PDF)
ISSN 0082-6987 (Print)
ISSN 2343-3191 (Online)
Painosalama, Turku, Finland, 2025

Security is the only object of the law which necessarily embraces the future: subsistence, abundance, equality, may be regarded for a moment only; but security implies extension in point of time, with respect to all the benefits to which it is applied.

— Jeremy Bentham*, Principles of the Civil Code*

UNIVERSITY OF TURKU
Faculty of Law
CARLO GATTI: Theoretical Roots, Rationalisations, and Legal Contradictions of Predictive Policing
Doctoral Dissertation, 238 pp.
Doctoral Programme in Law
November 2025

ABSTRACT

This doctoral dissertation examines the policies and rationales behind the implementation of predictive policing from a multidisciplinary perspective, focusing on Italy as the primary case study. Predictive policing, the use of algorithmic predictions to forecast police targets such as future crime spots or potential perpetrators, has attracted growing scholarly and regulatory scrutiny in recent years. However, Italy remains an understudied country among those showing evidence of predictive policing use, and no attempts have previously been made to engage developers or public users in systematic studies aimed at addressing the limitations of available public information.

The dissertation comprises this synopsis and three substudies or research articles, which collectively cover the main thematic areas of the research. These areas include: the theoretical background and justifications of predictive policing, both as surface-level explanations and deeper criminological rationales; the model of governmentality emerging from predictive policing initiatives, including the altered interactions between private and public actors; and a field-based analysis aimed at reconstructing the characteristics of two proprietary algorithms used in Italy, leading to a case-based assessment of existing legal gaps and regulatory shortcomings.

One specific contribution to the field, particularly in the first article, is a rebuttal, on new theoretical grounds, of the traditional dichotomy between place-based and person-based approaches to crime prediction, challenging the idea of starkly higher invasiveness of the latter. In the second substudy, I examine shifts in the relationship between private and public powers, highlighting the risks to democratic accountability and outlining the concept of 'soft privatisation' for this specific segment of the law-enforcement chain. The third substudy analyses the responsiveness and transparency of public and private actors regarding the use and characteristics of two Italian predictive tools, advancing the field-based reconstruction of software workings, and identifying legal gaps in light of real-world implementations.

The aim of this synopsis is to extend beyond the individual articles by deepening theoretical and legal reflections outside the scope of the papers, while interweaving the different articles as interconnected pieces of a synergistic ensemble. Thus, the theory-based critique of the assumptions behind different techniques of crime prediction guides the presentation of the case study; likewise, by keeping in mind the same theoretical misconceptions – often combined with biomorphic conceptions of AI – the legal argument is built to highlight how regulatory countermeasures fall short of the goals they claim to pursue.

KEYWORDS: Predictive policing; crime prediction; critical criminology; Italy; AI Act

TURUN YLIOPISTO
Oikeustieteellinen tiedekunta
CARLO GATTI: Theoretical Roots, Rationalisations, and Legal Contradictions of Predictive Policing
Väitöskirja, 238 s.
Oikeustieteen tohtoriohjelma
Maaliskuu 2025

TIIVISTELMÄ

Tämä väitöskirja tarkastelee ennakoivan poliisitoiminnan politiikkoja ja perusteluita monitieteisestä näkökulmasta, keskittyen Italiaan ensisijaisena tapaustutkimuksena. Ennakoiva poliisitoiminta, eli algoritmisten ennusteiden hyödyntäminen rikosten tapahtumapaikkojen tai mahdollisten tekijöiden ennakoimiseksi, on herättänyt kasvavaa huomiota viime vuosina. Italia on kuitenkin edelleen vähän tutkittu maa ennakoivan poliisitoiminnan kontekstissa, eikä kehittäjiä tai julkisia toimijoita ole aiemmin systemaattisesti osallistettu tutkimuksiin, joiden tavoitteena olisi ollut täydentää julkisesti saatavilla olevan tiedon puutteita.

Väitöskirja koostuu tästä synteesistä ja kolmesta osatutkimuksesta tai artikkelista, jotka yhdessä kattavat tutkimuksen keskeiset teema-alueet. Näitä ovat: ennakoivan poliisitoiminnan teoreettinen tausta ja oikeuttamisperusteet, sekä pinnallisina selityksinä että syvempinä kriminologisina perusteluina; hallinnan muoto (governmentality), joka nousee esiin ennakoivan poliisitoiminnan käytännöistä, mukaan lukien yksityisten ja julkisten toimijoiden muuttuneet suhteet; sekä kenttäperustainen analyysi kahden Italiassa käytetyn suljetun algoritmin ominaisuuksista, jonka pohjalta arvioidaan oikeudellisia aukkoja ja sääntelyn puutteita tapauskohtaisesti.

Yksi erityinen kontribuutio alalle, erityisesti ensimmäisessä artikkelissa, on uusi teoreettinen haastaminen perinteiselle jaolle paikka- ja henkilöperusteisen rikosennustamisen välillä, kyseenalaistaen jälkimmäisen oletetun selvästi suuremman tunkeutumisen yksityisyyteen. Toisessa osatutkimuksessa tarkastellaan yksityisen ja julkisen vallan välistä suhdetta, tuoden esiin demokraattisen tilivelvollisuuden vaarantumisen ja esitellen käsitteen "pehmeä yksityistäminen" (soft privatisation) lainvalvontaketjun tässä osassa. Kolmas osatutkimus analysoi julkisten ja yksityisten toimijoiden läpinäkyvyyttä ja reagointia kahden italialaisen ennakointityökalun käytössä, edistäen ohjelmistojen toiminnan kenttäperustaista rekonstruointia ja tunnistaen oikeudellisia puutteita todellisten järjestelmien valossa.

Tämän synteesin tavoitteena on syventää teoreettisia ja oikeudellisia pohdintoja artikkeleiden ulkopuolella, samalla yhdistäen eri osatutkimukset toisiinsa synergiseksi kokonaisuudeksi. Näin ollen rikosennustamisen eri tekniikoiden taustalla olevien oletusten teoreettinen kritiikki ohjaa tapaustutkimuksen esittelyä; vastaavasti, pitäen mielessä samat teoreettiset väärinkäsitykset – usein yhdistettynä biomorfisiin käsityksiin tekoälystä – oikeudellinen argumentaatio rakentuu osoittamaan, kuinka sääntelytoimet jäävät jälkeen niistä tavoitteista, joita ne väittävät edistävänsä.

ASIASANAT: Ennakoiva poliisitoiminta; rikosennusteet; kriittinen kriminologia; Italia; tekoälyasetus (EU AI Act).

Acknowledgements

If I find myself reflecting today on whom to thank for the support received throughout this journey, I owe that privilege to Anne Alvesalo-Kuusi. We first met in Barcelona, in September 2019, during the annual conference of the *European Group for the Study of Deviance and Social Control*. Until then, Anne Alvesalo-Kuusi had been, to me, just a name—that of a prominent Nordic critical scholar in the field of corporate crime. At the time, I could not have foreseen that Turku would become my next academic destination, where I would further develop the foundations laid between Italy and Spain. We said goodbye as she boarded a bus on Gran Via, bound for the airport; we met again four months later in a moment just as symmetrical—though laden with greater future implications—as I stepped out of a taxi in front of Villa Hortus on a dark January afternoon.

Compiling exhaustive lists of names is a risky exercise when referring to a human context as rich as Calonia. My opening is thus a collective, unqualified expression of gratitude to its entire community. What follows is just a mention of those who had a direct impact on my path, without detracting from other friendships that emerged over these years, at the margins of my research activity.

My arrival in Turku would have been far more complicated had I not received, even before setting foot in the city, the assistance of Mirkka Ruotsalainen, coordinator of the Doctoral Programme, and later, her successor Kirsi Tuohela—tireless and unfailingly supportive in informing and assisting researchers.

Thinking of the initial difficulties, compounded by a pandemic experienced through a strange sense of confinement, I cannot but warmly thank Dean Anne Kumpula, who showed that occupying a leadership position can, above all, mean supporting those in more precarious circumstances. A kind of leadership I had certainly not encountered in previous academic experiences. The same tradition continued with Dean Janne Salminen, to whom I am grateful, as it was under his deanship that permission was granted for my work to be publicly defended. I trust it will continue with Mika Viljanen, former director of the doctoral programme during my PhD, whose witty empathy I came to appreciate since my first interview—my first "visual" encounter with Turku, glimpsed from my Barcelona room on an early autumn morning.

Calonia has been the place where Hanna Malik—fellow member of the European Group and accomplice in critical criminology—took me by the hand from day one, ensuring through every gesture of care that the landing in Finland of an Italian with Spanish inflections would be as smooth as possible.

I hope, years later, to have done something remotely similar for Ferdinando La Placa, who, arriving as a fellow Italian, gradually became an indispensable support in my life in Turku—within and beyond the faculty, and a thoughtful confidant.

In the early years, Calonia hosted life-saving coffee breaks with Dhanay Cadillo Chandler, whose ability to combine lightness and depth often offered a precious escape from academic tensions, helping me refocus on what truly matters.

Spanish, the third language of Calonia, also brought me the friendship of Aleida Lujan Pinelo. Through thoughtful conversations, shared dinners, and quick coffees, her presence became a steady companion. Having walked the same path just a few years ahead of me, she offered a living example of the journey I was about to undertake.

The human and disciplinary richness of Calonia allowed me to meet Miriam Tedeschi: first as an interlocutor who, better than anyone, understood the academic world I came from; then as a guide for my forays into philosophical rather than socio-legal terrains; and finally, as a generous supervisor. Like Anne and Dani, she always distinguished academic responsibility from formal hierarchy, placing my needs as a doctoral researcher at the centre—a posture that made her supervision both rigorous and deeply humane.

I wish to thank Samuli Hurri, a Finn with an unusual devotion to classical studies—the only one with whom I ended up discussing possible plot twists in the *Iliad* over a Sunday afternoon coffee. This passion was evident from the very first research seminar he chaired, and later through his participation in my PhD steering committee. I will always remember one of his remarks: "*Thanks for existing! Who else talks of Quetelet in today's academia*?"—a most eloquent, bitter reflection on the managerial degeneration of universities, where reading the classics will soon be considered a waste of time. *Gratias ago tibi, Samuli, quod es.*

Postremo loco, affectu 'melior': Juho Aalto. Office mate and interlocutor in conversations traversing my research and his, my teaching and his, and the daily contingencies of life: those of an Italian in Turku and a local in his own city. Coffee companion and dinner ally on days when release was needed. I could not have wished for a better neighbour—at home and at work.

Our shared conversations on Turku's Latinity and the export of Roman consulate were often witnessed, willingly or not, by Sonja Vilenius, Jasmin Hannonen, and, between puzzle breaks, Yulia Dergacheva: their personal trajectories regularly intertwined with mine in research seminars, relaxed chats and reciprocal readings of each other's drafts, always inspired by genuine, steadfast, mutual support.

Taking a step back, I know that without Barcelona I would never have reached Turku. It was there that I sought a systematised and formal recognition of something long rooted in spontaneous autodidacticism: a Marxist analysis of law and the penal system. If that body of scholarship, long cultivated in that Mediterranean crossroads, was eventually transformed into a curricular programme I could attend and build upon, I owe it to Iñaki Rivera Beiras, whose intellectual presence and unwavering commitment has shaped generations of scholars.

That Master's programme is where I met Daniel Jiménez Franco, lecturer, early writing mentor and, at the time, coordinator of the European Group. In that role, and thanks to the timely initiative of Jesús Carreras Aguerri, he introduced me to Anne in 2019. This had the karmic effect of leading to his later appointment as supervisor of this thesis, as well as to hosting research stays—with Jesús always as informal co-host—that served as safe-conducts for my peregrinations between Turku and Zaragoza.

The Barcelona Master's is also where I met Antonio Madrid Pérez, the first to alert me to the richness of a new topic: *predictive policing*—a curious syntagm I had never encountered before. He insightfully encouraged me to make it the focus of my research and consistently supported my early attempts at publication.

That phase of life brought me the friendship of Juan Manuel Ternero and Lucía Sbriller, comrades in editorial and militant work. Our ongoing exchange became an anchor during my time in Turku: a constant reminder of where it all began, and of the intellectual and political motivations that led me here. Reflecting on Anne's spirit of support for precarious scholars, Juanma and I have often joked about calling her the one who turned Turku into the new Saarbrücken.

The European Group, the trigger for my move to Turku, became the crossroads of further encounters and friendships that deepened throughout my doctoral journey. Above all, I wish to mention David Whyte and Vickie Cooper, who generously hosted me both academically and, for some days, in their home during my research stay in the UK. Mentors and companions alike: professorial in their inspiration, even when just sharing anecdotes, yet warm as close friends.

I wish to express my gratitude to the preliminary examiners for their thoughtful engagement with my dissertation. Their comments have been both intellectually stimulating and consistently encouraging, and I am thankful for the opportunity to reflect on their insights.

I allow myself a final extra-academic departure to thank my family, who supported me from afar—sometimes without fully grasping the meaning or consequences of each step. With affection and sacrifice, they have always cared only that I could pursue my choices in the most peaceful way possible.

My heartfelt thanks go to Andrea, who, fully aware of the efforts these years demanded, fought tirelessly to ensure that hardship never overshadowed her generous daily gestures of love, support, and togetherness.

Thanks to my grandparents, who, each in very different ways, taught me that study is a matter of dignity: a right wrested from history through the struggles and sacrifices of generations.

Turku, 23 September 2025
Carlo Gatti

Table of Contents

Acknowledgements **6**

Table of Contents **10**

List of Research Articles **13**

1 Aims and Context of the Study **14**

2 Theoretical and Methodological Framework **20**
2.1 Meta-methodological remarks 20
2.2 Positioning within Critical Criminology 23
2.2.1 Methodological implications 29
2.3 On 'Security' and the Critical Theory of Police Power 32
2.3.1 Methodological implications 38
2.4 The (social) role of technology: on the 'autonomy' and 'intelligence' of AI 40
2.4.1 Methodological implications 48

3 Predictive Policing: Origins and Basic Concepts **52**
3.1 Insights from the first thematisations of predictive policing 52
3.2 Revisiting the place-based roots of predictive policing 59

4 Rationalities of Crime Prediction **63**
4.1 Individual-based perspectives on crime prediction: complementing my first research article 63
4.2 From the clinical to the actuarial paradigm 66
4.3 The ground of actuarial studies 69
4.4 From rehabilitation to Selective Incapacitation (and predictive policing) 75

5 Setting the Stage: An Approach to the Italian Case **81**
5.1 A pre-algorithmic penal selectivity 81
5.2 Theories and narratives of predictive policing Italian systems 85
5.2.1 Technical operating conditions or political delimiters? 88
5.3 Navigating Public-Private Dynamics 90

6 Interpretative Reconstruction of the Legal Framework: Key Issues and Legal Gaps **95**

6.1 Context for Legal Analysis 95
6.2 Predictive Policing prior to the AI Act 97
6.3 Predictive Policing under the AI Act 100
6.4 The problem of secrecy and its ramifications 103

7 Concluding Reflections 110
7.1 Synthesising theoretical, empirical, and legal contributions .. 110
7.2 The politics beneath the code 113

8 Introduction to Research Articles 119
8.1 Substudy 1 119
8.2 Substudy 2 122
8.1 Substudy 3 124

Abbreviations 127

List of References 128

Original Publication 141

Tables

Table 1. Overview of the study. 19
Table 2. Methodology Table. 51
Table 3. Defining moments in the history of the place-based and person-based approaches to crime prediction. 64

List of Research Articles

This dissertation is based on the following original publications, which are referred to in the text by their Roman numerals:

I Gatti, C. Policing the poor through space: The fil rouge from criminal cartography to geospatial predictive policing. *Oñati Socio-Legal Series*, 2022; 12(6): 1733–1758.

II Gatti, C. Monitoring the monitors: a demystifying gaze at algorithmic prophecies in policing. *Justice, Power and Resistance*, 2022; 5(3): 227–248.

III Gatti, C. Predictive policing in action: a field-based critique of the Italian case. Accepted for publication in *Crime, Law and Social Change*, 2025.

The original publications have been reproduced with the permission of the copyright holders

1 Aims and Context of the Study

Predictive Policing (PP) is often imagined as a futuristic practice, one in which behaviours are anticipated through sophisticated calculations beyond human capabilities, before individuals are even aware of their own intentions. This image, while culturally pervasive, bears little resemblance to how PP actually operates.

In practice, PP refers to the use of algorithmic predictions to forecast future police targets. These may be either potential offenders (person-based PP) or future crime locations, that is, the mapping of areas where crimes are deemed likely to occur (place-based PP)[1]. Operationally, the distinction lies in the type of algorithmic output: person-based PP produces a risk assessment applied to an individual profile, whereas place-based systems apply the risk assessment to a geographical area, typically based on so-called 'criminogenic' environmental factors.

Although often associated with the most recent developments in artificial intelligence (AI), PP did not originate with AI technologies. Historically and still today, many systems rely on simpler algorithmic techniques, such as statistical models or rule-based systems based on fixed decision rules and non-adaptive logic. The integration of AI into PP is a relatively recent development, and while some systems incorporate machine learning components, these are often limited or non-adaptive. This point warrants clarification, as it reflects a key methodological choice underpinning the dissertation's critical approach. Rather than grounding the critique in the technical classification of automation—be it statistical, rule-based, or AI-driven—the analysis focuses on the broader rationales and patterns of social selectivity that persist across technological phases.

[1] Brayne, S. (2021). *Predict and surveil: Data, discretion, and the future of policing*. New York, NY: Oxford University Press; Couchman, H. (2019). *Policing by machine: Predictive policing and the threats to our rights*. London, UK: Liberty; Ferguson, A. G. (2017). Policing predictive policing. *Washington University Law Review, 94*(5), 1109-1189; Perry, W. L., et al. (2013). *Predictive policing: The role of crime forecasting in law enforcement operations*. Santa Monica, CA: RAND Corporation; Uchida, C. (2014). Predictive policing. In G. Bruinsma & D. Weisburd (Eds.), *Encyclopedia of criminology and criminal justice* (pp. 3871-3880). New York: Springer.

Before proceeding, it is important to clarify the scope of the term 'predictive policing' as used in this dissertation. I adopt a deliberately narrow definition of PP, focusing only on algorithmic predictions for crime prevention and police investigations. I explicitly exclude computational techniques employed in judicial decision-making, which fall under what Završnik defines as algorithmic justice (AJ)[2], which involves decisions made by the Court within an already initiated trial about the temporary or partial restoration of personal freedom, such as bail, parole, or the length of the sentence.

This distinction is not an academic sophism; in AJ, the encounter with the Criminal Justice System (CJS) does not begin with algorithmic prediction, as predictive technologies are introduced at a later stage. Furthermore, within the judicial context, the subject under assessment can only be an individual, which is why there is no 'person *versus* place' duality in the possible predictive outputs. From a critical perspective, it is important to note that AJ only affects individuals who have already been filtered by the CJS. By contrast, PP intervenes at a much earlier point in the sequence of criminal justice operations, shaping the initial selection of targets for police attention. This difference in institutional positioning is crucial, yet often blurred in the literature—not least because of a persistent conflation between PP and AJ, which has led many critiques to transpose arguments developed in response to AJ without fully interrogating their applicability to the PP context[3].

That said, even under a restrictive definition, recent studies demonstrate how PP has rapidly expanded from its origins in the United States[4] to several European countries, including the United Kingdom[5], Denmark[6], the Netherlands[7],

2 Zavrsnik, A. (2021). Algorithmic justice: Algorithms and big data in criminal justice settings. *European Journal of Criminology*, *18*(5), 623–642. https://doi.org/10.1177/1477370819876762

3 Angwin, J., Larson, J., Mattu, S., & Kirchner, L. (2016). Machine bias. *ProPublica*. https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing

4 Robinson, D., & Koepke, L. (2016). *Stuck in a pattern: Early evidence on predictive policing and civil rights*. Upturn. https://www.upturn.org/reports/2016/stuck-in-a-pattern/

5 Babuta, A., & Oswald, M. (2019). *Data analytics and algorithmic bias in policing*. Royal United Services Institute for Defence and Security Studies. https://www.rusi.org/explore-our-research/publications/briefing-papers/data-analytics-and-algorithmic-bias-policing; Couchman, *Op. cit.*

6 Neslen, A. (2021). *Pushback against AI policing in Europe heats up over racism fears*. Thomson Reuters Foundation. https://news.trust.org/item/20211020095858-p47ao

7 Oosterloo, S., & van Schie, G. (2018). The politics and biases of the "crime anticipation system" of the Dutch police. In J. Bates, P. D. Clough, R. Jäschke, & J. Otterbacher (Eds.), *Proceedings of the International Workshop on Bias in Information, Algorithms, and Systems* (pp. 30-41). CEUR Workshop Proceedings, 2103

Germany[8], Italy[9], France[10], Spain[11], and Switzerland[12]. The overwhelming majority of predictive systems are place-based, which is not coincidental[13]. This trend reflects a widespread misconception: that the main legal and ethical concern with PP lies in profiling individuals. An inevitable consequence is that the more critique scrambles to detect and measure 'profiling' in a legalistic sense, the more place-based systems gain ground and shield themselves from incisive criticism by claiming inherent non-invasiveness and detachment from profiling practices.

The profiling-centred critique of PP is typically rooted in privacy-oriented legal analysis, which evaluates police practices based on the degree to which they infringe upon individual privacy[14]. However, in the context of law-enforcement, grounding

8 Gerstner, D. (2018). Predictive policing in the context of residential burglary: An empirical illustration on the basis of a pilot project in Baden-Württemberg, Germany. *European Journal for Security Research, 3*(2), 115–138. https://doi.org/10.1007/s41125-018-0033-0; Seidensticker, K., Bode, F., & Stoffel, F. (2018). *Predictive policing in Germany*. Bibliothek der Universität Konstanz. http://nbn-resolving.de/urn:nbn:de:bsz:352-2-14sbvox1ik0z06

9 Fair Trials. (2021). *Automating injustice: The use of artificial intelligence & automated decision-making systems in criminal justice in Europe*. https://www.fairtrials.org/articles/publications/automating-injustice/

10 Technopolice. (2024, January 18). *La police prédictive en France: contre l'opacité et les discriminations, la nécessité d'une interdiction*. https://technopolice.fr/blog/la-police-predictive-en-france-contre-lopacite-et-les-discriminations-la-necessite-dune-interdiction/

11 Algorace. (2025). *Injustice by algorithm: 'Predictive' policing and criminal 'prediction' and profiling systems used by law enforcement and criminal justice authorities in Spain*. Algorace & Statewatch. https://www.algorace.org/wp-content/uploads/2025/06/Report_Injustice-by-algorithm_JusticeandPolice-EN.pdf

12 AlgorithmWatch. (2020). *Automating society report 2020*. https://algorithmwatch.org/en/automating-society-2020/

13 Lau, T. (2020, April 1). *Predictive policing explained*. Brennan Center for Justice. https://www.brennancenter.org/our-work/research-reports/predictive-policing-explained

14 Examples of this trend are: Couchman, *Op. cit*.; Lynskey, O. (2019). Criminal justice profiling and EU data protection law: Precarious protection from predictive policing. *International Journal of Law in Context, 15*(2), 162–176. https://doi.org/10.1017/S1744552319000090; Murauskas, D. (2021). Predictive analytics in crime prevention and the European Convention on Human Rights: tackling risks in privacy and fair trial frameworks. *Acta Universitatis Lodziensis. Folia Iuridica*, 97. https://doi.org/10.18778/0208-6069.97.13; Norga, A. (2021, July 12). *4 benefits and 4 drawbacks of predictive policing*. The Civil Liberties Union for Europe. https://www.liberties.eu/en/stories/predictive-policing/43679 . Limiting the focus to privacy and data protection tends also to be the position of police agencies. See Europol (2024) AI and policing: *The benefits and challenges of artificial intelligence for law enforcement*. Publications Office of the European Union: Luxembourg. https://www.europol.europa.eu/cms/sites/default/files/documents/AI-and-policing.pdf

criticisms in a 'privacy *vs* profiling' legal argument can easily backfire, especially when such a privacy-centred framework translates into regulatory demands[15].

While privacy rights are undoubtedly important in a democratic society, it must not be overlooked that several fundamental freedoms—including privacy—do not necessarily constitute barriers to criminal prosecution.

Therefore, especially in predictive practices enabling pre-emptive police intervention, the focus should shift to whether domain-specific principles—such as the presumption of innocence, materiality (*nullum crimen sine iniuria*), or legality (*nullum crimen sine lege*)—are upheld. This shift foregrounds more decisive issues than privacy, such as the grounds of trade secrecy when predictive algorithms are marketed by private vendors.

Moreover, a privacy-based critique that focuses narrowly on profiling tends to reduce the debate to calls for technical transparency or bias mitigation. This often reinforces a 'technology-versus-human' dichotomy, where algorithmic technologies—including AI—are portrayed as external, potentially uncontrollable forces, thereby obscuring the continuity of policing practices themselves, regardless of technological mediation. Accordingly, within a privacy-centred approach, the debate tends to revolve around moral dilemmas, such as whether it is more desirable to have a false negative at liberty or a false positive over-policed. While moral dilemmas are important and sometimes unavoidable, a focus on micro-level trade-offs ultimately prevents a more radical questioning of the framework itself and of the political premises shaping the available choices.

With these open questions in mind, my dissertation analyses the criminal policies linked to PP implementation from a multidisciplinary and critical-criminological perspective, using Italy as the main case study. In doing that, it seeks to challenge several assumptions shared by both mainstream criminology and conventional critiques, which often stand on opposite banks of the same ideological river.

Thematically, the work unfolds around three focal areas:

1) the theoretical background of PP, with a particular focus on crime prediction in relation to space;

[15] See in this sense: Van Brakel, R. E. (2025). Legal, ethical, and social issues of AI and law enforcement in Europe: The case of predictive policing. In N. A. Smuha (Ed.), *The Cambridge handbook of the law, ethics and policy of artificial intelligence* (pp. 367–382). Cambridge University Press. https://doi.org/10.1017/9781009367783.022 While offering a comprehensive overview of legal and ethical concerns, the chapter exemplifies a framing of PP as a matter of balancing liberties and law enforcement needs—an approach that risks overlooking the structural contradictions underpinning these technologies.

2) the model of governmentality emerging from rationalisations and public discourses supporting PP;

3) the empirical analysis and legal assessment of two proprietary algorithms in Italy.

These themes broadly correspond to the structure of the three research articles or substudies. While this synopsis does not introduce qualitatively distinct research questions, its aim is to extend beyond the individual articles in two key ways.

First, by delving into theoretical and legal aspects that could not be fully explored within the limitations of the paper format. This is visible, for example, in the complementary analysis developed in Chapter 4 of Article I, or in the more detailed reconstruction in Chapter 6 of the problematic link between theoretical misconceptions and regulatory short-sightedness, framed not in abstract terms but through context-specific analysis. *Second,* by presenting the articles not as isolated pieces but as interconnected components of a synergistic architecture, whose synthesis enables a richer, coordinated understanding beyond the mere sum of the articles' individual contributions. Additionally, Chapter 5 of the synopsis integrates revised CJS statistics and updates on public security regulations in Italy particularly in relation to the data used in Substudy II.

As a final caveat, this research does not seek to equip criminal lawmakers and enforcement agents with illuminated regulatory solutions. They are, of course, welcome to peruse this study and reflect upon it, should they find any insights of interest. However, as an exercise in transparency, rather than seeking administrative patronage – too often disguised as 'societal impact' in contemporary academia– I wish to recall Baratta's lesson that the task of critical criminology is not to dispense prescriptions for criminal policy[16]. Otherwise, critical reason –interpreting the contradictions between declared aims and actual practices in the legal system not as an unfortunate anomaly, but as a structural reality – would risk devolving into technocratic reason, which, by embedding itself within penal ideology, purports to resolve systemic contradictions through ideological and technical adjustments.

I will elaborate on this point later, when I outline the 'critical criminology' that informs my work.

[16] Baratta, A. (1989). Por una teoría materialista de la criminalidad y del control social. *Estudios Penales y Criminológicos*, *XII*(57), Servizo de Publicacións da Universidade de Santiago de Compostela, pp. 14-68.

Table 1. Overview of the study.

Research Segment		
• SYNOPSIS	No qualitatively distinct and newly introduced Research Questions Broadening the understanding of the phenomena addressed in substudies by: a) deepening reflections beyond the format of individual articles; b) coordinating the articles as interconnected and synergistic pieces; c) updating institutional statistics and regulatory landscape.	
	Research Questions	**Main Findings**
• SUBSTUDY 1	What are the epistemic continuities (and disruptions) in the conceptualisation of crime in relation to space? How can the relation between place-based and person-based predictions be redefined on that basis?	Developing an evolutionary review of place-based approaches to crime prediction. Challenging the traditional dichotomy between place-based and person-based theories
• SUBSTUDY 2	What are the recurring arguments used to advertise PP in Italy? What understanding of security is shaped by the use of PP technologies?	Describing the shifts in the relationship between private and public powers (soft privatisation) Highlighting the risks to democratic accountability
• SUBSTUDY 3	How responsive and transparent are private developers and police agencies using predictive policing algorithms in Italy? What new insights can be gained about the functioning and use of these systems beyond publicly available information? What legal and political issues arise from the field research?	Mapping the responsiveness and transparency of public and private operators Advancing the field-based reconstruction of the workings of two predictive software Identifying legal gaps and proposing legal countermeasures at the European level

2 Theoretical and Methodological Framework

2.1 Meta-methodological remarks

Before turning to methodological considerations in the strict sense, a few preliminary remarks are in order. I do not conceive methodology as a recipe book or an empty vessel awaiting substantive content. While it is possible to distinguish content and methodology in abstract terms, they can only be separated analytically; in practice, particularly in research design, they are inextricably linked. From the standpoint of Critical Criminology, methodology is not a neutral, pre-existing instrument—akin to a microscope used to observe a cell. This fetishisation of methodology rests on a misleading analogy with the natural sciences, reducing it to technical efficiency devoid of broader implications.

On the contrary, methodology is a field of struggle that modifies the object under observation through multiple delimitations—more or less arbitrary, implicit, or intentional[17]. Acknowledging this is, in my view, the only way to reconcile with Horkheimer's critique of instrumental reason[18]. It is not coincidence that methodology as an axiologically empty category has long characterised the political agenda of the ruling classes administering power asymmetries from the top.

Two examples, well-known within the sociology of criminal law, illustrate this point. In criminology, the political importance of naturalistic parallels promoted by positivist schools to 'explain' the tendency to commit crimes is particularly noteworthy. This idea has sustained the belief in a reality beyond theory, which forms the basis for predicting crime akin to a natural phenomenon. A second example is the role of Neo-Kantians, especially Schwinge, in German

[17] Yet not delving here into performative aspects, this stance resonates with several warnings by Law, J. (2004). *After method: Mess in social science research*. London: Routledge.

[18] Horkheimer, M. (1974). *Critique of instrumental reason* (M. J. O'Connell, Ed.). New York: Seabury Press.

legal scholarship[19]. By adopting an instrumental rationale that prioritised means over ends—not for nothing defined as the 'Methodological School'—they converted the conceptualisation of the *Rechtsgut* into a justification of National Socialist law.

In stating this, I am not suggesting that every research project introduces a "new" methodology, nor dismissing the value of methodological rigour. Rather, I contend that methodological choice always constitutes an epistemic positioning. As Wright Mills describes, research in social sciences is a matter of "*intellectual craftsmanship*", wherein everyone is—to some extent—their own methodologist[20]. This perspective does not excuse a lack of rigour—contrary to the criticisms levelled at Mills' work upon its initial publication. The criminological translation of Wright Mills' call for intellectual craftsmanship is the "*Criminological Imagination*", coined by Jock Young in tribute to the full title of Mills' book, "*The Sociological Imagination*"[21]. This stands as a methodological antidote to utilitarian narratives that emphasise "*quantification, actuarialism, and risk awareness*"[22]—a framing that resonates deeply with my subject. Without delving into the controversies triggered by Young's book, including accusations of personal disdain for quantitative methodologies[23], some of his insights are particularly salient. His critique of "*datasaurs*"[24] and of criminal justice policies in which "*practicalities of measurement become more important than what is being measured*"[25] remain crucial to demystifying the rhetoric in which 'predicting crime' nests.

Taking this to the philosophical tradition of dialectical theory (see next subsection), Young's insights echo György Lukács' critique of vulgar empiricism. Lukács argues that the social division of labour in modern capitalism leads to the specialisation and illusory fragmentation of social sciences. This results in superficial modes of science that fetishise the immediate appearance of reality, producing 'rational' laws that predict and measure easily observable surface

19 Schwinge, E. (1930). *Teleologische Begriffsbildung im Strafrecht: Ein Beitrag zur Strafrechtlichen Methodenlehre*. Bonn: Ludwig Röhrscheid.

20 Wright Mills, C. (1959), On Intellectual Craftsmanship. In *The Sociological Imagination*. New York: Oxford University Press, p. 224.

21 Young, J. (2011). *The criminological imagination*. Cambridge: Polity Press.

22 Carlen, P. (2014). Just Criminology: The Legacy of Jock Young. *Crime, Media, Culture*, *10*(3), p. 194. https://doi.org/10.1177/1741659014556038

23 Garland, D. (2012). Criminology, Culture, Critique: A Review of Jock Young, The Criminological Imagination. *British Journal of Criminology*, *52*(2), 417–425. https://doi.org/10.1093/bjc/azr095

24 Young, *op. cit*. p. 15

25 *Ibidem*, p. 16.

relationships among humans, objects, and structures, while obscuring broader social relations[26].

In sum, the idea of 'intellectual craftsmanship' is essentially a plea for the classical social analyst's commitment to linking theoretical frameworks and empirical analysis, while rejecting mannerism and rigid sets of procedures that fetishise method and technique[27]. This aligns with Adorno and Horkheimer's call to break the "*magic circle*" of duplication, which treats science as merely representing and duplicating reality in thought. For them, Critical Theory's task is to dialectically reject any knowledge abstracted from social practice, whether presented as pure formal conceptualisation or, alternatively, as a collection of materials devoid of a guiding concept, as in positivism[28]. Thus, the essence of 'intellectual craftsmanship' I wish to embrace is a caution against the effects that a certain view of methodology (especially the claim of value-free objectivity) has in the social sciences, as history has unfortunately shown.

If methodology cannot be separated from content, and content only gains significance when linked to a theoretical framework that rationally situates it within social reality, then discussing the theoretical foundations of my study is essential for a meaningful discussion of methodology. Therefore, in the following sections, I will delineate the principal theoretical coordinates framing my study of PP: a) the critical criminological tradition, which I have elsewhere referred to as the 'materialist sociology of punitive control'; b) the critical (materialist) theory of police power; and c) a materialist critique of automation in general and AI.

In elucidating their most relevant aspects, I will intersperse the presentation of these theories with subsections on their main methodological implications, clarifying that in this chapter I am referring to 'general methodology'. This encompasses the overarching strategy reflecting adherence to general-theory premises, setting the fundamental boundaries of the research. Specific research methods, on the other hand**,** involve the paths and procedures used to address research questions in individual articles, once the general theory-driven framework has been set. These

26 Lukács, G. (1971). Reification and the consciousness of the proletariat. In *History and class consciousness: Studies in Marxist dialectics* (pp. 83-110). Cambridge, MA: MIT Press. The parallel with the division of labour can be inflected, in our field, into the historical fragmentation of police functions leading to their apparent depolitization and to the artificial progressive detachment of 'police science' from Political economy (see section 2.3).

27 Germani, G. (1961). Prologue. In C. Wright Mills, *La imaginación sociológica* (pp. i-xii). Buenos Aires: Fondo de Cultura Económica.

28 Horkheimer, M., & Adorno, T. W. (2002). *Dialectic of Enlightenment: Philosophical Fragments* (G. S. Noerr, Ed.). Stanford University Press. (Original work published 1947), p. 19.

specific methods relate to the contingencies of each article but are inevitably influenced by the general methodology. Please note that this chapter does not delve into the specific research methods; those interested will find a detailed account in the articles themselves and in the final chapter introducing the three substudies.

2.2 Positioning within Critical Criminology

The multilevel analysis needed for the issues at stake in the implementation of PP should start from the acknowledgement that, while a modern creation, PP does not arise from nowhere. The attempt to manage crime through prediction is not an unexpected outcome of advanced technologies. Instead, it attests to the enduring influence of many schools of thought that have consolidated the aetiological understanding of crime over the last two centuries, standardising environmental or individualised risk assessment criteria in crime studies[29].

The study of the root causes of crime, the heart of the aetiological paradigm, rests on another tacit premise: that 'crime' possesses ontological unity and consistency, similar to any class of events with a uniform phenomenology[30]. This is exactly what gives semblance of internal coherence to traditional criminology in assuming the area corresponding to the legal definition of crime as its object of study. Based on this, conventional criminology asserts itself as the 'science' investigating crime's root causes through anthropological, bio-pathological, or ecological aetiologies.

Nevertheless, 'crime' is a conventional fact depending on legal qualifications across space and time, which in itself unsettles the justifiability of a causal study of such a thing as 'crime' in the abstract.

Rejecting aetiological interpretations is a common denominator among all strands of critical criminology[31]. Historically, it must be noted that the notion that crime is primarily a social-definitional mechanism predated critical criminology itself. Opposing the teachings of positivism, several authors from different

29 Bianchi, H., Simondi, M., & Taylor, I. (Eds.). (1975). *Deviance and control in Europe: Papers from the European Group for the Study of Deviance and Social Control*. London: Wiley. In their introduction, the editors identify a recurring concern in earlier criminological traditions: the classification of individuals and groups as deserving of marginalisation. This was carried out through anthropological or environmentalist theorisations, depending on the historical context.

30 See Chapman, D. (1968). *Sociology and the stereotype of the criminal*. London: Tavistock.

31 For 'twin' critical criminology traditions sharing the same starting point, see: Hulsman, L. H. C. (1986). Critical criminology and the concept of crime. *Contemporary Crises*, *10*(1), 63–80. https://doi.org/10.1007/BF00728496

sociological schools argued, even before the 1960s, that the way societies and their institutions react to an event is more influential in defining it as criminal or deviant than the nature of the event itself[32]. These insights, which together formed the core of the 'social reaction' paradigm, progressively contributed to the formation of the labelling approach theory in criminology during the 1960s. The latter marked an irreversible shift away from positivist criminology, questioning the roots ideology of social defence[33]. At the same time, as later authors have noted, the labelling approach does not yet signify the abandonment of all positivistic and aetiological enquiries into the causes of crime[34]. Its contribution to shifting the focus to control is more accurately understood as a long-term objective effect rather than the direct result of the intentions of its theorists.

Within critical criminology—which provides the ideological foundation for my critique of criminal aetiology—I draw primarily on the Italo-Hispanophone school, with Alessandro Baratta and Roberto Bergalli as key figures. I have elsewhere addressed the specificities of this stream, also referable to as 'materialist sociology of punitive control'[35]. There, my main goal was to refute some foundational theses of the 'Social Harm' theory[36] from the historical (and historiographical)

32 See the notion of "tagging" in Tannenbaum, F. (1938). *Crime and the Community*. New York: Columbia University Press. For the dramaturgic approach, see Goffman, E. (1956). *The presentation of self in everyday life*. University of Edinburgh Social Sciences Research Centre. Within ethnomethodology, see Garfinkel, H. (1956). Conditions of Successful Degradation Ceremonies. *The American Journal of Sociology*, *61*(5) https://doi.org/10.1086/221800.

33 Becker, H. S. (1963). *Outsiders: studies in the sociology of deviance*. New York: Free Press of Glencoe; Lemert, E. M. (1967). *Human deviance, social problems, and social control*. Englewood Cliffs, NJ: Prentice-Hall.

34 For a first materialist critique of labelling theory, see Gouldner, A. W. (1968). The Sociologist as Partisan: Sociology and the Welfare State. *The American Sociologist*, *3*(2), 103–116. For him, the exclusive focus on secondary deviance in labelling theory reflects a lack of deep understanding of social problems and structural explanation. Regarding the reconcilability of labelling theory with aetiological theories, see Aniyar de Castro, L. (1987). *Teorías de la reacción social*. Caracas: Editorial Jurídica Venezolana; Pearce, F. (1976). *Crimes of the Powerful: Marxism, Crime and Deviance*. London: Pluto Press.

35 Gatti, C. (2023). The Bologna-Barcelona axis between Criminal Law Dogmatics and Critical Sociology of punitive control. Hidden Continuities and Apparent Overcomings. *Crítica Penal y Poder*, (25). https://doi.org/10.1344/cpyp.2023.25.44853

36 For a comprehensive exposition of Social Harm, see Hillyard, P., Pantazis, C., Tombs, S., & Gordon, D. (Eds.). (2004). *Beyond criminology: Taking harm seriously*. Winnipeg: Pluto Press. https://doi.org/10.2307/j.ctt18fscmm; Canning, V., & Tombs, S. (2021). *From Social Harm to Zemiology: A Critical Introduction*. Oxford: Routledge. https://doi.org/10.4324/9780429430497

perspective of this critical school. While this is not the place to revisit that debate[37], I hope these caveats help contextualise my approach by clarifying that my theoretical frame is not Social Harm or 'zemiology'. I do consider Social Harm a valuable descriptive tool for exposing the multidimensional impacts of power asymmetries in society—far beyond legally defined harms and regardless of the legal status of the actors involved. This is indeed the spirit in which I borrowed the social harm lens in my second research paper. However, I do not consider social harm either a novel theoretical framework or an advancement over critical criminology, as the alleged increased radicality of zemiology rests, in my view, on fallacious premises[38].

To return to the initial question, a compelling counterargument to zemiologists' allegations is Baratta's own dismantling of the etiological claims of traditional criminology, serving as the foundation of my critique of PP. According to Baratta, "*the search for the causes is not possible regarding objects which are defined by norms, conventions, and social or institutional assessments. Applying models of causal-naturalist knowledge to objects of this kind leads to a reification of the results of these normative definitions. 'Criminality' or 'criminals' are not conceivable without the intervention of social and institutional processes*" (1989: 16).

The inevitable consequence is then a shift in focus from the unlawful act (and the individual committing it) towards the institutional reaction and the selection of criminal policy targets. In other words, a shift from the 'study of the criminal' to the study of the process of criminalisation and the apparatus that wields definitional power. On closer inspection, this represents a complete reversal of conventional criminology, as Baratta himself confirms: "*conventional criminology studies the deviated behaviour burdened with penal significance, its origin and its function within the given societal structure. The sociology of punitive control*, *on the contrary,*

37 Even from backgrounds unrelated to the Italian-Hispanophone School of critical criminology, the analysis of zemiology from a Marxist perspective has inspired a lively debate, fuelled among others by Garside, R. (2013). Addressing social harm: better regulation versus social transformation. *Crítica Penal y Poder,* 5, pp. 247-265. https://revistes.ub.edu/index.php/CriticaPenalPoder/article/view/6228 and Lasslett, K. (2010). Crime or social harm? A dialectical perspective. *Crime, Law, and Social Change*, *54*(1), 1–19. https://doi.org/10.1007/s10611-010-9241-x

38 These include an arbitrary disvalue attributed to the simple use of the term 'crime'; the alleged (and baseless) complicity of critical criminology with the ontologisation of crime; and the subsequent claim regarding the subordination of 'any' criminology to official criminal policy. See Gatti (2023), *op. cit*.

analyses the institutional reaction to the deviated conduct, its conditioning factors, and the effects of this reaction […]" (own translation)[39]

As noted, however, the emphasis on crime as primarily a result of social-definitional processes (the so-called 'paradigm of definition' or 'paradigm of social reaction') is not unique to critical criminology, as it was already present in the labelling theory stemming from Mead's symbolic interactionism[40].

At the same time, the Italian-Hispanophone School of critical criminology emerged from the outset as a legal sociology in the Weberian sense, that is, a sociological enquiry into the law-society interactions through a two-fold gaze on: a) the function and aim of law within society; b) the influence of social facts on the legal system, either aligning with or diverging from it. The Weberian endorsement inherently carried a critical vocation against legal formalism, an outcome less obvious than it may seem today.

Indeed, the interoperability between law and sociology was at the centre of a long-standing dispute between two theses: one advocating for a sociology *of* law as an autonomous, anti-formalist, and holistic observation of the legal system from the outside, and the other supporting a sociology *in* law as a peculiar sociology confined within the self-referential legal world and controlled by jurists[41]. Ultimately, the former Weberian thesis prevailed[42].

39 Baratta, A. (1986), *Criminología crítica y crítica del derecho penal. Introducción a la sociología jurídico penal*, Buenos Aires: Siglo XXI, p. 15.

40 Mead, G. H., & Morris, C. W. (1934). *Mind, self, and society: from the standpoint of a social behaviorist*. Chicago: The Univ. of Chicago Press. Baratta describes the 'labelling approach' as a "crisis zone" in the process by which progressive sectors of traditional criminology broke away to approach less radical strands of conflict theories. This thesis is exposed both in Baratta (1986) *op. cit.*; and ID. (1989) *op. cit.* In the same vein, see Bergalli, R. (1980). Origen de las teorías de la reacción social. *Papers: Revista de Sociologia, 13*. https://doi.org/10.5565/rev/papers/v13n0.1193

41 To say it schematically, this confrontation in Italy was spearheaded by Renato Treves, a Weberian, and, on the opposing side, Giovanni Tarello. See Pitch, T. (1983). Sociology of Law in Italy. *Journal of Law and Society*, *10*(1), 119–134. https://doi.org/10.2307/1410004

42 As Guthmann and Rivera Beiras observe in tracing the intellectual formation of the Barcelona School of Critical Criminology, "*Roberto* [Bergalli]*, who follows the Weberian line, considers that the sociology of law has a critical function in relation to the formalist legal culture. This perspective explores the legal phenomenon and its main issues with the tools of the social and human sciences, while recognising its specificity*" [own translation] Guthmann, Y., & Rivera Beiras, I. (2023). *La creación de la escuela de criminología crítica de Barcelona: La institucionalización académica de una nueva mirada sobre el control social y punitivo (1980-2022)*. Valencia: Editorial Tirant lo Blanch, p. 63. This Weberian legacy underscores the relevance of a sociological

Once clarified that the 'definition paradigm' and the extra-systemic view on the legal system owed their appearance to pre-existing theories, what, then, is the distinctive addition of critical criminology that I consider key to the study of PP?

In a first approximation, this epistemic plus consists of a materialist advancement over the labelling approach. This operation, sometimes referred to as the embedding of the power dimension into the analytical baseline of labelling theory, unfolds along two lines: 1) the junction between the paradigm of definition and a theory of social selectivity reflecting a society structured around capital valorisation; 2) a dialectical understanding of the main contradiction of the legal system – replicated within each legal subsystem – between stated purposes and actual results (that is, between formal equality and substantive inequality). This explains why this school is also referred to as critical (or materialist) sociology of punitive control[43].

Social-definitional processes are then construed complementarily to the asymmetry in the distribution of resources and power. It follows that the reification of criminality by etiological criminology is also selective, as it builds on the observation of a small part of social phenomena. The differential chances across society for people to be defined and monitored as deviants represents, within the CJS, the friction between the principles stated by legal ideology (equality and defence of common interests) and social reality. The CJS operates selectively in two ways: in the recruitment of its 'targeted customers' and in the selection of the socially relevant interests it seeks to protect.

This results, for the analyst, in an antinomy between *ratio essendi* and *ratio cognoscendi*, that is, between the principles officially informing the object of study

approach to law that resists formalism and engages with its empirical operation. While this structural contradiction between the declared principles of the legal system and its actual functioning will be posited further on in overtly Marxist terms, it can also be discerned through Weber's categories of legitimacy, validity, and efficacy. Though grounded in a distinct tradition, Weber's triadic model offers a valuable lens for illuminating the gap between law's normative declarations and its empirical operation. Weber, M. (1978). *Economy and society: An outline of interpretive sociology* (G. Roth & C. Wittich, Eds.). Berkeley: University of California Press.

[43] The semantic dilution of the term 'critical' (likely due to its greater marketability and ease of detachment from its original political area) sometimes leads me to ponder whether a name that better honours the Italian-Hispanophone critical tradition should be 'Radical Criminology'. This tagline, primarily adopted by the Berkeley school, aligns more closely with the theoretical foundations of the materialist sociology of punitive control than many other self-proclaimed critical currents today. See Platt, T. (1974). Prospects for a Radical Criminology in the United States. *Crime and Social Justice*, *1*, 2-10. https://www.jstor.org/stable/29765882

and a scientifically suitable description of it. However, beyond acknowledging it, the key issue is the meaning this contradiction assumes within power relations.

Consistent with a dialectical method, the contradiction between principles and their realisation (i.e., between form and content[44]) is a structural and operational precondition for the penal system, which functions not *despite* this contradiction, but *because of* it. The CJS can sustain and reproduce itself only by conveying an ideologised portrait of its functioning, while functioning selectively in reality[45]. The mismatch between stated principles (equality and defence of common interests) and their realisation (substantive inequality) is not an unfortunate misalignment, but the precondition for the system to function in such unequal and selective terms[46].

Without this structural contradiction, the law could not fulfil its real function of producing and maintaining inequality, as its legitimacy would be continually threatened were these purposes openly declared[47]. The same contradiction manifests in the field of police practices as the inconsistency between formal equality and substantive inequality in the chances of being targeted as part of the potentially

44 This systematic benchmarking of formal principles against their actual realisation in society further explains why the method of critical criminology can never be formalist.

45 This framing of power reproduction through ideological portrayals and selective functioning resonates with critiques by Pearce and Reiman. The first discusses the construction of an imaginary social order under capitalism, while the latter describes the CJS as a carnival mirror that distorts reality to favour certain groups. See: Pearce, F. (1976). *Imaginary Social Order: A Critical Theory of Crime and Deviance*. London: Routledge; Reiman, J. (2007). *The Rich Get Richer and the Poor Get Prison: Ideology, Class, and Criminal Justice*. Boston: Allyn & Bacon

46 The distinction between analytical and dialectical interpretations of contradiction lies in their respective understandings of its nature and resolution. The former treats contradiction as contingent—something to be resolved linearly through the principle of non-contradiction, typically within the framework of technical or ideological adjustments. The latter, by contrast, regards contradiction as structural: an inherent feature of a given field of reality. In this view, certain elements exist only in relation to one another— 'A' cannot exist without 'B', and vice versa—and their relationship is necessarily one of contradiction. This distinction broadly mirrors the difference between the Kantian thesis, which sees contradiction as a limitation of the intellect in grasping reality, and the Hegelian thesis (as adopted by the materialist tradition), which holds that contradiction is intrinsic to reality itself. In our context, substantive inequality within the CJS can only be sustained and reproduced insofar as the legal system purports to pursue mutually exclusive aims.

47 This observation is characteristic of the Marxist critique of positive law. In the Italian context, an exemplary position is presented by Rescigno, G. U. (2006), *Corso di diritto pubblico* (10th ed.), Bologna: Zanichelli. For a more specific discussion on law and crime, see Beirne, P. (1979). Empiricism and the Critique of Marxism on Law and Crime. *Social Problems*, *26*(4), 373–385. https://doi.org/10.2307/800501

criminal population, thus resonating with Baratta's antiformalist definition of the penal system as *"not merely a static complex of rules, but rather a dynamic complex of functions (i.e., the criminalisation process) involving the activities of various official bodies, from legislators to criminal enforcement agencies, as well as informal mechanisms of social reaction*" (own translation)[48].

2.2.1 Methodological implications

While the following sections will offer a more comprehensive account of the interplay between theoretical frameworks and methodological choices, some methodological considerations can already be inferred from the critical criminological tradition outlined above.

For instance, the historical relativity of the concept of crime is central to my first research article, where the rise of crime mapping aligns with a punitive tide aimed at converting former customary rights into crimes, reshaping legally acceptable livelihood modalities for the lower classes. A similar argument can be made about the shift from analysing 'crime' as defined in the early 18th-century editions of the *Compte Général de l'Administration de la justice criminelle* in France[49] to the Chicago School focus on 'deviance' and the assumed ontological commonality between criminality and 'social pathologies'[50]. The common thread in many of these examples is the persistent dominance of etiological studies of crime, which, as will be shown, are deeply influenced by socio-economic factors.

The insights developed so far intuitively suggest key avenues of inquiry—even before being shaped into conclusive research questions. These guiding lines of inquiry can be articulated as follows: what historical processes define the ideas behind the institutional response to 'crime' in PP (1st research paper)? What arguments are used to select targets and justify the need for PP (all papers, especially the 2nd)? What are the societal impacts of PP as part of austerity governance (2nd research paper)? How does the fundamental contradiction of the legal system manifest in the practice of PP in a specific country (3rd research paper)?

48 Baratta, A. (1980). Criminología y dogmática penal. Pasado y futuro del modelo integral de la ciencia penal. *Papers: revista de sociología, 13*(13), 27. https://doi.org/10.5565/rev/papers/v13n0.1192

49 Balbi, A., & Guerry, A. M. (1829). *Statistique comparée de l'état de l'instruction et du nombre des crimes dans les divers Arrondissements des Académies et des Cours Royales de France*. Paris: Jules Renouard.

50 Park, R. E. (1915). The City: Suggestions for the Investigation of Human Behavior in the City Environment. *The American Journal of Sociology*, *20*(5), 577–612. https://doi.org/10.1086/212433

Before advancing to the next section of my theoretical framing, I wish to briefly address a contentious issue within radical strands of critical criminology: their relationship with positive law. This clarification will help establish key points ahead of the legal analysis presented in Chapter 6.

As previously mentioned, the strand of critical criminology I refer to—specifically the materialist sociology of punitive control—argues, in line with dialectical analysis, that the system's reproduction depends on a structural and necessary contradiction between declared principles and actual objectives. Within this conflict, positive law represents the static articulation of principles, standing in contrast to a scientific account of real processes.

This awareness, however, does not mean that legal hermeneutics is a futile exercise. I have already refuted the view that political radicalism should be measured by the discursive rejection of legal arguments and categories[51]. Drawing on Baratta's teachings, the issue is not *rights* themselves, but their supposed universality; similarly, the issue is not the concept of crime, but the selective way it has historically emerged and is applied[52]. Whether overcoming this apparent universality and punitive selectivity will ultimately require a societal transformation in which these concepts wither away as they gradually lose their function is a question beyond the scope of this research, and one that remains a challenge for future societies. In sum, recognising the structural injustices embedded in law and the penal system does not preclude the analytical use of legal definitions and categories. When employed solely for conceptual clarity and argumentative coherence, such categories need not imply endorsement of the normative judgments they carry.

While fully aware of the inadequacy of positive law and legal hermeneutics for scientifically describing social reality, normative production should be treated as empirical data, to be analysed according to clear, non-arbitrary rules. Only by correctly establishing its meaning can we critically appreciate the gap between the two conflicting terms: the static element (positive law) and the dynamic one (the

51 Gatti, C. (2023), *op. cit.* Perhaps a significant factor is that the Italian-Spanish tradition has been notably shaped by the contributions of numerous scholars with an originally legal background. Think of Bricola, Baratta, Bergalli, Pavarini, Melossi and Juan Bustos.

52 In the same vein, the less famous – yet important, if I may be permitted a personal reference – Professor Giuseppe Ugo Rescigno, who until his last lecture strove to define the terms of coexistence between legal science and revolutionary politics. See Rescigno, G. U. (2011). L'ultima lezione. Come ho pensato di poter conciliare la politica rivoluzionaria e la scientificità della professione di giurista. *Costituzionalismo.it*. https://www.costituzionalismo.it/lultima-lezione-come-ho-pensato-di-poter-conciliare-la-politica-rivoluzionaria-e-la-scientificita-della-professione-di-giurista/

reality of the system). Baratta, in his anti-formalist definition of the penal system, recognises the static rule complex as a fundamental subsystem within the broader dynamic system. Legal dogmatics is crucial in the professional training of judges and other cadres, as it directly influences criminal legislation. It provides the logical categories that help rationalise official decisions shape the criminal policy[53].

In conclusion, engaging in legal analysis and exploring dogmatic issues is not a renunciation of radical positions, but a necessary step to examine the system's dialectical contradiction by clarifying one of its conflicting terms. It also helps identify internal contradictions within the 'subsystem' of positive law, even before evaluating its dialectical relationship with social reality. This is the aim of my attempt in Chapter 6 to interpretatively outline a normative framework for PP, identifying areas of void and points where misconceptions—originating outside legal science—are most clearly reflected. In keeping with this approach, my proposal to challenge secrecy claims and interpret the general principles underpinning the legal system is intended to demonstrate that legal analysis can generate countermeasures which, while remaining within the bounds of the existing normative framework, may nonetheless represent progress under its internal logic. Crucially, these arguments rely on the legal system's own interpretive resources. As such, their rejection would risk exposing the system to a deeper legitimacy crisis, since the refusal could no longer be attributed to intrinsic normative constraints. In this sense, although less radical in appearance, these arguments may nonetheless prove disruptive in practice—precisely because they cannot be dismissed as external or ideologically driven.

A final remark concerns the scope of disciplinary engagement. While spatial conceptualisations play a significant role in this research, the dissertation does not engage with the critical geography literature as a direct theoretical target. This is acknowledged as a limitation, but also as a theoretically grounded choice. Spatial categories are mobilised to challenge the presumed difference in invasiveness and political significance between person-based and place-based prediction, exposing the ideological and legalistic framing of this dichotomy. In line with the critical criminological tradition adopted here, this forms part of a broader struggle—primarily legal and criminological, rooted in a materialist critique of penal ideology. Here, transdisciplinary engagement is conceived as chiefly instrumental to that critique, rather than a direct contribution to other disciplines' theoretical development. That said, the work selectively draws on insights from critical geography and urban studies—such as Kindynis' critique of criminological cartography, Smith's analysis of urban securitisation, and Tulumello's reflections on

[53] Baratta, A. (1980). *Op. cit*., p. 31.

PP and smart city governance—specifically where these can be directly integrated into the legal and criminological argument. These references are not intended to advance the geographical debate, but rather to support the critique of legal and criminological rationalisations. In this sense, the approach seeks to treasure those insights from geography that are immediately relevant to the argument developed here, while fully acknowledging both the broader richness of the geographical literature and the limits of the author's expertise.

2.3 On 'Security' and the Critical Theory of Police Power

As discussed in the previous section, critical criminology offers a solid foundation for integrating policing into the study of the penal system. When parsing PP practices through this lens, an intuitive question arises: do algorithmic predictions reinforce the rationalisation inherent in the promise of formal equality at the law-making level by adding a layer of technical 'objectivity'? This would be not entirely new, but rather a continuation of the 19th-century trend where, influenced by utilitarianism and positivist philosophy, "*crime statistics carried the promise of attaching reason to the modern criminal justice system*"[54].

Yet, given the centrality of police power in this dissertation, a more focused theoretical engagement—beyond the general insights offered by critical criminology—is required. Neocleous' critical theory of police power (hereafter: police power theory) provides the most coherent reconstruction aligned with the materialistic-dialectical interpretation of the penal system outlined above[55], identifying the historical essence of police power not in a reactive law-enforcement body as it appears today, but as a key player in actively shaping the capitalist order.

This perspective helps concretise the content of penal selectivity raised by critical criminology and highlights the inherently pre-emptive nature of police power, showing its continuity with the predictive ambitions of PP, rather than indicating qualitative breaks. Such an understanding assumes the centrality of 'security' in the foundation of

54 Završnik, A. (2017). Algorithmic Crime Control, in *Id*. (Ed.) *Big Data, Crime and Social Control*. Routledge, p. 133.

55 For a proposal on reconciling Neocleous' 'critique of security' and Baratta's 'security of rights', see my contribution Gatti, C. (2025a). Myths and narratives of predictive policing: An approach from radical criminology. In J. Bonet Pérez et al. (Eds.), *IV and V UB International PhD in Law and Political Science Conference* (pp. 137-164). McGraw Hill. The alignment is reinforced by the common rebuttal, following a Benjaminian stance, of the 'law-violence' dichotomy upheld by legal ideology to abstract the Rule of Law from its origins in class domination.

the liberal state and bourgeois thought, far beyond what is usually recounted. As Marx posits, security is the most fundamental and "*the highest social concept of civil society*"[56]. It is worth noting that Neocleous' view on security as the backbone of the capitalist state diverges from Agamben's notion of 'exception', despite their shared critique of liberalism. For Agamben, the permanent state of emergency, which shapes the modern understanding of security, represents a distortion where temporary exceptional measures become normalised[57]. In contrast, Neocleous argues that emergency powers have always been part of the rule of law as a way to manage capitalist modernity, noting that 'emergency' etymologically refers to that which emerges from concealment, rather than arising from non-existence.

The semantic trajectory of 'security' evolved from a personal state of tranquillity in the ancient world to a more complex and often negative notion in Christian thought, before re-emerging as a political concept in the early modern state[58]. The term derives from the Latin *securitas*, a combination of *sine* (without) and *cura* (concern), which corresponds to a state of untroubledness and inner peace of mind (*tranquillitas animi*)[59]. The political dimension, however, was associated with the term *salus*, hence the formula "*salus publica populi romani*" and 'Salus', the Roman goddess of public welfare[60]. With the rise of Christianity, *securitas* acquired a more negative connotation. The translation of *cura* shifted to 'care' (rather than 'concern'), leading to '*sine-cura*' being pejoratively associated with carelessness and a false sense of peace, due to the illusory nature of earthly security. Meanwhile, *salus* lost its political specificity and became part of the vocabulary of soul salvation.

During the Renaissance and early Modern Age, as political power progressively secularised, 'security' re-emerged in political thought and discussions about state and social order, reflecting the needs of the rising bourgeoisie.

56 Marx, K. (1994). 'On the Jewish Question.' In J. J. O'Malley (Ed.), *Marx: Early Political Writings* (pp. 28–56). Cambridge: Cambridge University Press, p. 46.

57 Agamben, G. (2005). *State of Exception*. Chicago: University of Chicago Press.

58 Neocleous, M. (2019). Securitati perpetuae: Death, fear and the history of insecurity. *Radical Philosophy*, (206), 19-33.

59 With a clear etymological understanding, Pavoni and Tulumello, within a Spinozian-inspired ontology that redefines the necessity-freedom dichotomy, introduce the concept of '*cum-cura.*' This affirmative conception transcends a merely critical approach to security, aiming to reject the exaltation of individualistic freedom while preserving the *caring* connections within society. Pavoni, A., & Tulumello, S. (2023). *Urban Violence: Security, Imaginary, Atmosphere*. London: Lexington Books.

60 Smith, W. (1872). *A Dictionary of Greek and Roman biography and mythology.* London: Murray, p. 702. https://www.digitale-sammlungen.de/en/view/bsb10997258?page=12,13

For example, Hobbes, in his social contract theorisation, describes insecurity as the fear of violent death, which underpins the creation of the state. He asserts—uncontroversially, even for liberals—that the only solution to insecurity is a contract exchanging our obedience to the Leviathan for the security provided.

The same notion of security overriding liberty is also present in the works of other liberal authors typically said to root sovereignty and political power in the consent of the people. Indeed, later social contract doctrines suggest, under a libertarian veneer, that we must forgo a certain amount of liberty in our pursuit of security. Locke, Montesquieu, Smith, and Bentham, among others, ultimately prioritise security and the reason of State—in a manner bordering on the Machiavellian—when theorising the sovereign's extra-legal prerogative for acts of necessity. Interestingly, with the sole proviso of the good of the people (*salus populi*), they assert that no one can object to the activation of exceptional powers[61].

The difference in how explicitly this concept is presented by Hobbes compared to other classical authors lies in the historical context. Hobbes writes during a period of profound social upheaval (the Civil War) and is wholly dedicated to providing theoretical justification for the victory of the emerging dominant class, which was still in formation. By contrast, authors writing after the consolidation of the capitalist order tend to reflect a more conservative stance toward this already secured victory.

Nonetheless, they all share the same class interests and a primary concern for security, which involves stabilising market mechanisms and protecting property, both threatened by the new mass-scale poverty.

As a regime of social insecurity, capital demands security politics that function as mechanisms of domination rather than as vehicles for universal values. The greatest virtue of 'security,' promoted as an endless (and thus never fully achieved) process, is that it can justify a wide range of measures. By asserting that security techniques—more than philosophies of liberty— lie at the core of liberalism, police power theory challenges the view of police as merely reactive and straightforwardly coinciding with the State organ responsible for enforcing law.

The latter narrowed meaning reflects the reduced remit due to the functional differentiation that emerged in the wake of liberal revolutions, particularly throughout the 19th century. This process fragmented the former 'general police' powers into specialised state branches (e.g., medical police, poverty police, food police), ultimately narrowing the meaning of 'police' to crime repression.

61 In Locke, this is the function carried out by 'prudence'. See Neocleous, M. (2008). *Critique of security*. Montreal: McGill-Queen's University Press, p. 20. https://doi.org/10.1515/9780748632329

However, akin to the obfuscation of security's primacy in liberal projects, depicting police power solely in conservative terms is a misrepresentation that reflects a pacified phase, where maintaining the *status quo* replaced the original goal—at the dawn of the modern state—to transform social relations. Conventional accounts overlook that police mechanisms of less eligibility were crucial in violently separating the poor from any means of subsistence other than wage labour. The specific contribution of police power to primitive accumulation involved the systematic, targeted criminalisation of previously tolerated behaviours and customary rights that could interfere with this goal[62], leading to a legal distinction between criminal and justifiable forms of poverty based on the ability to work.

The original extensiveness of 'police', merging with political economy and general government activity, aligns with Aristotle's notion of *politeia* and the Latin *politia* ('government of the city'). This is evidenced by the semantic trajectory in normative production and in art-of-governance literature during the 17th and 18th centuries[63]. In France**,** as early as the 16th century, the term *Police Générale* was synonymous with the king's activity[64]. At the beginning of 17th century, Bodin uses police interchangeably with good order and general rule-making power[65]. In the 1667 Edict creating the Police Lieutenant in Paris, quoted in Delamare's 1705 *Traité*, 'police' primarily concerns economic order and includes "*assuring the repose of the Public and of private individuals purging the city of whatever can cause disorders, in procuring abundance, and in making each live according to his station and his duty*"[66]. The diverse items listed in the Edict under police authority share the common goal of serving the king and the public good. Consistently, 'police' is distinguished from the conservative concept of 'justice', corresponding

62 This synergy between criminal policy and primitive accumulation is already outlined in Chapter 28 of *Capital* which discusses the wave of 'Bloody legislation' in Europe from the end of the 15th century. See Marx, K. (1909). *Capital: A critique of political economy. Volume I: The process of capitalist production* (S. Moore & E. Aveling, Trans.; F. Engels, Ed.). Chicago: Charles H. Kerr and Co.

63 Campesi, G. (2016). *A genealogy of public security: The theory and history of modern police powers*. Abingdon, Oxon; New York, NY: Routledge.

64 Bodin, J. (1583). Les six livres de la République. In G. Mairet (Ed.), *Un abrégé du texte de l'édition de Paris de 1583* (1993). Paris: Librairie générale française. https://classiques.uqam.ca/classiques/bodin_jean/six_livres_republique/six_livres_republique.html

65 Loyseau, C. (1608). *Traité des seigneuries*. Paris: A. L'Angelier. https://gallica.bnf.fr/ark:/12148/bpt6k87007971

66 Delamare, N. de (1705). *Traité de la police. Tome premier, où l'on trouvera l'histoire de son etablissement, les fonctions et les prerogatives de ses magistrats; toutes les loix et tous les reglemens qui la concernent*. Paris: J. et P. Cot. p.147. https://gallica.bnf.fr/ark:/12148/bpt6k1098988

to the simple application of law (the *iurisidictio* of the Latin tradition). Colbert, cited by Foucault, confirms the centrality of labour regulation by plainly stating that the first principle of police is the secret by which all the rich make all the poor work[67]. The same theme recurs also in Russia, where Peter the Great's coeval (1724) definition of police reads "*what compels each to labour and honest industry, drives out disorderly and useless modes of life, and is the fundamental support of human security and comfort*"[68].

In Germany, the distinction between the conservative function of legal rationality (*Iurisdictio* or *Ius Commune*) and *Ius Politiae* as a propelling force for good order and general welfare of society reaches its fullest expression thanks to Cameralist Science and *Polizeiwissenschaft*. These schools drew from the practice – established since mid-17th century– of police ordinances as tools of social reform to support changes in the structure of the Prussian State and property schemes[69]. In 1723, Halle University institutionalised the first chair of 'Economic Police' and in 1731, Justus Dithmar published the first study manual on the subject, grouping 'Economic, Police, and Cameral Sciences' under the same heading[70]. For Cameralists, economic management, market policing, and maintaining state power were unified goals and a single field of analysis. Therefore, the theorisation of *Ius Politiae* in Germany is deeply influenced by eudaemonist justifications of sovereign's absolute power, which also inspired Von Justi, the father of *Polizeiwissenschaft*[71]. In his work police

67 Foucault, M. (2006). *History of madness* (J. Khalfa & J. Murphy, Trans.). London: Routledge.

68 Peter the Great (1724). *Regulation of the Main Municipal Administration*, cited in Neocleous (2018), *op. cit*., p. 894.

69 This clarifies why 'Policy' in the German tradition designated both the formal rules dictated by territorial institutions, and also everything contributing to the State's welfare through the wisdom of rules and the augment of its power. See Campesi, *Op. cit.*

70 Dithmar, J. C. (1731). *Die Oeconomische Fama: Von allerhand zu den Oeconomischen- Policey- und Cameral-Wissenschafften gehörigen Büchern, außerlesenen Materien, nützlichen Erfindungen, Projekten, Bedencken, und andern dergleichen Sachen*. Franckfurth und Leipzig: Bey Johann Gottfried Conradi. https://www.digitale-sammlungen.de/en/view/bsb11408508?page=,1

71 Justi, J. H. G. von. (1759). *Grundsätze der Policey-Wissenschaft: zum Gebrauch Academischer Vorlesungen abgefasset*. Göttingen: Vandenhoeck. https://www.digitale-sammlungen.de/en/view/bsb11278323?page=,1. For a typically eudaemonist approach in the foundation of *Ius Politiae* see Wolff, C. (1740). *Ius naturae methodo scientifica pertractatum: De dominio utili*. Frankfurt and Leipzig: Prostat in officina libraria Rengeriana. https://books.google.be/books?vid=GENT900000136936&printsec=frontcover#v=onepage&q&f=false

science was the first part of the *Oekonomie* of the state, and some decades later, Hegel still placed the police power at the core of legal philosophy[72].

While the concept of police remained less developed in England than in 17th- and 18th-century Germany and France, certain parallels can nonetheless be observed[73]. For example, in Thomas Starkey's work, where '*Pollycy*' and Commonwealth overlap, suggesting a creative function rather than just preserving order[74]. Even Adam Smith employs the term police in a notably constructive—almost Cameralist—sense in his *Lectures of Jurisprudence*[75]. A key aspect of English production is the clear integration of police with issues of labour and poverty, exemplified by William Blackstone's joint cataloguing of "offences against the public police and the oeconomy" in the *Commentaries on the Laws of England*, where police is defined as the "*due regulation* […] *of the Kingdom whereby citizens are bound to conform their general behaviour to the rules of propriety, good neighbourhood, and good manners; and to be decent, industrious, and inoffensive in their respective stations*"[76]. It is no coincidence that in England, thanks to later police theorists like Bentham, Chadwick and Colquhoun, 'crime' as a guilty survival strategy of the indigent poor achieves its full conceptual development; a topic I address in detail in my first research paper.

The main takeaway from this digression is that the inception of police power is not about eradicating crime, but eliminating any disorder that threatens the smooth deployment of economic flows[77]. Consequently, the origins of police do not lie in a single specialised institution, but in a range of activities encompassing the regulation of labour, welfare reforms and all facets of the organisation of subsistence in a top-

72 Neocleous, M. (1998). Policing the system of needs: Hegel, political economy, and the police of the market. *History of European Ideas*, *24*(1), 43–58. https://doi.org/10.1016/S0191-6599(98)00009-6

73 *Ibidem.*

74 Starkey, T. (1871). *England in the reign of King Henry the Eighth: A dialogue between Cardinal Pole and Thomas Lupset, lecturer in rhetoric at Oxford; with an appendix, giving an abstract from Sir William Forrest's pleasaunt poesye of princelie practise, 1548* (S. J. H. Herrtage & J. M. Cowper, Eds., Vol. 12). London: Trübner. (Original work published 1548). https://www.digitale-sammlungen.de/en/view/bsb10748456?page=,1

75 Smith, A. (1978). *Lectures on jurisprudence* (R. L. Meek, D. D. Raphael, & P. G. Stein, Eds.). Oxford: Clarendon Press; Oxford University Press.

76 Blackstone, W. (1770). *Commentaries on the laws of England: In four books* (4th ed., Vol. 4). Oxford: Clarendon Press, p. 168.

77 For an account of police being an institution of the market in the broad sense, tackling the primary problem of vagrants in the circulation of men and goods, see Foucault, M. (2007). *Security, territory, population: Lectures at the Collège de France, 1977-1978* (M. Senellart, Ed.; F. Ewald & A. Fontana, Gen. Eds.). Basingstoke: Palgrave Macmillan, p. 335.

down class struggle, waged in the name of security and constitutive of the modern state. Even after the functional differentiation of police powers and the replacement of the idea of *Police Générale* with that of Security Police, the issue of poverty remained central for all police theorists and social reformers engaging in the definition of 'crime'. Hence, the persistent emphasis on pauper police[78], the relentless enacting of poor laws and vagrancy laws throughout the entire 19th century, and crime repression guided by a less eligibility rationale to ensure that wage conditions were systematically, albeit slightly, above treatment in penal institutions and workhouses (see substudy 1).

2.3.1 Methodological implications

Before moving on to the discussion about the role of technology within the epistemological framework of the research, the points established in the detour on police power serve to connect important dots in the overall research design.

Firstly, adopting a materialist critique of police power significantly shapes how we distinguish between epistemological continuities and ruptures, as well as between essential and contingent aspects of police practices. These distinctions must be systematically benchmarked against what is understood as the foundational logic of police power. This does not imply, of course, that policing and its phenomenology have remained unchanged over the past two or three centuries. However, as a methodological guide, the analysis must examine the relationship that modern forms establish with their precursors, assessing to what extent they preserve the original nucleus. One example concerns evaluating the epistemological significance of different predictive models. Influential authors assert the existence of different PP epistemologies by observing the use of various statistical models in pattern building[79], or "*many styles of prediction, each driven by their own arguments and epistemic approaches to crime*"[80]. Nonetheless, from the intersection of critical criminology and police power theory, it follows that there cannot be any epistemological break – at least in the sense outlined by Kuhn[81] — between initiatives firmly situated within the same aetiological paradigm of crime. These

78 Colquhoun, P. (1799). *The state of indigence, and the situation of the casual poor in the metropolis, explained*. London: Baldwin and Son, Bridge-Street, Blackfriars.

79 Haelterlein, J. (2021). Epistemologies of predictive policing: Mathematical social science, social physics and machine learning. *Big Data & Society*, *8*(1). https://doi.org/10.1177/20539517211003118

80 Kaufmann, M., Egbert, S., & Leese, M. (2019). Predictive Policing and the Politics of Patterns. *British Journal of Criminology*, *59*(3), 680. https://doi.org/10.1093/bjc/azy060

81 Kuhn, T. S. (2012). *The structure of scientific revolutions* (4th ed.). Chicago: University of Chicago Press.

initiatives share the same objectives, use the same justifications, assume crime ontology to enable predictability, and reproduce the same social selectivity in their targets. They might be, at best, internal avenues of a single epistemology.

Another example is the supposed shift—often attributed to predictive technologies—from *ex post* prosecution to increasingly pre-emptive policing[82]. This thesis holds only if one assumes that criminal law rationalisations fully reflect empirical reality. However, while critical criminology shows that legal categories often engage in dialectical contradiction with the scientific description of real-world situations, police power theory clarifies that security is primarily about maintaining 'good order' (rather than 'crime') and involves suspecting certain categories of people based on their condition[83]. For example, *broken windows theory*, often cited as a touchstone by PP theorists, shows how police intervention focuses on finding "*disorderly people*" and categorising them, based on the evidence of means of support, into regulars and strangers[84]. Vagrancy laws and criminal policies concerning livelihood modalities like begging, vagabondage, or customary rights of certain worker categories at the origins of modern police power clearly contradict the principle that a person shall be prosecuted only after proof of crime commission. The 'crime' label is merely an after-the-fact justification that the legal system needs to maintain its internal coherence. Tellingly, Bentham states in his theory of legislation that "*Security is the only object of the law which necessarily embraces the future*"[85]. In summary, beyond the strictly ex post justification of criminal law in its static dimension within the positive law system, police power emerges to serve a contrasting purpose. Ultimately, the pre-emptive vocation of PP reflects continuity with traditional police modalities, rather than a rupture.

Secondly, within the same understanding of security, another methodological implication is the rejection of presumed hierarchies of intrusiveness between person-based and place-based predictions. This approach often reflects a legalistic view, built on the individualistic framework of 'privacy/civil liberties *vs* profiling', which assigns inherently higher intrusiveness to individual risk assessment. In the following pages (and in my research articles), I strive to demonstrate how both place-based and person-based approaches to crime prediction account for two theoretical

82 Vogiatzoglou, P. (2025). *Mass data surveillance and predictive policing: Contested foundations and human rights impact*. Routledge.

83 Neocleous, M. (2021). *A Critical Theory of Police Power. The Fabrication of Social Order*. London: Verso, p.25.

84 Wilson, J., & Kelling, G. (1982). Broken windows: The police and neighborhood safety. *Atlantic Monthly*, 3, p. 29.

85 Bentham, J. (1931). *Theory of Legislation* (C. K. Ogden, Ed.). London: Routledge & Kegan Paul Ltd, p. 96.

timelines with considerable overlap and interchangeability. The reality is that their ideological systematisation follows different paths due to merely practical contingencies: the person-based approach, being closer to forensic practice, draws more from theories of punishment, while the place-based approach directly derives from crime mapping, that is, police science in its purest form. This confirms the deep connection between the place-based perspective and the essence of police power, as well as its direct link to 'security' as a process aimed at creating the environmental conditions for the unhindered deployment of capital flows.

The physical setting of the demographic phenomena that inspire an indigence-centred notion of crime—and orient crime mapping—is the urban space, more precisely, the industrial city. The political function of police power is inextricably linked to geographic and spatial control. The same Latin verb "*polire*", from which *politia* derives, not only carries the generic meaning of "to polish" but also has a more specific connotation of "to clean a field". The link between police science as a statecraft branch and spatial rationalisation is particularly evident in the key role of police theory within the colonial project[86]. Colonies were regarded as a blank slate, malleable from scratches according to an idea of spatial order theorised in the motherland. This underscores the ancestral concern of police science with the active ordering of space, rather than individual-based analyses of criminogenic characteristics. These reflections may seem counterintuitive and outside the scope of criminal law. However, this does not justify the misleading idea that place-based initiatives, as true heirs to the political mission of police power, are inherently softer, less invasive, and more concerned with rights compliance.

2.4 The (social) role of technology: on the 'autonomy' and 'intelligence' of AI

From what has been illustrated thus far, it is already clear that the technological medium is not the centre of analysis. While recent debates tend to equate PP with cutting-edge AI applications, it is important to recall that, for most of its history, PP has relied on simpler algorithmic technologies rooted in statistical inference. The integration of AI is a relatively recent development, and the critique advanced here targets the broader historical trajectory of automation in policing (see next chapter).

This position draws not only from critical theories of policing and CJS, but also from a materialist critique of automation itself—one that exposes the ideological function of technological mediation in reproducing penal selectivity, given that

86 Wilson, D. (2021). Bentham in the colonies. In S. Jacques & P. Schofield (Eds.), *Jeremy Bentham on police* (pp. 233-252). UCL Press. https://doi.org/10.2307/j.ctv1kwxfkz.24

neither the ambition to predict crime nor the appeal to calculation-based objectivity are innovations introduced by AI.

This historically grounded, technology-decentred lens also contests the dominant narrative of technology-led rupture. While not originating with AI, this narrative has been significantly amplified by recent developments in AI technologies and, in the specific context of policing is often framed as an unprecedented shift'[87].

Such 'Copernican revolution' rhetoric—fuelled by the mythologised vision of IT reshaping society—warrants careful scrutiny, as it tends to obscure the continuity of control logics behind the adoption of new tools. It is also, incidentally, the most advantageous to tech companies, driven by a marketing push to boost product appeal[88]. When this narrative is accepted, critique tends to collapse into apocalyptic warnings of AI spiralling out of control, reinforcing the myth of a self-directed technological force[89]. Cugurullo notes that *animism*—the attribution of lifelike qualities such as consciousness and volitional actions to machines—has historically characterised all major technological revolutions. It is often easier to believe in a machine's animus than to grasp the social significance of how machines operate. Animism ultimately serves as an explanatory shortcut to make sense of AI, concurrently feeding back into the '*AI-out-of-control*' discourse.

The latter represents an AI-adapted version of the long-standing debate on the 'alignment problem'—the question of whether technology can align with human values and goals[90]. Its persisting relevance is underscored by recent interventions, such as the 2023 Future of Life Institute (FLI)'s open letter, signed by prominent tech industry figures. The letter mentions systems that could pursue self-assigned goals with little regard for human rights, safety, or, in extreme cases, human existence[91]. Yet, positions both for and against AI, when detached from socio-

87 This also resonates with Europol's claim that PP is "a transformative approach to law enforcement" (*op. cit*., p. 17).

88 Lombardo, P. E. (2021). *I vantaggi dell'intelligenza artificiale nel settore pubblico e privato* [Video]. Inside Marketing. https://www.youtube.com/watch?v=-eFidMr5S40

89 Cugurullo, F. (2024). The obscure politics of artificial intelligence: a Marxian socio-technical critique of the AI alignment problem thesis. *Ai and Ethics*. https://doi.org/10.1007/s43681-024-00476-9

90 Winner, L. (1977). *Autonomous technology: Technics-out-of-control as a theme in political thought*. Cambridge, MA: MIT Press.

91 Future of Life Institute. (2023). *Pause giant AI experiments: An open letter*. https://futureoflife.org/open-letter/pause-giant-ai-experiments/

technical analysis, represent two sides of the same techno-fundamentalism, where AI is either the ultimate solution or the root of all problems[92].

From a broader political perspective, Lazzarato argues that automatisms, especially in times of austerity and emergency, require periodic updates through forms of subjectivation—never impersonal, but enacted via technocrats, experts, and commissioners—as pure automatism alone cannot sustain the political machine[93]. In resonance with Neocleous, and critiquing Foucauldian readings of liberal governmentality, Lazzarato concludes that the idea of pure automation is ultimately the idealist vision of pacified governance. This highlights the need to analyse technological components within the ideological frameworks that shape them. Using Madrid Casado's lexicon in his philosophy of AI[94], it is essential to address the "nematological" aspect of technology.

Accordingly, this work outlines a materialist approach to automation and AI—and their ethical and legal implications—along two analytical axes. *First*, automation and computational tools, far from being biomorphic imitations of the human brain, historically mirror the organisation and division of labour in society[95]. Technological development follows the division of labour, not the reverse. Biomorphic analogies are retrospective rationalisations, aiming to naturalise the processes embedded in technology design. As early as 1776, Adam Smith observed that "*the invention of all those machines by which labour is so much facilitated and abridged seems to have been originally owing to the division of labour*."[96]

Second, the biomorphic approach often relies on an abstract, disembodied and procedural—one might say 'algorithmic'—notion of biological intelligence, used to justify the artificial mimicry of a pristine 'natural' specimen. However, human intelligence is itself artificial, intertwined with institutions such as education,

92 This stance often goes hand in hand with the thesis of AI singularity. Floridi, L. (2022). Ultraintelligent Machines, Singularity, and Other Sci-fi Distractions about AI. *Lavoro, Diritti, Europa*. SSRN. https://doi.org/10.2139/ssrn.4222347

93 Lazzarato, M. (2021). *Capital hates everyone: Fascism or revolution*. MIT Press.

94 Madrid Casado, C. (2024). *Filosofía de la inteligencia artificial*. Oviedo: Pentalfa.

95 Fuchs, C. (2021). *Engels@200: Friedrich Engels and Digital Capitalism*. tripleC: Communication, Capitalism & Critique, 19(1), 15-51. https://doi.org/10.31269/triplec.v19i1.1233; Pasquinelli, M. (2023). *The eye of the master: A social history of artificial intelligence*. London: Verso Books.

96 Smith, A. (2001). *An Inquiry into the Nature and Causes of the Wealth of Nations* (p.24). (Original work published 1776). London: Electric Book Co. Marx also used this argument, known as the labour theory of machine, in his polemic against Proudhon and in the Grundrisse. See Marx, K. (1993). *Grundrisse: Foundations of the Critique of Political Economy* (M. Nicolaus, Trans.; Original work published 1857-1858). London: Penguin.

books, desks, and externalised in objective devices that transcend individual insights (e.g., stills, magnifying glasses, blackboards). Recognising this, the materialist conception of intelligence replaces *a priori* intellect[97] with the operational corporeality of the subject. *Logos* is enacted by the physical interaction with the world mediated by labour, with the body serving as the primary medium of calculation. Speaking is the modulation of sound through the movement of our vocal apparatus[98]. Engels had already intuited that it was the growing development of labour and joint activity that led "*men in the making to the point where they had something to say to each other",* so that *"necessity created the organ; the undeveloped larynx of the ape was slowly transformed to produce increasingly developed modulation, and the organs of the mouth gradually learned to pronounce one articulate sound after another*"[99].

Similarly, numeration did not originate from a priori numbers but from the need to measure scarcity or abundance. Peter Damerow explains how early Mesopotamian societies developed numerical concepts through material engagement and the use of physical objects like clay tokens—a process that initiated a scaffolding of abstraction leading to numerical understanding[100]. Even the Latin term 'Algorithmus' reflects both a technical and economic shift caused by the acceleration of commercial exchanges. The word is actually the Latinisation of the Persian scholar Musa al-Khwarizmi, who introduced positional Hindu numerals to Western merchants.

Following the same line of analysis, the first computation project, harking back to the industrial age, was conceived by Charles Babbage, a political economist. He aimed to create an automated machine based on a differential engine to replace *computers*—office clerks who performed hand calculations for various government branches. The novelty, compared to earlier mechanical inventions, lay in attempting to replace highly intellectual processes to produce error-free logarithmic tables, thereby ensuring British dominance in sea trade. Interestingly, Babbage's automation sought not only to better organise labour but also to accurately measure labour costs and capital profitability.

97 Kant, I. (2003). *Critique of pure reason* (M. Weigelt, Trans.). London: Penguin Classics.

98 The relationship between speaking and manipulating was already pointed out by Plato in the Cratylus.

99 Engels, F. (2001). *The Part Played by Labour in the Transition from Ape to Man*. (Original work published 1895-1896). London: Electric Book Co.

100 See on this: McLaughlin, P., & Schlaudt, O. (2023). The Creation of Numbers from Clay: Understanding Damerow's Theory of Material Abstraction. *Cuneiform Digital Library Journal*, *2023*(2). https://cdli.mpiwg-berlin.mpg.de/articles/cdlj/2023-2; Pasquinelli, M. (2023). *Op. cit.*

Industrial computation thus developed both as an imitation of the division of labour and as a means of labour surveillance—not through a technological a priori, but through a social one. The key feature of industrial-age automation was the dispossession (i.e., alienation) of knowledge in the form of collective intelligence from labour[101]. By making it abstract computational knowledge, information becomes quantifiable in terms of workforce cost and performance. This was confirmed in the 1960s by Alquati's study of Olivetti factory, whose cybernetic apparatus was an extension of internal bureaucracy to monitor the production and encode workers' knowledge into digital bits[102].

The first known use of the term AI dates back to 1955, when John McCarthy proposed a workshop on "artificial intelligence" to be held the following year at Dartmouth. As the EU High-Level Expert Group (AI HLEG) acknowledges, the definition of AI remains controversial. Their working definition describes AI as "*Systems that display intelligent behaviour by analysing their environment and taking actions—with some degree of autonomy—to achieve specific goals*."

A recent EU regulation, the AI Act (Art. 3) defines an AI system as a *"machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments*."

101 Berg, M. (1980). *The machinery question and the making of political economy, 1815-1848*. Cambridge: Cambridge University Press. In Simondon's words: "*the industrial modality appears when the source of information and the source of energy separate: namely, when the Human Being is merely the source of information, and Nature is required to furnish the energy*." See Simondon, G. (2022). Technical mentality. In A. De Boever, A. Murray, J. Roffe, & A. Woodward (Eds.), *Gilbert Simondon: Being and technology* (p. 6). Edinburgh University Press. https://doi.org/10.1515/9780748645268-003

102 Williams, E. C. (2013). Invisible organization: Reading Romano Alquati. *Viewpoint Magazine*. https://viewpointmag.com/2013/09/26/invisible-organization-reading-romano-alquati/ For an in-depth look at the close relationship between the abstract definition of information and control revolution, see: Beniger, J. R. (1986). *The control revolution: technological and economic origins of the information society*. Cambridge, MA: Harvard UP.

Despite efforts to present AI as a unified scientific discipline[103], the term encompasses a wide range of technologies aimed at creating artefacts—whether software or machines—that perform tasks more efficiently than humans and without constant supervision[104]. McCarthy himself, in his proposal for the Dartmouth conference, used a goal-led definition based on the "*conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it*"[105]. His notion of intelligence aligned with Turing's proposal to replace the old question of whether machines can think with whether machines can perform tasks requiring intelligence, i.e., imitate actions commonly considered intelligent[106].

Besides assuming that intelligent acts are transcultural and universal, this notion reflects the procedural view of intelligence criticised above—one that contrasts with human intelligence as a set of abductive processes that cannot be fully computed[107]. It should not be neglected that the statistical measurability of intelligence, central to Turing's vision, originates from the psychometrics of eugenicist Francis Galton, while the properties of a technical system perceived as 'intelligent' under Turing's

103 Coeckelbergh, M. (2020). *AI ethics*. Cambridge, Mass: MIT Press. In the same veins, European Commission, AI HLEG. (2018). *A definition of AI: Main capabilities and scientific disciplines*. https://ec.europa.eu/futurium/en/system/files/ged/ai_hleg_definition_of_ai_18_december_1.pdf

104 Madrid Casado, *Op. cit.*

105 McCarthy, J., Minsky, M. L., Rochester, N., & Shannon, C. E. (1955). *A proposal for the Dartmouth summer research project on artificial intelligence*. http://jmc.stanford.edu/articles/dartmouth.html

106 Turing, A. (1950). Computing machinery and intelligence. *Mind, 59*(236), https://doi.org/10.1093/mind/LIX.236.433

107 The meaningfulness of Turing's test is effectively challenged by John Searle's Chinese room argument, which exemplifies the difference between syntactical (i.e., based on statistical associations) and semantic connections. Searle imagines himself in a room with a set of instructions for manipulating Chinese symbols. Although he doesn't understand Chinese, he can use the manual to respond to Chinese characters passed into the room in a way that makes sense to a native speaker. From the outside, he seems to understand Chinese, but in reality, he is just following syntactical rules without any understanding of the semantics. Syntactical connections are also the basic mechanism of LLMs like ChatGPT. Despite this, some authors claim that sparks of Artificial General Intelligence are traceable in these models: Bubeck, S., Chandrasekaran, V., Eldan, R., Gehrke, J., Horvitz, E., Kamar, E., Lee, P., Lee, Y. T., Li, Y., Lundberg, S., Nori, H., Palangi, H., Ribeiro, M. T., & Zhang, Y. (2023). *Sparks of artificial general intelligence: Early experiments with GPT-4*. arXiv. https://doi.org/10.48550/arXiv.2303.12712.

definition bear little relation to autonomy in the etymological sense of *autos* (self) and *nomos* (rule)[108].

Returning to the 1956 Dartmouth conference on AI, two key themes of the venue were the isomorphism with brain physiology and the fascination with information self-organisation. Isomorphic ideas were common among influential authors, such as von Neumann[109] and the economist Herbert Simon, a presenter at Dartmouth. Self-organisation theories captured the essence of Cold War rationality, as the study of the mind's self-organisation supported, by analogy, the political belief in the spontaneous order of markets. In the 1940s, 'self-organisation' gained support from the theses on the structure of biological neurons developed by Warren McCulloch and Walter Pitts, pioneers of artificial neural networks (ANN) and advocates for their application to the perception of auditory and visual forms through machines for automated pattern recognition[110]. Their proposal was not a claim of biomorphism but rather an inductive technique for data self-organisation[111].

The logic of self-organisation proved highly attractive to the US military, both as a principle of more efficient computation and decentralised networks. In the first sense, it was key to designing machines capable of transcribing and translating intercepted communications or recognising military targets in aerial imagery[112].

Furthermore, self-organisation underpinned decentralised networks like ARPANET (Advanced Research Projects Agency Network), the forerunner of the internet, and a major funder of AI research inspired by Dartmouth-era ideas. ARPANET's decentralised design enabled resource sharing among Pentagon-

108 Following Lazzarato (2021), *op. cit*., 'autonomy' applies instead to a slave, who could always rebel against instructions and conceive new rules. Thus, a slave's mutiny is not a 'malfunctioning' but a subjective problematisation that challenges the distribution of the possible and the impossible. In contrast, a machine's breakdown is always an opportunity to reorganise and reinforce the effectiveness of automation after the failure.

109 von Neumann, J. (2012). *The Computer and the Brain* (R. Kurzweil, Ed.; originally published 1958, 3rd ed.). New Haven: Yale University Press.

110 Pitts, W., & McCulloch, W. S. (1947). How we know universals; the perception of auditory and visual forms. *Bulletin of Mathematical Biophysics, 9,* 127–147. https://doi.org/10.1007/BF02478291

111 Pasquinelli (2023). *Op. cit.*

112 With this objective, the MIT AI Group began receiving significant funding in the 1960s. See: AIWS.net. (2021). This week in the history of AI at AIWS.net: MIT receives a $2.2 million grant in June 1963 from DARPA. *AIWS.net*. https://aiws.net/the-history-of-ai/this-week-in-the-history-of-ai-at-aiws-net-mit-receives-a-2-2-million-grant-in-june-1963-from-darpa/

funded institutions and addressed military concerns by ensuring that communication could continue even if parts of the network were compromised during an attack[113].

In this politically and militarily charged environment, Frank Rosenblatt developed the first statistical ANN, the perceptron, in 1957. It applied the principle that once a response is established, all connections leading to that response are strengthened ("*neurons that fire together, wire together*"), a foundational rule of self-organisation in modern machine learning. The challenge was enabling a statistical neural network for pattern recognition to generalise beyond training datasets.

Like McCulloch and Pitts' neural networks, the perceptron prioritised self-organisation of information over biomimicry. Its training algorithm followed a trial-and-error principle. Although its recognition capability was limited, its greatest virtue was being the first adaptive network capable of rewiring in different configurations to learn how to recognise patterns. Backed by the US Navy, the project reflected military interest in automating target classification—an idea already promoted in 1952 by neoliberal economist Friedrich Hayek, who viewed classification as the core cognitive faculty[114]. In his connectionist theory of human mind, Hayek tried to provide neoliberal principles with a natural justification by extending the decentralised topology *versus* centralised planning to the social domain. The enthusiasm for self-organisation culminated in a 1959 symposium on self-organising systems attended by both Hayek and McCulloch.

As with industrial-age automation, developments in ANN and machine learning mirrored the surrounding social order (sociomorphism), rather than aiming to replicate the human brain. Physiology served as a post hoc analogy to legitimise socio-technical projects. While the industrial age mechanised manual labour—and, with Babbage, mental labour—the perceptron sought to automate speculative faculties like recognition. This distinction roughly separates classical symbolic AI from inductive models, including today's data-driven approaches.

Symbolic AI focused on a deductive method with precise and abstract rules, suitable for mathematical operations or games, but ill-suited to the intricacies of most real-world problems. Inductive models, on the other hand, use probability

[113] Featherly, K. (2024). ARPANET. *Encyclopedia Britannica*. https://www.britannica.com/topic/ARPANET. The ARPANET scheme had its biological counterpart in Monakow's theory, which posits that brain functions are not confined to a specific area but are distributed throughout the brain. Consequently, an injured brain can recover cognitive functions through neural reorganisation ('diaschisis').

[114] F. A. Hayek. (2012). *The Sensory Order: An Inquiry into the Foundations of Theoretical Psychology*. The University of Chicago Press.

calculations based on statistical patterns—not predetermined but derived from analysing large datasets.

Despite this distinction, the historical overview reveals several key points that show the continuities between the two models, at least from a materialist perspective. For example, machines from both the industrial and information ages are trained through trial-and-error, based on objectives and external configurations within specific social relations. In other words, the current data-driven inductive approach has not led to a deeper understanding or a different concept of intelligence.

Similarly, the perceptron could not 'see' anything; it could only organise and associate its units adaptively, based on whether the sum of the input values reached a certain threshold.

The broader conclusion is that inductive models gained dominance over symbolic AI not because they better mimic brain structures, but because their flexibility more effectively captures the logic of social cooperation than deductive ones[115]. The significance of the perceptron lies in its role in expanding visual pattern recognition to non-visual data, including cultural and social datasets like pattern-of-life analysis, encoded within vast statistical correlations.

AI, in this view, is the outcome of a long process rooted in labour automation, leading to the increasing quantification of society through a consistent analytical notion of intelligence applied to individual and collective behaviours.

2.4.1 Methodological implications

A central methodological insight from the previous discussion is that a critical stance requires identifying the external social conventions that shape the initial selection of features (input variables) in predictive technologies[116] —those used to generate predictive outputs. This overarching orientation also entails interrogating the underlying notions of intelligence and autonomy, which are often taken for granted—or insufficiently examined—in relation to machines and AI.

Building on the reflections above on intelligence and autonomy (including the so-called ‘alignment problem’), a few brief remarks on the ethical dimension—or Technoethics, a term coined by Mario Bunge—may benefit the reader. The first observation is that a materialist approach to technoethics necessarily aligns with an anthropic perspective, recognising that what is often called 'AI ethics' or 'machine

115 Pasquinelli, *Op. cit.*

116 Favaretto, M., De Clercq, E., & Elger, B. S. (2019). Big Data and discrimination: perils, promises and solutions. A systematic review. *Journal of Big Data*, *6*(1), 1–27. https://doi.org/10.1186/s40537-019-0177-4

ethics' is actually machine-mediated human ethics[117]. For any ethical subjectivity to be meaningfully posited, comprehension must correspond to the practical and physical processes inherent in consciousness, as discussed above.

By contrast, ananthropic positions are consistent with agentic reconstructions of AI, to the detriment of a political analysis of (human) power imbalances behind technology design and deployment. It is no coincidence that advocates for the ethical (and even sentient) status of AI such as Brian Tomasik[118], a signer of the FLI open letter, and Nick Bostrom, who views ChatGPT as a personhood project with signs of sentience[119], support the thesis of the algorithmic nature of human intelligence.

From a practical perspective, shifting responsibility for AI outcomes away from human designers and implementers effectively shields major technology corporations from accountability. Contrary to Yuval Noah Harari's suggestion, if machine decisions are less flawed than ours, the decision-making process will not be progressively delegated to machines themselves, nor will machines come to control humans[120]. Rather, the delegation will be to the groups behind machines—allowing certain humans to govern others through technological mediation. This casts doubt on the sincerity of the 'AI-out-of-control' narrative, especially given that one key recommendation of the FLI open letter is "*a significant increase in public funding for technical AI safety research in* […] *alignment with human values and intentions*".

While further exploring the debate on the 'ethics of AI' would divert us from the research focus, these caveats aim to clarify the reasons for my anthropic approach to PP technologies. This is in addition to insights from critical criminology and the police power theory, both of which reveal the fundamentally human authorship of crime prevention strategies. Taken together, these perspectives also inform my non explicit adoption of the concept of algorithmic governance, which I address below.

Endorsing a materialist analysis of AI and technology helps establish two further (minor) implications, which jointly support the research methodology. *First,* urban space is where digital technologies collect vast amounts of data generated by intensified social interactions. The direct link between intensified social interplay

117 Madrid Casado, *Op. cit.*

118 Tomasik, B. (2014). *Do artificial reinforcement-learning agents matter morally?* arXiv. https://doi.org/10.48550/arXiv.1410.8233

119 Jackson, L. (2023, April 16). *What if AI sentience is a question of degree?* The New York Times. https://www.ekathimerini.com/nytimes/1208929/what-if-ai-sentience-is-a-question-of-degree/

120 Harari, Y. N. (2020, October 22). *Yuval Noah Harari: Panel discussion on technology and the future of democracy* [Video]. YouTube. https://www.youtube.com/watch?v=JfyIW9wRvB4&t=214s

and the development of both technology and the study of social phenomena is, of course, not new. However, keeping this observation in mind helps clarify that the focus on (urban) space is not about limiting the invasiveness of predictive technologies, as legalistic approaches might suggest. *Second*, although critical rationality (i.e., the rationality proper to critical criminology) rejects the model of the enlightened legislator guiding the scholar, it does not preclude the critical scholar from exposing misconceptions in legal countermeasures. In this spirit, I will address regulatory gaps and issues related to the ineffectiveness of legal guarantees, whose practical usefulness is severely compromised by ideologised accounts of algorithmic technologies and, consequently, the reality of PP practices. Even from a dialectical perspective, exposing the formal contradictions of the legal system helps reveal how flawed assumptions within specific law-making domains shape official policies—while recognising that law neither explains external reality nor resolves structural distortions.

Finally, a brief note is warranted on the concept of algorithmic governance, which has gained traction in recent years to describe the emergence of decision-making processes mediated by algorithmic systems[121]. While this notion offers valuable insights into the integration of digital and algorithmic infrastructures into the governmental, the present work does not explicitly adopt this framework. The concept often draws on—or is implicitly assumed to align with—a Foucauldian reading of power as diffuse and discursively enacted, which differs from the dialectical materialist framework underpinning this dissertation. Rather than treating algorithms as agents of governance (that is, governance enacted *by* algorithms), I analyse them as technical devices that objectify pre-existing social relations and reproduce penal selectivity. While some recent uses of the term attempt a materialist turn[122], the present work refrains from using it—not out of rejection, but out of caution—to avoid conflating distinct epistemological premises.

121 Hildebrandt, M. (2015). *Smart Technologies and the End(s) of Law: Novel Entanglements of Law and Technology*. Cheltenham: Edward Elgar Publishing. https://doi.org/10.4337/9781849808774; Rouvroy, A., & Berns, T. (2013). Algorithmic Governmentality and Emancipation Perspectives: Is the Disparate a Condition of Individuation Through Relations? *Réseaux (Centre National d'études Des Télécommunications (France))*, *177*, 163–196. https://doi.org/10.3917/res.177.0163; Yeung, K. (2018). Algorithmic regulation: A critical interrogation. *Regulation & Governance*, *12*(4), 505–523. https://doi.org/10.1111/rego.12158

122 Martineau, J., & Durand Folco, J. (2024). Vers une théorie globale du capitalisme algorithmique. *Nouveaux Cahiers du socialisme*, *31*, 56–67.

Table 2. Methodology Table.

THEORY	MAIN TAKES	METHODOLOGICAL IMPLICATIONS
'Intellectual craftmanship' (meta-theory)	- Methodological choices always entail a theoretical and epistemic positioning (*Critique of instrumental reason*) - Content and methodology can only be abstractly separated - Rejection of methodology's axiological emptiness	- Methodology, content and theoretical frameworks are inseparable - Need to link empirical content to a theoretical framework that situates it within social reality - Rejection of mannerism and rigid proceduralism, which fetishise method and technique
critical criminology	- Crime is a result of social-definitional processes - CJS reproduces itself by presenting an ideologised image of its functioning, which contrasts with its actual selective functioning	- The concept of crime is historically relative, varying across space and time to serve social selectivity - Legal analysis dissects structural conflicts between formal/static principles and the real functioning of the legal system
Police power theory	- The historical essence of police power lies in governing society and actively shaping the capitalist order, not reacting to crime. - In liberal political thought, security has consistently been prioritised over liberty. - Liberal security is a process primarily aimed at creating specific environmental conditions	- Security is oriented towards 'good order' rather than crime; police power is inherently future-oriented. Its pre-emptive vocation is not a break from traditional police modalities - Police science focuses on the active ordering of space, not individual crime prognosis. - Distinctions in invasiveness and lawfulness between person-based and place-based predictions are unfounded and ahistorical
Materialistic critique of automation, computation, and AI	- Automation and computational tools historically reflect the organisation and division of labour in society, rather than imitating the human brain. - The biomorphic approach posits an abstract, disembodied, procedural ('algorithmic') notion of biological intelligence	- Focus on identifying external social conventions embedded in algorithmic constructs, rather than on the technology itself. - Cities enable digital technologies to assimilate vast data from accelerated social interactions. Focusing on space is not about limiting the invasiveness of predictive technologies. - Critiquing misconceptions about technology's role in society exposes flaws in legal countermeasures.
Legal analysis (chapter 6)	- Interpretative reconstruction of the *de lege lata* framework for PP	- While aware of the structural conflict between formal/static principles and real functioning of the legal system highlighted by critical criminology, mapping legal gaps must build on a contextual understanding of the regulatory environment

3 Predictive Policing: Origins and Basic Concepts

3.1 Insights from the first thematisations of predictive policing

In this chapter, I provide a brief summary of the justifications employed by proponents of PP in the early 21st century, irrespective of their conscious or unconscious references to criminological theories or political doctrines. These justifications are, so to speak, surface-level rationalisations, closely tied to the context in which the initial discussions of PP emerged. Instead, the deeper theoretical foundations, specifically the criminological theories that have historically informed the concepts of crime predictability, will be covered in the next chapter, in order to assess their political function across different social and historical contexts[123].

The first documented use in literature of the term "predictive policing" dates back to a paper about police performance management published by the NYPD Commissioner Bratton and his lieutenant Malinovski in 2008, the year of the great financial crisis[124]. Consistent with the climate of austerity underpinning this first thematisation, PP is presented as a winning combination of computer-assisted metrics ensuring various benefits, among which are timely and cost-effective interventions that perfectly meet the stringent demands of economic recession. Since

[123] Further evidence of this historical continuity can be found in the ambition to "modernise" policing through business and managerial rationales—a recurring theme in the United States since the early 20th century. As Wilson shows, reformers such as Mack Sennett and Raymond Fosdick promoted administrative restructuring in line with industrial efficiency well before the digital turn. Their calls for reform were grounded in the belief that police agencies were antiquated and dysfunctional institutions, unfit for the demands of a modern industrial society. PP, also in this light, appears less as a rupture than as a rearticulation of older 'scientification' of police work—now refolded into the language of algorithms and austerity. See Wilson, D. (2020). *Predictive Policing Management: A Brief History of Patrol Automation*. University of Sussex. https://doi.org/10.3898/NEWF:98.09.2019

[124] Bratton, W. J., & Malinowski, S. W. (2008). Police performance management in practice: Taking COMPSTAT to the next level. *Policing, 2*(3), p. 264.

then, the concept has gained increasing attention in policing studies, with attempts at systematic definitions emerging in the first half of the 2010s.

Two of the most notable ones are "*the application of analytical techniques, particularly quantitative techniques, to identify likely targets for police intervention and prevent crime or solve past crimes by making statistical predictions*"[125] and "[…] *multidisciplinary law enforcement–based strategy that brings together advanced technologies, criminological theory, predictive analysis and tactical operations that ultimately lead to* […] *crime reduction, management efficiency and safer communities*"[126].

Abstracting from individual definitional attempts, the key elements common to all formulations feature: *a)* the use of algorithmic technology in performing non-manually replicable predictions[127]; *b)* the variation in predictive targets (algorithm outputs) between risk assessments of either places or individuals; and *c)* the procedural location of these predictions at the first contact with the CJS, specifically police prevention. This marks a fundamental difference from algorithmic techniques used in judicial decision-making. As noted above, the latter are usually related to decisions about the temporary or partial restoration of freedom for individuals already subject to the authorities' supervision, with the original encounter with the CJS not necessarily stemming from any algorithmic prediction. This does not negate significant parallels between AJ and, in particular, person-based PP

William Bratton, the lead author of the 2008 paper in which "predictive policing" first emerged in its specific meaning, played a pivotal role in the development and implementation of CompStat, standing for "Comparative Statistics", during his first tenure as NYPD Commissioner from 1994 to 1996. Indeed, the very title of the paper depicts PP as the evolution ("the next level") of CompStat. This was a data-driven management system developed in the early 1990s by the NYPD to collect, analyse, and map crime data daily, while also striving to enable more effective allocation of police resources based on geographic crime pattern analysis. Under the CompStat protocol, the NYPD held weekly meetings where precinct commanders presented their crime statistics and strategies, being held accountable for crime trends in their

125 Perry *et al*., *op cit*., p. 1. Although Perry also refers to solving "past crimes by making statistical predictions", the concept of PP today is inextricably linked to the projection of future events and cannot be confined to the evaluation of verifiable facts associated with a crime that has already taken place. This distinction is corroborated by the EU Artificial Intelligence Act (art. 5), which exempts from the ban on person-based PP the AI support in assessing the involvement in a crime that has already occurred.

126 Uchida, *op. cit.*, p. 3871.

127 Ferguson, *op. cit*. p. 1123.

areas[128]. CompStat became a cornerstone of the NYPD's strategy, and the use of data for decision-making in policing began to influence police departments across the US and beyond.

Referring to the institutional practices that backdropped the appearance of the term PP, it helps clarify how, while PP is often treated as a synonym for cutting-edge applications of AI, the integration of the latter is a relatively recent development. For much of its history—and certainly at its origins—PP relied on earlier algorithmic technologies rooted in statistical inference. Among the earliest and most emblematic examples of this phase are landmark programmes such as PredPol and Blue CRUSH, which can be seen as operational extensions of CompStat's logic. Both systems exemplify PP's early place-based orientation, using historical crime data and real-time analytics to guide police deployment. PredPol forecasted future incidents in specific locations based on historical crime patterns, while Blue CRUSH combined crime mapping with real-time analytics to guide police deployment in Memphis[129]. Their main purpose was to overcome the inefficiencies of random patrolling, replacing generalised mobility with targeted interventions—thus translating the managerial principles of CompStat into software-driven predictive tools[130].

128 Willis, J. J. (2014). Compstat. In G. Bruinsma & D. Weisburd (Eds.), *Encyclopedia of Criminology and Criminal Justice* (pp. 496–505). New York: Springer https://doi.org/10.1007/978-1-4614-5690-2_271

129 Blue CRUSH also contributed to a broader rationalisation of urban space, where predictive metrics became tools not only for operational optimisation but for the spatial redefinition of public order, aligning policing priorities with the imperatives of urban securitisation and market-driven governance. See: Tulumello, S., & Iapaolo, F. (2021). Policing the future, disrupting urban policy today: Predictive policing, smart city, and urban policy in Memphis (TN). *Urban Geography, 43*(3), 448–469. https://doi.org/10.1080/02723638.2021.1887634

130 Benbouzid, B. (2019). To predict and to manage: Predictive policing in the United States. *Big Data & Society, 6*(1). https://doi.org/10.1177/2053951719861703. For his part, Wilson (2020) *op. cit.* argues that PP emerged from the convergence of two managerial philosophies: CompStat and Problem-Oriented Policing (POP). Developed by Herman Goldstein, POP conceptualised policing as a professional problem-solving activity, explicitly drawing on business models to modernise police work. Goldstein famously described the officer as a "*professional problem solver*", with the resolution of certain behavioural and social problems constituting the very "*product*" of policing. Goldstein, H. (1979). *Improving policing: A problem-oriented approach*. *Crime & Delinquency, 25*(2), 236–258. https://doi.org/10.1177/001112877902500207. Following Wilson, CompStat absorbed POP's decentralised organisational vision, blending it with performance metrics and spatial analytics.

In terms of political imperatives, since Bratton and Malinovski's foundational article in 2008, the discourse on PP has increasingly adopted the lexicon of austerity through various appeals to the necessity of "[…] *intensely focusing limited police resources* […]*"*[131]. Systematic data collection was also conceived as part of police performance management to identify the causes for underperformance[132], thus confirming the basic materialist thesis that automation primarily mirrors the division of labour in society. Aligned with the austerity background and the optimisation of police work, another pillar emerged—the so-called 'marketing rationale'—a mindset whereby police agencies are encouraged to view the reduction in crime figures as companies view the generation of profit. In this analogy, reducing crime becomes the measure of success, just as profit defines success in the corporate world[133].

Against such a backdrop, the theoretical framework of PP takes root from the very beginning in crime situational theories and their variants, particularly the broken windows theory[134]. At a time when public security (and rehabilitation) started to be regarded as a cost to be reduced within the broader curtailment of the Welfare State, these surface-level rationalisations provided the ideal justification for cost-effective interventions focused on logistical countermeasures targeting repetitive and immediately observable behaviours typical of urban spaces. As critical urban geography has shown, this focus reflects not only technical feasibility but also a spatial logic rooted in ideological constructions of visibility, order, and control[135].

The marketing discourse intensifies with another seminal article from the same period by Beck and McCue[136]. While Beck, as a former LAPD chief, shares a trajectory similar to his colleague Bratton, it is noteworthy that Collen McCue is a behavioural scientist specialising in geospatial predictive analytics across various fields, including the military[137]. She has distinguished herself with assertions equating studying criminal behaviour and examining shopping patterns, insofar as people are creatures of habit and "*when you go shopping you go to a place where they have the things you're looking for […] the criminal wants to go where he will*

131 Bratton W. J., & Malinovski, S. W., *op. cit*. p. 260.

132 *Ibid*., p. 262

133 *Ibid*., pp. 263-4.

134 *Ibid*., p. 261.

135 Smith, N. (1996). *The new urban frontier: Gentrification and the revanchist city*. London: Routledge

136 Beck, C., & McCue, C. (2009). Predictive policing: What can we learn from Wal-Mart and Amazon about fighting crime in a recession? *Police Chief*, 76(11), 18-24.

137 Data Smart. (2013, May 8). *Dr. Colleen McCue: A pioneer in data analytics*. Harvard Kennedy School. https://datasmart.hks.harvard.edu/news/article/dr-colleen-mccue-pioneer-data-analytics-133

be successful also"[138]. Besides portraying the 'criminal' as an anthropological archetype, this approach narrows the scope of crime to phenomena involving the physical apprehension of goods, characterised by certain regularities in relation to the satisfaction of basic or society-mediated needs. This implicit precondition is essential for the shopping analogy to hold any sense and explains the ultimate significance of predictability for PP proponents.

In Beck and McCue's piece too, PP stands as an antidote to economic recession and a transposition of the imperative to "*do more with less*", highlighting the necessity of "*optimising increasingly scarce resources, including personnel*"[139]. Such optimisation is to be pursued through a combination of methods analogous to those behind customer steering (e.g., loyalty programmes or coupons) and behavioural predictions modelled on the example of Walmart and Amazon[140], as the title of their paper suggests. The example used to support their argument is an equivalence with the foreseeable increase in demand for Pop-Tarts prior to an approaching storm[141]. The contrivance of the reasoning becomes twofold here: on the one hand, the event that triggers the reaction to be predicted is a natural phenomenon; on the other, the predictability lies in the regularity of something as physiologically repetitive as eating habits.

Despite its misleading nature, the exaltation of business logic remains a privileged vantage point from which to grasp the intertwining of issues underlying the origins and initial thematisations of PP. Firstly, it makes clear that the initial push for PP arises from the need for budgetary countermeasures due to financial cuts and staff reductions during the 2008-2009 austerity conjuncture. Again, it is social relations that shape technology, not technology that shapes society. The austerity context is a persistent motif that continues to surface in recent works. In her field study on the use of PP in the LAPD, Sarah Brayne recounts an interview with a

138 Lever, R. (2012, July 31). *Predictive policing takes a byte out of crime*. Times of Malta. https://timesofmalta.com/article/Predictive-policing-takes-byte-out-of-crime.430936

139 Beck, C., & McCue, C., *op. cit*., p. 18.

140 A few years later, Uchida, *op. cit.* refers the same marketing analogy to Netflix and insurance companies. On the centrality of the business-like analogy in PP literature and politics, see Wilson, D. (2020) *op. cit*. Wilson traces how PP evolved from earlier managerial paradigms, showing that the analogy with corporate models is not merely rhetorical but structurally embedded in the automation and datafication of police work. At the same time, the integration of predictive systems into cloud-based infrastructures (e.g., Microsoft's Public Safety Cloud) reinforces the idea that PP operates within the logic of digital capitalism.

141 Beck, C., & McCue, C., *op. cit*., p. 21.

police captain defending the need for PP by stating that, in the absence of any similar techniques, "*a business would not run that way*"[142].

Not merely a rhetorical device, the marketing rationale, with its analogy between criminal action and consumer behaviour, serves as a prelude to precise criminological theories. These are centred on the idea of crime as a 'risk-reward' rational action referred to the opportunities for crimes (in particular crimes against property) in public spaces or even crimes in formally private spaces that can still be averted by data-driven allocation of police resources across urban territories (e.g., shoplifting and residential burglaries). Consistently, crime prevention involves timely redefining the spectrum of risks and rewards for the offender by manipulating environmental crime opportunities. In Beck and McCue's words, the aim is to "*penetrate an adversary's decision cycle and change the outcome*"[143]. This represents a specific — nearly gamified — understanding of crime and, relatedly, of law enforcement, both of which are instrumental to the gradual abandonment of the rehabilitative agenda of the Welfare State.

As highlighted above, the concept of predictability traceable in early PP texts encompasses several conceptual boundaries, which sharpen the socioeconomic selectivity of crime prevention. An implicit presupposition of the 'regularity' underpinning the prediction is the so-called 'socioeconomic deficit paradigm' (hereafter 'deficit paradigm'), whereby 'crime' serves as a proxy for livelihood strategies alternative to lawful forms of subsistence. Indicative of this syllogism is the straightforwardness with which the policeman interviewed by Sarah Brayne assumes a direct correspondence between low crime rates and low unemployment rates[144]. It is important to clarify that I am not denying the potential relationships between these two terms, as long as their contextualised meaning is made explicit (for instance, by specifying what substantive type of 'crime' is under consideration).

If the terms were specified, at least, they would allow for a clear exemplification of the social selectivity informing the CJS. The problem lies precisely in assuming such a 'crime-unemployment' theorem in unquestioned and universal terms, without addressing the delimitations implicitly operating at source in each case. Social selectivity thus remains concealed behind the neutral veneer of 'crime' which, in formal legal terms, would not be limited to subsistence crimes. In fact, the formally broader scope of the term 'crime' confers an apparent universality to the discourse on 'crime predictability', acting as an ideological counterweight to the real selectivity of the CJS.

142 Brayne, *op. cit*., p. 59.
143 Beck & McCue, *op. cit*., p. 19.
144 Brayne, *loc. cit*.

At the same time, these rationalisations of predictability, modelled on shopping behaviours or routine supply practices, incur other fallacies, against which critical criminology had already warned. On the one hand, a surreptitious unitary phenomenology of crime is constructed by superposing the unity of the legal label 'crime' onto the variety of empirical scenarios to which it may virtually apply. This fictitious universality coexists with a highly specific idea of crime, implicitly conveyed through analogies with subsistence-related behavioural patterns. On the other hand, the overarching premise of predictability and phenomenological unity rests on an ontological idea of 'crime'. It is not surprising, then, that there is extensive use of naturalistic metaphors to argue for the possibility of mechanistic predictions. The use of mathematical models for predicting earthquake aftershocks[145] and weather forecasts[146], along with the previously mentioned analogy to food supply patterns in anticipation of exceptional weather events, are just a few illustrative examples.

These criminological conceptions, besides being instrumental to an ontologised and socially selective understanding of crime, also serve as convenient justifications for cost-efficiency goals. In essence, selectivity is the flipside of cost-efficiency. One common trait among all theories referenced by PP supporters is the provision of allegedly good reasons to narrow the focus on pre-selected targets (people or areas) whose inclination towards crime is claimed to be scientifically provable. This scientifically grounded filtering justifies the use of fewer crime-prevention resources and time-saving strategies, as these can be optimised to an unprecedented degree.

Feedback on previous performances thus also speeds up and is rapidly converted into historical data for future iterations, circularly consolidating the 'validity' of the initial pre-selection. This raises a different set of issues, primarily technical, such as the feedback loop between historical data from past police practices and the shaping of future interventions[147], as well as further concerns not directly related to the theoretical background, such as the secrecy surrounding the algorithmic inner workings, particularly with proprietary systems.

That being said, the purpose of this detour into the foundational texts and justifications of PP has been to illustrate how vacuous it is to critique PP solely on

145 Benbouzid, B. (2017). On crime and earthquakes: Predictive policing at the crossroads between science, technology, and divining. *Réseaux*, 206(6), 95-123. https://doi.org/10.3917/res.206.0095

146 Bazilchuk, N. (2015, November 27). Could we predict crimes the way we predict weather? *Science Norway*. https://www.sciencenorway.no/criminality-forskningno-information-technology/could-we-predict-crimes-the-way-we-predict-weather/1425999

147 Brayne, *op. cit.*, p. 69

the basis of the operational distortions of algorithmic decision-making (e.g., the feedback loop) or the overlap between public governance and corporate interests (e.g., the problem of secrecy), without first examining the specificities and epistemic issues that underlie the claim to predict crime within the PP agenda.

3.2 Revisiting the place-based roots of predictive policing

An indisputable fact, in light of the review on the foundational texts of PP, is that this notion fundamentally originates from a place-based understanding of crime prediction. More specifically, it reflects the intention to enhance hotspot policing by transforming the urban mapping of historical crime data into a predictive model, where predictions of potentially new crime spots, distinct from those where crimes occurred in the past, are generated by an algorithm.

In the next chapter, alongside my first research article, the centrality of place-based approaches to crime prediction will be emphasised by exploring the epistemic inseparability between person-based and place-based approaches, even though each tradition draws on slightly different rationalisations tailored to its predictive object.

However, the retrospective on the emergence of PP as an attempt at "taking CompStat to the next level" allows acknowledging, even before deeper theoretical discussions, that the origins of PP lie in place-based methods. This perfectly dovetails with the insight gained from section 2.3 that the roots of police power are grounded in a broader idea of government as the orderly management of a territory, rather than merely the reactive search for individual lawbreakers.

Therefore, approaching the foundations of PP through the lens of individualised risk-assessment doctrines—whether from the recidivism calculation in the forensics tradition or more modern tropes like the 'Minority report' analogy[148]— constitutes, first and foremost, a historiographical error, largely due to the lack of clarity in distinguishing between PP and AJ.

More generally, it represents a forced similarity with predictive practices beyond the CJS, featuring data-driven predictions that culminate in formal legal decisions

[148] This refers to Philip K. Dick's story and its film adaptation, where a system predicts crimes before they occur. On the use of this analogy in scholarly literature, see: Camilleri, H., Ashurst, C., Jaisankar, N., Weller, A., & Zilka, M. (2023). Media coverage of predictive policing: Bias, police engagement, and the future of transparency. In *Proceedings of the EAAMO '23 Conference*. https://doi.org/10.1145/3617694.3623249; Dormehl, L. (2020, June 19). *A literal minority report: Predictive policing's algorithmic biases*. Digital Trends. https://www.digitaltrends.com/computing/predictive-policing-algorithmic-bias/

about targeted recipients. In these cases, risk assessments always pertain to individuals, and the algorithmic output clearly reflects this operational sequence. The mere existence of place-based systems indicates that this is not the case with PP.

Furthermore, police predictions are not legal decisions in a formal sense, as they are not communicated to any recipient other than the law enforcement agents tasked with implementing them. Nor do they, by themselves, effect any change in an individual's legal status, as an automated administrative or judicial measure would.

Assuming simplistic analogies with decisions of this type presents a double risk. *Firstly*, it reveals a lack of understanding of the place-based roots of PP and their historical meaning. *Secondly*, this lack of awareness leads to underestimating the implications of practices like place-based PP, which may appear less intrusive for not involving profiling personality and behavioural traits. Yet, as highlighted in Chapter 1, there is a consolidated trend to view place-based predictions as inherently less controversial than person-based ones for this very reason[149].

As I will expose more explicitly in the next chapter and have addressed in my first research article, grasping the place-based origins of PP is crucial for challenging the belief in epistemic divergences between person-based and place-based methods, and for elucidating that this distinction has nothing to do with the search for less intrusiveness.

A practical example from the Netherlands illustrates the operational and conceptual conflation between predictive techniques. Dwelling on the Dutch place-based system CAS, Oosterloo and Van Schie[150] show that this tool is fuelled by three data sources, the most important of which are the National Crime Database (BVI) and the Central Bureau of Statistics (CBS). In line with its place-based nature, the output consists of hotspots signalling geographic areas where the algorithm predicts higher crime probabilities. As for the input variables, those from the BVI comprise:

1. Distance in km of the address of the closest known offender (suspect) of an incident who has been active in the past 6 months;
2. Number of known offenders (suspects) of an incident who have been active in the past 6 months that live within 500 metres;

149 Hung, T.-W., & Yen, C.-P. (2021). On the person-based predictive policing of AI. *Ethics and Information Technology*, *23*(3), 165–176. https://doi.org/10.1007/s10676-020-09539-x; Shapiro, A. (2021). Accountability and indeterminacy in predictive policing. In J. McDaniel & K. Pease (Eds.), *Predictive Policing and Artificial Intelligence* p. 186. Routledge. https://doi.org/10.4324/9780429265365-8

150 Oosterloo, S., & van Schie, G., *op. cit.* It must be noted that the disclosure of the algorithmic input in this case was facilitated by the in-house nature of the tool. This means that the system was developed internally by the same police agency, without the involvement of any private vendor.

3. Number of known offenders (suspects) of an incident who have been active in the past six months that live within 1000 metres.

It must be noted that 'suspect' is used as a personal status, not as factual evidence in connection to investigated crime. More interestingly, CBS markers include:

1. Number of inhabitants in the zip code area;
2. Number of men in the zip code area;
3. Number of women in the zip code area;
4. Number of households in the zip code area;
5. Average size of households in the zip code area;
6. Number of non-Western allochthones in the zip code area (NB. removed in 2017);
7. Number of one-person households in the zip code area;
8. Number of one-parent households in the zip code area;
9. Number of multiple-person households without children in the zip code area;
10. Number of two-parent households in the zip code area;
11. Average age in the zip code area;
12. Housing stock in the zip code area;
13. Average property value in the zip code area;
14. Number of income recipients in the zip code area;
15. Number of social benefits recipients in the zip code area;
16. Fiscal monthly income in the zip code area.

As can be inferred from the list, while CBS markers 1-11 concern gender and household composition, the following six are exclusively economic, factoring in the housing stock, the average property value, the number of income or social benefits recipients, and the fiscal monthly income per zip code area.

Moreover, although marker 6 was removed in 2017 for its blatantly discriminatory nature, the grid suggests that no substantial changes followed the removal of the reference to non-Western allochthones, as demographic and socio-economic characterisations from other variables are sufficient to indirectly identify specific ethnic groups within the same social context, thus achieving the same result. This demonstrates that a place-based system may be a smokescreen to hide not only operations that, beyond the facade of a geospatial output, heavily rely on person-based data at the input level but also the use of proxies for prohibited sensitive data (in this case, race).

What the conventional output-focused approach fails to consider is that the output type says nothing about the nature of the inputs employed. Indeed, both place-based and person-based PP, regardless of the output delivered, usually resort to interchangeable input data. Thus, in person-based predictive systems, the individual-based nature of the output does not exclude the inputting of space-related

information, if considered indicative of criminal propensity. For instance, the person-based HART model uses postcodes as markers for individuals[151].

Symmetrically, as just seen, a place-based system may deliver outputs in the form of geo-spatial predictions while being fuelled by input data identical to those used in traditional profiling based on criminal records and other personal information of individuals linked to the hot areas[152].

151 Couchman, *op. cit.*

152 In the same vein, see the recent report: Algorace (2025), *op cit.*, p. 21, which documents the use of sensitive personal data (e.g., health, social status) within a place-based predictive system in Spain, supporting the view that space-based technologies often rely on individualised data practices.

4 Rationalities of Crime Prediction

4.1 Individual-based perspectives on crime prediction: complementing my first research article

In the example from the previous chapter concerning the Dutch CAS system, the questionable significance of the place- *versus* person-based nature of the algorithmic output for inferring the type of input variables was foregrounded from a technical angle. The purpose of this chapter is to delve deeper into the epistemic commonality between place-based and person-based methods in light of symbiotic criminological traditions underpinning them. In my first article, I addressed their interweaving from the historical standpoint of place-based conceptualisations[153]. This chapter adds to that discussion by shifting the focus to the person-based tradition, tracing the enduring presence of the deficit paradigm across its internal phases—a continuity that closely parallels the historical development of place-based theories.

As I point out in my article[154], the place-based tradition owes its origins to the French and English Cartographic schools, both responsible for ontologising crime (viewing crime as an ontological reality, hence predictable) well before the bio-anthropologism of the 'born criminal' from criminological positivism. For the Cartographists, the explanation of crime followed a straightforward social determinism, reflecting the spatial distribution of poverty and related indicators such as educational attainment, household composition, illegitimacy rates, and savings deposits. This approach adhered to a pure, unmediated 'socio-economic deficit' paradigm, and yet the Cartographic School's contribution to positivist criminal aetiology is, in this sense, often neglected.

Moreover, the historical prevalence at the turn of the 20th century of Lombrosian anthropology over the Cartographic School was not the result of epistemic incompatibility, but a convenient rationalisation to "*escape from the implications of*

153 Gatti, C. (2022a). Policing the poor through space: The fil rouge from criminal cartography to geospatial predictive policing. *Oñati Socio-Legal Series, 12*(6), 1733–1758. https://doi.org/10.35295/osls.iisl/0000-0000-0000-1360

154 *Ibid*.

the dangerous doctrine that crime is an essential product of our social organization"[155]. The cartographic analysis and Lombrosian positivism were essentially two ways – one environmental, the other anthropological – to 'scientifically' identify persons or social groups worthy of marginalisation. The latter prevailed due to its greater alignment with historical and political contingencies in the management of social conflict. Indeed, the synergy between environmental and person-based rationalisations remains steadfast across subsequent generations of theories in these two parallel storylines (see Table 2). Thus, in the first half of the 20th century, the symbiosis – e.g., in the interchangeability of predictive markers – is evident between the Ecological School of Chicago and the actuarial paradigm. Likewise, from the last quarter of the 20th century, situational theories and Selective Incapacitation theory are perfectly complementary and interdependent, both emerging as responses to the end of penal welfarism[156] and providing the ideological foundations for place-based and person-based forms of PP, respectively.

For the reader's benefit, I reproduce the table used in my article on the history of place-based conceptions, which also serves as a guide to this chapter:

Table 3. Defining moments in the history of the place-based and person-based approaches to crime prediction.

	PLACE-BASED APPROACH (*Polizeiwissenschaft* / Police science)	PERSON-BASED APPROACH (Theory of punishment)
19th century	**1**. Cartographic School	
End of 19th / Turn of 20th century	*Cartographic School is wiped out by biological determinism of Clinical Paradigm*	**1**. Clinical Paradigm
1920s	**2**. Chicago (Ecological) School	**2**. Actuarial Paradigm
Last quarter 20th century	**3**. Situational Theories	**3**. Incapacitative Paradigm

155 Vold, G. B. (1979). *Theoretical criminology* (2nd ed.). New York, NY: Oxford University Press, p. 40.

156 Garland, D. (1985). *Punishment and welfare: A history of penal strategies*. Brookfield: Gower Publishing Company.

Deferring to my first substudy for detailed insights on the history of 'place-based' approaches, this chapter aims to reconstruct the history of this ideological conflation from the viewpoint of the person-based tradition, which is more intuitively associated with the idea of PP. As mentioned above, this association rests on fallacious legalistic preconceptions, which reduce PP-related issues to the conflict between profiling and privacy rights[157].

A final clarification is necessary regarding the ideological conflation I frequently mention between person-based and place-based conceptualisations. In warning about this overlap, I essentially highlight the commonality of political strategies and criminological epistemologies, which remain consistent whether risk assessments are based on individual profiling or spatial mapping. This commonality emerges in key points such as an ontologised notion of crime as a precondition for predictability; an artificially universalised phenomenology of crime, parametrised around subsistence offences; and a socially selective understanding of crime rooted in the deficit paradigm, expressed in criminal policies that primarily address the management of class conflict in capitalist society[158]. Concurrently, police power theory discloses the inherently pre-emptive vocation and inseparability—at the very essence and historical origins of the police function—between spatial governance and techniques of individualised record-keeping[159].

However, although the difference in predictive targets does not imply any epistemic discrepancy, it has historically necessitated two distinct paths of systematisation, each drawing on its own corpus of reference. While the structuring of place-based conceptualisations is closely tied to the tradition of police science (the *polizeiwissenschaft*), emphasising the governance-science dimension, the systematisation of person-based approaches is nourished by the tradition of the theory of punishment. The latter corresponds, roughly speaking, to reflections arising around the question of *why* we punish, in the dual sense of the *grounds for* and *the main purpose of* punishment. Indeed, the different generations of person-based approaches to crime prediction can also be framed as different theories of punishment. This explains why, despite the conceptual and institutional differences

157 This also explains my decision to prioritise a place-based focus in my first research paper.

158 See Baratta, A. (1975). Criminologia liberale e ideologia della difesa sociale. *La Questione Criminale, 1*, 7–65. On p. 52, Baratta notes that the materialist theory of deviance and criminalisation focuses particularly on the liberal thesis of the universality of crime.

159 A paradigmatic example is the register of mendicants in France, aimed at preventing criminal reoffending through individualised monitoring, which, since 1724 complemented the infrastructural network of the *dépôts de mendicité.* See Campesi, op. cit. p. 136.

outlined in Chapter 1 between AJ and PP, the justifications of person-based PP extensively tap into arguments from studies on recidivism calculation, particularly actuarial studies. This may further explain why many criticisms of PP are often, simplistically filtered through the lens of the forensic tradition.

4.2 From the clinical to the actuarial paradigm

The history of individual-based approaches to crime prediction unfolds through a three-step sequence, closely paralleling the evolution of the place-based timeline, despite an initial misalignment (see Table 3). As noted earlier, individualised prediction arose from the necessity to contain an undesirable aspect deriving from the Cartographic School: the unmediated emphasis on poverty brought about by the First Industrial Revolution. This element risked backfiring against the ruling classes, potentially amounting to a societal acquittal of crime.

Consequently, the emergence and progressive predominance of the clinical-positivist paradigm over the cartographic one signified a shift from social determinism to bio-anthropological determinism, grounded in the 'clinical' assessment of the criminal. Such an evaluation centred on the expert's opinion within a case-by-case procedure, characterised by the absence of predetermined and structured rules for collecting and processing information to reach a resolution. The outcome reflected an unguided decision, originating from the expert's observation and not governed by a predefined set of markers enabling mechanical replicability[160].

From the 1920s onward, however, growing dissatisfaction with the subjectivity of clinical assessments led to a search for more standardised and scalable methods. The main critique within person-based studies targeted the limited reliability of clinical evaluations due to the idiosyncratic judgement of the evaluator. The rekindled dualism between the 'expert's intuition' and the 'objectivity of predefined rules' paved the way for the actuarial paradigm, which replaced intuitive judgement with statistical reasoning and predefined socio-demographic indicators, enabling risk assessment across broader population groups.

Echoing the emergence of the Ecological School in the place-based chronogram (the 'Chicago School' in Table 2), this reflected the strong sociological turn—to the detriment of clinical approaches—induced by the Second

[160] Lombroso, C. (2006). *Criminal man* (M. Gibson & N. H. Rafter, Eds. & Trans.). Duke University Press. https://doi.org/10.1515/9780822387800.

Industrial Revolution[161]. This shift aimed to extend risk assessment to entire groups based on rapidly replicable criteria, thus optimising social management on an increasingly larger scale by gradually replacing anthropological variables with socio-demographic ones.

Like the Chicago School[162], the Actuarial Paradigm posited an organicist vision of society and a relentless, spontaneous tendency towards a 'natural balance'. Consequently, crime was not viewed as a symptom of structural distortions but rather as a contingent failure in adaptation to the social order. This argument proved particularly suitable for the analysis of migratory flows towards US industrial cities[163], reinforcing the image of crime as an external import; all while still being framed within an overall rehabilitative orientation of the CJS [164].

According to Harcourt[165], the emergence of the actuarial paradigm is fundamentally rooted in the synthesis between the pursuit of individualised remedial treatment and the epistemology of risk calculation inherent in probabilistic thinking. The fundamental goal, sought among others by American Legal Realism, was to overcome in forensic practice the indeterminacy of the abstract legal concepts of classical thought[166]. Therefore, at the heart of the call for statistical thinking was a quest for 'legal certitude', aimed at securing judicial decision-making through concrete content.

161 Baratta (1975), *op. cit*., p. 42 describes a progressive substitution of a biopsychological model of aetiology with a sociological one. Within the person-based trajectory, this is an actual replacement of one explanatory framework with another. However, when considered as part of a broader ideological phenomenon—including place-based theories of crime prediction—it rather appears as a return to a pre-existing model: sociological determinism, albeit rearticulated within a renewed historical and social context.

162 As I point out in Gatti (2022a) *op. cit*., this synergy is clearly illustrated by the fact that prominent figures of the Environmental School are often significant actuarial scholars as well, with Burgess being the most notable example of this trend.

163 As will be discussed later, this is evidenced by the persistent use of ethnic variables as predictive markers across the actuarial tradition.

164 See in this regard the defence of the institution of parole in Burgess, E.W. (1936), *op. cit.*

165 Harcourt, B. (2003). The Shaping of Chance: Actuarial Models and Criminal Profiling at the Turn of the Twenty-First Century. *The University of Chicago Law Review*, *70*(1), 105–128. https://doi.org/10.2307/1600548; Harcourt, B. (2007). *Against prediction: profiling, policing, and punishing in an actuarial age*. University of Chicago Press, p. 41.

166 Holmes, O. W. (1897). The Path of the Law. *Harvard Law Review, 10*, p. 458, states that law is a "body of systematized predictions".

The same leitmotif inspired the 1909 National Conference on Criminal Law and Criminology, convened by Roscoe Pound in Chicago. The main purposes of the gathering were to lament the delay in legal science's endorsement of the statistical paradigm and to take decisive steps towards the grammar of the hard sciences[167]. As previously noted, the actuarial innovation does not lie in ranking individuals according to risk levels associated with criminal propensity—an operation already fully achieved by criminal anthropology. Rather, the novelty of the actuarial model resides in its risk-scoring architecture.

The path to the coveted objectivity in the study of the 'causes of crime' involved isolating statistical regularities deemed to possess predictive significance. The factor-isolating procedure, typically conducted on a given population of inmates, started with the pre-selection of an array of hypothetically relevant factors, whose recurrence was tested against the number of reoffences. This *ex-post* benchmarking was assumed to deliver a 'validated' grid of predictors, thus fulfilling the promise of standardised patterns, in explicit opposition to the clinical paradigm[168].

As noted in my first article discussing place-based conceptions, the entire history of criminal cartography has consistently been an expression of statistical thinking.

In contrast, person-based theories reveal an internal tension in the transition from the Clinical paradigm to the actuarial one in terms of criminal aetiology. Specifically, while the Clinical paradigm carried an anthropological aetiology (which was also why it became politically preferable to the Cartographic School), the actuarial paradigm, in response to unprecedented demographic inflows in US industrial cities, superseded bio-anthropologism by introducing sociological determinism within the person-based lineage. This shift mirrors a broader trend that, at the end of the 19th century, saw the laws of probability dominate the Western discourse on crime and punishment, paving the way for the creation of statistical categories such as the normal, the criminal, and the pathological[169]. Another parallel can be drawn here with the adoption of the generic concept of 'deviance', significantly popularised by the Chicago School in the place-based studies, at the expense of 'crime'[170].

167 Pound, R. (1906). The causes of popular dissatisfaction with the administration of justice. *American Law Review, 40*(5), 729-749.

168 See Bonta, J. (1996). Risk-needs assessment and treatment. In A. T. Harland (Ed.), *Choosing correctional options that work: Defining the demand and evaluating the supply* (pp. 18-32). Newbury Park, CA: Sage; Ferguson, A. (2017), *op. cit.*, p. 1119.

169 Hacking, I. (1990). *The taming of chance*. Cambridge University Press, p. 160.

170 Becker, H. S. (1963). *Op. cit.*; Goffman, E. (1963). *Stigma: Notes on the Management of Spoiled Identity*. New York: Penguin Books; Park, R. E. (1928). Human Migration and the Marginal Man. *The American Journal of Sociology*, *33*(6), 881–893. https://doi.org/10.1086/214592

A significant implication of this reconstruction is that the adoption of the statistical paradigm in the legal field is not the result of 'external colonisation'. Rather, legal scholarship—under the impetus of American Legal Realism and seeking to keep pace with other social disciplines—actively embraced the methods of the hard sciences to overcome the abstractness of traditional legal formalism. This aspect could also explain why person-based conceptions are generally more heavily mediated by legal ideology.

At the same time, the cultural symbiosis—evident in the biographies of many authors—with the ecological studies of the Chicago School helped embed actuarial reflection within a utilitarian framework, under which rehabilitation is still essential to the ideal of an integrated society.

4.3 The ground of actuarial studies

The roots in studies on criminal recidivism, conducted within the institutional framework of sentence execution, account for two earlier points made about person-based conceptions: 1) the widespread use of the theory of punishment as a primary ideological rationaliser; 2) a confirmation of underlying historical reasons for the recurring confusion, also within critical studies, between PP and AJ.

In order to classify the theory of punishment underlying actuarial studies, we can start with the Feuerbachian distinction[171] between: *a*) absolute or retributive theories of punishment (Kantian theories), justifying punishment as an end in itself by the moral principle of 'just deserts'; and *b*) relative or preventive theories of punishment, featuring a forward-looking perspective whereby punishment is a means to achieve broader social goals. We can say, in a first approximation, that actuarial studies are aligned with preventive theories. These, in turn, differentiate between general prevention and special prevention. Special prevention, also known as specific deterrence, focuses on preventing the offender from committing new crimes in the future by positive reintegration into society; instead, general prevention, or general deterrence, seeks to discourage the broader public from engaging in criminal behaviour by using punishment as a message to society at large. Therefore, the specific field of knowledge of actuarial studies corresponds

[171] Feuerbach, P. J. A. (1813). *Textbook of the Common Penal Law in Force in Germany*. In M. D. Dubber (Ed.) (2014), *Foundational Texts in Modern Criminal Law*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199673612.005.0001

to special prevention doctrines of rehabilitative inspiration (positive special prevention)[172].

The first actuarial experiments, following the factor-isolating procedure outlined in the previous section, date back to the 1920s. Their practical goal was to identify high-risk offenders in parole supervision or other forms of supervised release[173]to predict the likely success of treatments alternative to incarceration.

Sam Warner, the first to explore the viability of an actuarial tool, never realised his purpose due to an irreducible distrust in the reliability of the information at his disposal, consisting of parole decision records from the Massachusetts Reformatory, obtained through prisoners' interviews[174]. Nevertheless, Warner's work remains an interesting mirror of his approach, focusing on a set of items concerning financial circumstances, education, marital relations at the time of the crime, race, residence, sexual indulgence, and church attendance, to name the most illustrative. The same rationale emerges in how the Massachusetts Board—to which Warner refers—selected the predictors for reformation, among which "*suitable employment*" and a "*home or proper surroundings*" other than a "*strange community*" stood out[175].

Against this institutional backdrop, the grounding of the analysis in the testing of pre-selected variables acquired from official records is never questioned or methodologically problematised. Thus, what historically shapes the knowledge on crime through 'causal' regressions of this kind is a selective focus on behaviours viewed as a 'risk-reward game' grafted into the problem of subsistence. This is the basic account underlying the set of predictors reproduced since the first actuarial studies of the 'causes' of crime. Warner's contribution also testifies to a praxis in use at the Massachusetts Parole Board: the 'alienist's report'. This was an assessment

172 Special prevention can be either positive or negative. Positive special prevention aims to inhibit the risk of individual recidivism primarily through the anticipated rehabilitation of the offender. Conversely, negative special prevention seeks to prevent new crimes by relying on the confinement and physical constraints inherent in the treatment.

173 Monachesi, E. D. (1932). *Prediction Factors in Probation*. Hanover: The Sociological Press

174 These interviews were not externally verified, and, in Warner's opinion, the problem lay not only in the risk of intentional mendacity but also in the fact that even genuine answers came not from trained observers of social facts. See: Warner, S. B. (1923). Factors determining parole from the Massachusetts Reformatory. *Journal of the American Institute of Criminal Law and Criminology, 14*(2), p. 194. https://doi.org/10.2307/1133615.

175 ibid., p. 179.

meant to classify prisoners according to "grades of efficiency"[176]and was used by the Board as part of the decisions on supervised release.

The same data from the Massachusetts Department of Correction were recovered by Hornell Hart[177] and used for his prognostic parole-prediction tool, elaborated in response to Warner's scepticism. One theme in Hart, cyclically revisited by later authors[178], is the exemplariness of insurance companies[179], which also links to the foundations of PP and reveals the enduring appeal of this fallacious analogy. Indeed, while personal insurances refer to concrete and easily definable events whose occurrence depends on immediately verifiable factors (age, state of health, etc.), parole-prediction items tap heavily into moral and value-laden judgements on the inmate's social background. Hart's main contribution to the actuarial paradigm is the establishment of methodological benchmarks for future parole-prediction theorisation, such as the use of linear regression, the reduction in the number of risk factors to 30 (compared to Warner's original range), and a codified scoring system. The items are organised into four thematic classes:

1. *Home Environment*: this includes factors such as relatives sentenced to jail, a family history of alcoholism (with a particular focus on mothers), "homes of bad character," and "questionable" parental relations conducive to family discord, exemplified by hybrid households with a Protestant and a Catholic parent.
2. *Character of the Man*: this category examines the frequency of regular occupations compared to intermittent jobs and the use of cigarettes and drugs, excluding alcohol, which is considered to have little correlation with parole violation unless in the form of abuse.
3. *Physical Condition*: this area comprises mental pathologies, moronity, alcoholic degenerations, and other minor mental and physical inabilities[180].

176 *ibid*., p. 191.

177 Hart, H. (1923). Predicting Parole Success. *Journal of the American Institute of Criminal Law and Criminology*, *14*(3), 405–413. https://doi.org/10.2307/1133642

178 Monachesi, *op.cit*., p. 110; Van Vechten, C. C., Jr. (1935). *A study of success and failure of one thousand delinquents committed to a boy's republic* (PhD dissertation). Department of Sociology, University of Chicago, p. 19; Vold, G. B. (1931). *Prediction methods and parole*. Hanover: Sociological Press, p. 103.

179 Ibid., p. 411.

180 The relevance of this category is based on the observation that parole violators often left questions about disease, serious illness, and surgical operations "not answered," while non-violators answered "none" and were reported as having "very good" physique.

4. *Previous Violations*: this final category encompasses the commission of previous violations, with special reference to larceny and break-and-enter.

Looking at the presumptive rationale, Hart's actuarial tool encodes the same assumptions as the spatial conceptualisations of crime elaborated by the Chicago School. At least three factorial areas validate, from different angles, the deficit paradigm, predetermining which sectors of the population are considered meaningful subjects for the study of criminal behaviour. This is evident from the systematic juxtaposition between 'crime' and 'employment', as well as the limiting of recidivism to those behaviours fitting within a subsistence narrative. References to the 'home environment' align with the concept of deviance promoted by the Chicago School (*see* footnote 170), and with the equation of crime with other dysfunctional responses to an allegedly natural allocation of resources within the economic system. It will be remembered that, according to the Chicagoans, these social pathologies were linked, more or less directly, to market externalities[181].

Correspondingly, cultural, moral, and relational factors only mediate the socio-economic ones, as Hart confirms when asserting a self-evident nexus between crime and poverty that requires no proof[182].

Hart's parole-prediction tool sparked extensive follow-up studies and proposals. What matters here, more than a detailed report of the entire scholarly debate[183], is an overall appraisal of this criminological lineage. Starting from common premises, all actuarial authors essentially relegate the discussion to two points: the appropriate number of predictive factors and the contention between the unweighted factor model ('Burgess method'), assigning equal weight to all predictive factors, and the multivariate method, advocated by Eleanor and Sheldon Glueck. In sum, the confrontation never addressed the epistemic foundations, and Hart's framework remained the cornerstone of all subsequent contributions.

181 Gatti (2022a), *op. cit*.

182 Hart, *op.cit*., p. 409. Hart also states that the fact that many parole violators claim to have wealthy parents is likely to be more symptomatic of lying than of economic status. It is remarkable that the reliability of interviews is not questioned when they are the basis for the markers referring to the *physical condition*.

183 In this sense, see Harcourt, B. E. (2007). *Against prediction: profiling, policing, and punishing in an actuarial age*, op. cit., pp. 39 ff.

The model that ultimately prevailed was the Burgess unweighted method[184], developed from the study of three thousand parolees from Illinois penal institutions. Based on this research, Burgess identifies the differences between parole violators and non-violators in a grid of 22 factors. For each factor, different subclasses were drawn according to the violation rates of those fully, partially, or not at all complying with that item. The variables exhibited by people with a violation rate above the entire group's average were termed "*unfavorable*", opposed to the "*favorable factors*", which credited the inmate with one point. The procedure, replicated for each item, assigned a numerical score (risk level) to each inmate, who was rated on all factors. In addition to previous offences and sentences, the majority of items refer to personal, mostly static, characteristics: the nationality of the inmate's father, parental and marital status, "social type" (ne'er-do-well, gangster, hobo), county or neighbourhood, characteristics of the community of origin, mental age, and other traits emerging from a psychiatric examination[185].

Variable selection, as Burgess notes[186], is primarily justified by common-sense observation. The use of factors acquired *per tabulas* from institutional records precludes any possibility for alternative feature selection, and hence different conclusions. It follows that, in addition to the epistemic constraints arising from the naturalisation of a socio-economic notion of crime, further context-specific fallacies have traversed actuarial studies since their inception. *First*, in building on forensic data, these studies overlook that an initial selection by the CJS has already occurred. The 'raw material' does not offer a neutral picture of society, but reflects existing biases shaped by prior selections made by the CJS. This explains, for example, the widespread presence of racial markers in many actuarial studies, including Burgess himself, who placed significant emphasis on immigrant status and the *"racial origin*

184 This model was institutionalised in 1933 with the creation, within the Illinois Parole Board, of the 'actuary'. The task of the actuary was to prepare a report — the *prognasio* — based on Burgess' scale for the prediction of parole success, namely the probability for each inmate of not being declared a parole violator. Tellingly, the first to hold the actuary office was Ferris Laune, a former PhD student of Burgess.

185 Burgess, E. W. (1928). Factors determining success or failure on parole. In A. A. Bruce, A. J. Harno, E. W. Burgess, & J. Landesco (Eds.), *The workings of the indeterminate sentence law and the parole system in Illinois*. Springfield, IL: Illinois State Board of Parole, p. 247.

186 Burgess, E. W. (1936). Protecting the public by parole and by parole prediction. *Journal of Criminal Law and Criminology, 27*(4), p. 498.

of the prisoner as determined by the country of birth or race of his father"[187]. *Second,* the notions of success and failure in supervised freedom are not self-evident. Just as 'crime' is a normative concept, they depend on conventional definitions such as the legally relevant timeframe for a behaviour to be considered a parole breach rather than a new, autonomous offence. *Third*, records of parole and probation violations do not provide a picture of false positives. If parole is denied based on a high-risk prognosis, it becomes impossible to determine whether new offences were genuinely prevented by incarceration, or whether the prediction was erroneous and no offences would have occurred even if the individual had been released.

The junction of rehabilitative goals and utilitarian calculations[188], grounded in the transposition of probabilistic procedures into the legal realm is the main theoretical legacy of the actuarial era. Many contributions by later authors consist of follow-up studies in which the Burgess method is tested on different samples, with new proposals limited to suggestions for alternative subclass breakdowns or adjustments to the predictive items[189]. None of them challenges the procedure through which certain behaviours and predictive items are pre-selected.

The only constant trend in actuarial literature is a progressive reduction in predictive factors, which decreased to 9 in the unweighted model proposed by

187 Burgess, *op. cit*., p. 223. For a thorough account on the history of the use of racial markers by actuarial theorists, see Harcourt, B. E. (2010). Risk as a proxy for race. *University of Chicago Public Law & Legal Theory Working Paper* No. 323 https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1265&context=public_law_and_legal_theory

188 The same utilitarianism guiding Burgess' environmental analysis frames his individualised risk assessment in at least a double sense: (1) the main objective of the CJS is the protection of society, and solely on these grounds can the institutional response be calibrated. Durable rehabilitation, tested through successful parole, is the only way to protect society from the offender over the long term; (2) in his argument, Burgess proves particularly sensitive to punitive requests coming from the society. This leads to a dialogical simulation that makes the entire argument, more than an ethical or legal foundation, an attempt at persuading the "average man" about the instrumentality of parole for the common good, while reprimanding journalism for pandering to the punitive attitude of the public by deliberately misrepresenting the failure/success ratio of parole. See *Ibid*., p. 492.

189 Vold, G. B. (1931), *op. cit.*; Hakeem, M. (1948). The validity of the Burgess method of parole prediction. *American Journal of Sociology, 53*(5), p. 384; Glaser, D. (1954). A reconsideration of some parole prediction factors. *American Sociological Review, 19*(5), 335-341; Ohlin, L. E. (1951). *Selection for parole: A manual of parole prediction*. New York: Russell Sage Foundation.

Hoffman and Beck[190] in the 1970s, just before incapacitation theories burst onto the scene. In their scheme, the items featuring predictive relevance included: *prior convictions*; *prior incarcerations*; *age at first commitment*; *auto theft*; *prior parole revocation*; *drug history*; *education grade achieved*; *employment*; and *living arrangement on release*. In sum, even in their latest and streamlined version, actuarial models uncritically validate the selection performed by earlier stages of the CJS, focus on petty crimes, and reinforce socioeconomic discrimination in sentencing through presumptions based on education, household, and employment.

Overall, under the actuarial paradigm, rehabilitation, wrapped in utilitarian arguments, remains the primary aim of the CJS. Nevertheless, the naturalisation of the same epistemic constraints traceable in the Chicago School, implying a socially and racially selective understanding of crime, sets the stage for the transition towards incapacitation theories.

4.4 From rehabilitation to Selective Incapacitation (and predictive policing)

The transition from the actuarial to the incapacitation model corresponds, from the viewpoint of the theory of punishment, to the shift from positive to negative special prevention (*see* footnote 172). In Feeley and Simon´s reconstruction[191], the transition represents a new framework focused on incapacitating groups deemed irredeemably high-risk and for whom rehabilitation is impossible. On these premises, recidivism, rather than a system failure, becomes evidence of control efficiency.

Incapacitation must not be confused with retribution: under the first, punishment is detached from moral blame for past crimes, and incarceration should be based

190 Hoffman, P. B., & Beck, J. L. (1974). Parole decision-making: A salient factor score. *Journal of Criminal Justice*, *2*(3), 195–206. https://doi.org/10.1016/0047-2352(74)90031-2

191 Feeley, M. M., & Simon, J. (1992). The new penology: Notes on the emerging strategy of corrections and its implications. *Criminology*, *30*(4), 449–474. https://doi.org/10.1111/j.1745-9125.1992.tb01112.x; the same transition is addressed in Barabas *et al.* (2018). Interventions over predictions: Reframing the ethical debate for actuarial risk assessment. In *Proceedings of the 1st Conference on Fairness, Accountability, and Transparency* (pp. 62-76). PMLR. https://doi.org/10.48550/arXiv.1712.08238

solely on the offender's dangerousness to society[192]. At the same time, no deterrence intention—whether in the sense of general prevention or individual rehabilitation—is traceable, as the only crimes prevented are those averted while the offender remains in jail, which constitutes the only immediate benefit for society.

Similar to the shift from the Environmental paradigm to Situational theories within place-based approaches, the reasons for this transition, more than in profound theoretical reconsiderations, lie in the demise of the penal-welfare state[193] and the re-signification of rehabilitation as an unaffordable cost. A reframing that is also an unvarnished acknowledgment that prison neither rehabilitates nor resocialises, despite decades of belief to the contrary.

Notably, Selective Incapacitation echoes two fundamental premises of situational theories: 1) the abandonment of explanations for the causes of crime that, by examining society as a whole, aspire to be encompassing social theories[194]; and 2) an exclusive focus on reducing the physical opportunities for crime[195].

For Greenwood & Abrahamse, the systematisers of Selective Incapacitation theory, the key premise is that a minority of high-rate offenders account for the majority of crimes in society. These high-rate perpetrators form a "permanent offender" population whose criminal inclination is not modifiable or reformable through imprisonment[196]. The only plausible goal is a low-cost management through targeted incarceration and surveillance, while new offences are avoided only while the offender is physically constrained. To better understand the drive behind their theorisation on 'crime', we should keep in mind that their study focuses on robbery and burglary, with predictive items falling into three categories: prior criminal record, history of drug abuse, and employment history.

192 On the lack of moral considerations see Leipold, A. D. (2006). Recidivism, incapacitation, and criminal sentencing policy. *University of St. Thomas Law Journal, 3*(3), 536-560. https://ssrn.com/abstract=988117; As Pershan puts it, Selective Incapacitation is forward-looking only, de-emphasising the past crime. Pershan, L. S. (1983). Selective incapacitation and the justifications for imprisonment. *N.Y.U. Review of Law & Social Change*, *12*(2), 386-448.

193 Garland, D. (2001). *The culture of control: Crime and social order in contemporary society*. Oxford University Press.

194 Notwithstanding, of course, all the epistemological cautions mentioned above regarding any pretension to investigate the 'causes of crime'.

195 Furthermore, in terms of cost-efficiency, Selective Incapacitation, like situational theories, justifies the exclusive allocation of crime prevention resources to predefined objectives, with intuitive amplifications of feedback loop effects where the predictive process is automated.

196 Greenwood, P. W., & Abrahamse, A. (1982). *Selective incapacitation*. Santa Monica, CA: RAND Corporation. As Pershan, *op. cit.*, highlights, this enters into contradiction with the very premises of liberal criminal law.

Unsurprisingly, the deficit paradigm, initially concealed within the folds of aseptic language, re-emerges whenever the evidentiary rationale underpinning the prediction requires substantiation. Feeley and Simon[197] highlight that Selective Incapacitation discourse is inseparable from a new understanding of poverty, whereby the permanent offender population is essentially a non-employable "underclass" or "rabble"[198] for whom the broken rules are simply unviable.

Consequently, the idea of 'dangerousness' extends into penal policy, positing a permanent marginality from economic integration. Rather than a new understanding, this appears to restore 18th-century policing theories[199], which, as I highlight in relation to place-based conceptions[200], re-emerge forcefully in various concurrent situational theories, notably in Broken Windows, whose foundational text embraces Selective Incapacitation as the aim of the penal system[201], and is in turn embraced by Bratton and Malinovski's theorisation of PP.

It is worth stressing that the idea of incapacitation did not originate with the 1980s theorisation of Selective Incapacitation. Incapacitative goals had long accompanied the discourse on the need to adjust punishment to different categories of subjects, tailoring the sentence more to subjective circumstances than to predefined legal parameters. For instance, the US Model Penal Code in 1962 established the primacy of dangerousness as a punitive rationale[202], while indeterminate sentences were already part of the rehabilitative policies of many states during the late 19th and early 20th centuries[203]. The same actuarial authors provide direct testimonies of incapacitative precursors. Warner[204] attests that the alienist's report from the Massachusetts Reformatory classified as "*segregable prisoners*" those who were considered to need permanent institutional care. Wigmore, in 1924, argues for society's right to self-defence using both anti-

197 Feeley, M. M., & Simon, J. *op. cit*., p. 467.

198 Irwin, J. (1985). *The Jail: Managing the Underclass in American Society*. University of California Press

199 Bentham, J. (2001). *The collected works of Jeremy Bentham: Writings on the poor laws* (M. Quinn, Ed., Vol. 1). Oxford University Press. (Original work published 1796).

200 Gatti (2022a), *op. cit.*

201 Wilson, J. Q., & Kelling, G. L. (1982). *op. cit*.

202 Robinson, P. H. (2001). Punishing dangerousness: Cloaking preventive detention as criminal justice. *Harvard Law Review, 114*(5), p. 1448. https://doi.org/10.2307/1342684

203 Alschuler, A. W. (2003). The changing purposes of criminal punishment: A retrospective on the past century and some thoughts about the next. *The University of Chicago Law Review, 70*(1), 1–22. https://doi.org/10.2307/1600541

204 Warner, *op. cit.*, p. 191.

rehabilitation and anti-retribution reasoning. His argument avoids moral blame, which is the basis of retribution, and at the same time goes beyond deterministic views of criminal behaviour[205].

Retrospective references can extend to the jurist Von Liszt [206], whose theory of punishment modulated the preventive goal into an indeterminate sentence as the only way to adjust the nature and length of punishment to different categories of detainees. For the non-reformable offenders, criminal behaviour is by definition immutable. In their case, the only goal of punishment is to make the offender innocuous (Von Liszt refers to "*innocuation*" –*Unschädlichmachung* in German - closely resembling "incapacitation"). The lexical juxtaposition between incorrigibles and rehabilitables clearly recalls Selective Incapacitation. As further proof of the enduring conflation between place-based and person-based assumptions, von Liszt's description of the non-reformable, explicitly identified as "the proletariat", aligns with the concept of indigence developed by the English Cartographic School.

In sum, incapacitation is not an innovative insight of Selective Incapacitation. It is congenital to utilitarian approaches to punishment, yet not always a dominant feature, as the actuarial scholarship under penal welfarism shows.

Undoubtedly, as previously mentioned regarding the traditions that intertwine in the justifications of PP, the transposition of these person-based rationalities into automated policing implies a double leap: from manual to non-manually replicable calculations, and from judicial decision-making to the first 'selection level' within the CJS, that is, police prevention.

It should, however, be noted that, due to the common misconception of starkly different intrusiveness between person-based and place-based predictions – a distinction refutable both theoretically and practically (*see* section 3.2) – person-based PP is far less common than place-based PP. Manufacturers and police agencies are well aware that such an option would subject them to stricter scrutiny.

Nevertheless, forms of person-based PP do exist, with Chicago's Strategic Subject List (SSL) and Los Angeles Strategic Extraction and Restoration (LASER) being examples of predictive tools used to identify individuals likely to be involved in gun violence-related crimes. The SSL is generated using an algorithm that analyses various data points, particularly historical crime data such as past arrests or

205 Olson, H., Cummings, H., & Wigmore, J. H. (1924). A symposium of comments from the legal profession. *Journal of the American Institute of Criminal Law and Criminology, 15*(3), p. 404. https://doi.org/10.2307/1134809

206 von Liszt, F. (1882). *Der Zweckgedanke im Strafrecht*. Marburg: Pfeil.

known associates[207]. As previously mentioned, any overreliance on historical crime data—particularly static data—does not 'predict' but rather exacerbates the system's pre-existing selectivity in forward-looking projection. LASER is quite explicit in endorsing Selective Incapacitation, with one of its central components being the 'Chronic Offender' Bulletins. These are reports designed to identify those to be monitored based on a weighted risk score comprising: gang membership (5 points), being on parole or probation (5 points), prior arrests involving a handgun (5 points), any violent crimes in their criminal record (5 points), and police contacts in the last two years (1 point)[208].

The Italian system KeyCrime, which I discuss in my second article[209], also demonstrates adherence to Selective Incapacitation. KeyCrime has the plus of being a place-based system, confirming the cross-cutting operability of theories regardless of the type of predictive output. Focusing on commercial robberies through a near-repeat approach[210], KeyCrime identifies common hallmarks among different incidents to establish those attributable to the same—still unidentified—offender and, on that basis, where and when the next offence should be expected.

By prioritising crimes supposedly committed by the same individual, KeyCrime builds on the key premise of Selective Incapacitation that a limited sector of the population accounts for the majority of crime in society[211]. The rationale for incapacitation emerges prominently in a validation study highlighting the favourable variance between the savings ensured by KeyCrime – calculated by multiplying the average robbery haul by the number of purportedly prevented robberies – and the overall outlay, which includes investments in capital, labour costs, and the expected increase in incarceration costs due to the acceleration of arrests[212]. Incapacitation

207 Saunders *et al*. (2016). Predictions put into practice: A quasi-experimental evaluation of Chicago's predictive policing pilot. *Journal of Experimental Criminology, 12*(3), 347-371. https://doi.org/10.1007/s11292-016-9272-0

208 Stop LAPD Spying Coalition. (2018). *Operation LASER: Los Angeles Strategic Extraction and Restoration*. https://stoplapdspying.org/wp-content/uploads/2018/05/LASER.pdf

209 Gatti, C. (2022b). Monitoring the monitors: A demystifying gaze at algorithmic prophecies in policing. *Justice, Power and Resistance, 5*(3), 227–248. https://doi.org/10.1332/UBQA2752

210 Grossi, L. (2020). Software predittivi e diritto penale. In A. Massaro (Ed.), *Intelligenza artificiale e giustizia penale* (pp. 155–184). Caltanissetta: Paruzzo Editore. https://caterinachinnici.it/wp-content/uploads/2020/12/intelligenza-artificiale_ricerca.pdf

211 KeyCrime. (2020a). *The impact of KeyCrime in Milan, Bocconi University: Economic analysis of crime* [Video]. YouTube. https://www.youtube.com/watch?v=DxSjxR4KRe0

212 Mastrobuoni, G. (2020). Crime is terribly revealing: Information technology and police productivity. *Review of Economic Studies, 87*(6), 2727–2753. https://doi.org/10.1093/restud/rdaa009

also underpins the argument, stated in the official KeyCrime video series[213], that the focus on crime series is intended to provide prosecutors with the foundation for making their cases in court for entire sequences of crimes rather than isolated incidents. The aim is to secure longer prison sentences as the primary solution to crime in society.

As we transition to the next chapter, a deeper exploration of the Italian case will be provided, examining the significance of recent attempts to integrate PP tools within broader trends in crime prevention policy in Italy.

213 KeyCrime. (2020b). *KeyCrime video series Part 4: Location adaptability through AI and ML* [Video]. YouTube. https://www.youtube.com/watch?v=aHF68W9Z_3M&t=16s

5 Setting the Stage: An Approach to the Italian Case

5.1 A pre-algorithmic penal selectivity

In the wake of the global financial crisis of 2008, Italy promptly turned into a political testbed for 'exceptional' management methods[214]. Particularly following the 2010 G20 summit in Toronto, where new fiscal consolidation guidelines were established, international bodies began to shape the trajectory of a new era of deficit reduction, public expenditure adjustments, and debt control measures. Amid various political and institutional vicissitudes, Italy has experienced several technocratic governments that have consistently demonstrated the neoliberal agenda's capacity to dismantle previous limitations and arrangements typical of welfare governance.

Three economic recessions (the 2008 great recession, the 2011 debt crisis, and the 2020 pandemic), significant cutbacks in vital public services such as healthcare[215] and education[216] over the past decade, and a mounting absolute poverty index reaching 9.7% of the population (8.4% of families) in 2023[217], illustrate which social classes have borne the brunt of the neoliberal reconfiguration.

214 This section introducing the Italian context mirrors the structure of the section on the Italian scenario in Gatti, C. (2022b), *op. cit*. However, besides a more discursive format, the information is now enriched with updated statistics and references to legislative measures introduced in Italy after the publication of my article.

215 Fattore, G. (2023). The impact of the three crises on health in Italy: evidence and lack of adequate information systems. *SIS*. https://www.sis-statistica.it/old_upload/contenuti/2013/09/RS12-The-impact-of-the-three-crises-on-health-in-Italy.pdf; Munster, B., & Roberts, H. (2024, November 20). *Meloni's bluff: Italy's covert return to austerity as EU debt rules eat into health budget*. POLITICO. https://www.politico.eu/article/melonis-bluff-italys-covert-return-to-austerity-as-eu-debt-rules-eat-into-health-budget/

216 Macchi, L. (2024). *Primary and secondary education in Italy - statistics & facts*. Statista. Retrieved from https://www.statista.com/topics/3960/primary-and-secondary-education-in-italy/

217 Istituto Nazionale di Statistica. (2024). *La povertà in Italia: Anno 2023*. ISTAT. https://www.istat.it/wp-content/uploads/2024/10/REPORT_POVERTA_2023.pdf

Estimating the direct impacts on penal policies is challenging, and security delivery may not be the best vantage point for this paradigm shift. However, some trends suggest that generalised cutbacks significantly impacted crime management as well.

In 2018, a report by the CENSIS Research Institute on Italy's security supply described public order as 'no longer only [a] public' asset, estimating that between 2008 and 2016, expenditure on police personnel dropped by 6.4% in real terms[218]. A 2021 report by the same Institute engaged in explaining why *"we cannot do without private security*". It recalled that the number of law enforcement officers fell from 330,816 in 2008 to 306,500 in 2019. Meanwhile, the number of private security firms increased by 16.2% between 2016 and 2021, with a 22.8% growth in employment capacity[219]. According to Eurostat, the number of law enforcement officers has continued to decline, reaching approximately 300,000 in 2022[220].

Criminal policies post-2008 have been notably marked by 'new prevention'. This approach, strongly influenced by moral condemnations of urban deviance, has redefined criminal policy objectives in relation to a purely situational dimension, enhancing the defensive aspects of urban settings as the prism through which crime prevention is designed and enforced[221]. This resulted in the introduction of several 'security packages' in less than two decades: Law 125/2008, Decree-Law 14/2017, Decree-Law No. 123 of 2023 (known as DL Caivano), and Security Bill No. 1660/C of 2024.

The purpose of the first of these measures was to make administrative ordinances the central instrument of security policies. A survey of the most recurring topics addressed by dozens of ordinances confirms their irresistible tie to the ancestral core of policing, namely the handling of subsistence modalities other than commodified

218 Censis. (2018). *Primo rapporto sulla filiera della sicurezza in Italia*. https://www.censis.it/sicurezza-e-cittadinanza/1%C2%B0-rapporto-sulla-filiera-della-sicurezza-italia/l%E2%80%99ordine-pubblico-non-pu%C3%B2

219 Censis. (2021). *Secondo rapporto sulla filiera della sicurezza in Italia*. https://www.censis.it/sites/default/files/downloads/Rapporto%20finale.pdf

220 Eurostat. (2024). *Police, court and prison personnel statistics*. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Police,_court_and_prison_personnel_statistics

221 Tulumello, S., & Bertoni, F. (2019). "Nessun decoro sui nostri corpi": sicurezza, produzione di margini e movimenti indecoros. *Tracce Urbane, 5*, 90–109. https://doi.org/10.13133/2532-6562_3.5.14561

labour (begging, street selling, windscreen washing at traffic lights, prostitution, and other behaviours contrary to public decency[222]).

The second regulation, Decree-Law 14/2017, reaffirming a purely environmental conception of security, granted Italian mayors the authority to issue interdiction measures similar to disposal and trespass orders, thus widening the gap between ordinary safeguards in the restriction of rights and urban security governance.

More recently, Decree-Law No. 123 of 2023 (DL Caivano) and Security Bill No. 1660/C of 2024 have further shifted the landscape of criminal justice. The former marks a significant departure from the previously rehabilitative approach to juvenile justice by extending measures such as admonitions, Urban DaSpo, and oral warnings[223] by the Police Commissioner to minors between 12 and 14; and lowering the penalty thresholds for detentions and pretrial custody for minors over 14, including the transfer of juvenile inmates to adult prisons.

Nearly simultaneously, the 2024 Security Bill has introduced measures for a more stringent management of social conflict. Road blocking, an offence that has particularly resurged in recent years to target the protests of logistics workers, has been extended to include the use of one's body alone, without any objects or devices—previously subject only to administrative sanctions. Concurrently, the scope of the 'Urban DaSpo' has been broadened to ban access to railway, airport, and public transport infrastructure areas for individuals reported (but not convicted) for crimes against persons or property. The introduction of an autonomous offence for prison riots and the aggravation of penalties for its incitement further underscore the punitive and incapacitative nature of this shift.

Interestingly, this happens at the same time as typical white-collar offences such as abuse of public office and illicit influence peddling are abolished and significantly reformulated, respectively.

These legislative trends align with the upward selectivity of the Italian prison system. According to the Justice Department, as of 31 December 2023, people without a high school diploma accounted for 90% of the prison population,

222 For a detailed discussion on the concept of 'degrado' as the spatial counterpart of public decency, see Pavoni, A., & D'Alba, R. (2024). The many lives of degrado. An introduction. *Etnografia e ricerca qualitativa*, *Rivista quadrimestrale, 1*, 19-42. https://doi.org/10.3240/113458

223 Urban Daspo are individual bans from certain areas, similar to ASBOs in the UK. 'Oral warnings' are preventive measures applied by the head of local police to individuals considered to pose a social danger or to threaten public safety and order.

exacerbating an already entrenched trend, while only 26.36% of the general population had not completed secondary education [224].

Additionally, while foreign citizens comprise only 8.7% of the general population[225], they represent 31% of the prison population[226] and face the highest probability of preventive detention due to difficulties in proving domicile through regular rental contracts or property titles. A report from the same date categorises prison sentences by type of crime: drug-related offenses, property crimes (particularly theft and robbery), weapons offenses, and public order offenses account for approximately 46.72% of all prison sentences. In contrast, the total number of convictions for crimes against public administration (comprising offences such as corruption, misappropriation, embezzlement, fraudulent insolvency, and bankruptcy) together account for slightly above 7% of the total. Notably, tax evasion does not appear on the list as an autonomous category, but falls under 'other crimes,' which in their totality represent approximately 1.5%[227]. This is remarkable, as according to the latest estimates, the annual cost of corruption and tax evasion for the Italian system corresponds to a substantial share of GDP[228].

224 Ministero della Giustizia. (2023a). Detenuti per titolo di studio - Anni 2005 - 2023. https://www.giustizia.it/giustizia/it/mg_1_14_1.page?facetNode_1=2_4&facetNode_2=0_2&facetNode_3=1_5_28&contentId=SST613897&previsiousPage=mg_1_14

225 Istituto Nazionale di Statistica. (2023). Noi Italia 2024 - Popolazione straniera residente. https://noi-italia.istat.it/pagina.php?L=0&categoria=4&dove=ITA

226 Ministero della Giustizia. (2024). Detenuti presenti - aggiornamento al 31 gennaio 2024. https://www.giustizia.it/giustizia/it/mg_1_14_1.page?contentId=SST459008

227 Ministero della Giustizia. (2023b). Detenuti per tipologia di reato - Anni 2008 - 2023. https://www.giustizia.it/giustizia/it/mg_1_14_1.page?facetNode_1=1_5_2&facetNode_2=3_1_6&contentId=SST613925&previsiousPage=mg_1_14

228 According to a recent RAND study, the cost of corruption in Italy is around 13% of GDP (approximately 230 billion euros). See: Hafner, M., Dufresne, E., Hoorens, S., & Disley, E. (2023). *A quantitative analysis of the costs of corruption in the EU*. In *Stepping up the EU's efforts to tackle corruption: Cost of Non-Europe report* (Annex, pp. 31–77). RAND Corporation. https://doi.org/10.2861/796351. Estimates of tax evasion cost may vary, particularly depending on whether the evasion of social security contributions by self-employed workers is included. An approximate estimation is a value around 100 billion euros. See: Ministero dell'Economia e delle Finanze. (2024). *Relazione sull'economia non osservata e sull'evasione fiscale e contributiva: Anno 2024*. https://www.mef.gov.it/export/sites/MEF/documenti-allegati/2024/Relazione-2024.pdf; Osservatorio sui Conti Pubblici Italiani. (2022). *L'evasione fiscale e contributiva in Italia*. https://osservatoriocpi.unicatt.it/ocpi-pubblicazioni-l-evasione-fiscale-e-contributiva-in-italia

5.2 Theories and narratives of predictive policing Italian systems

The analysis of the Italian case in substudies 2 and 3 has primarily focused on the two PP systems identified to date, which have been tested and utilised across various regions of the country. In this chapter of the synopsis, I will uphold the same confidentiality standards regarding the names of companies and police agencies as in my third paper, although some of the data and sources mentioned here—except those collected first-hand in substudy 3—are publicly accessible[229].

Accordingly, I will refer to these systems as 'Software A' and 'Software B', using the same nomenclature as in substudy 3. I will briefly re-describe them below for the reader's ease. In doing so, I also aim to clarify their operational consistency with key points from the theoretical discussion, particularly through the combined reading of Chapter 4 and substudy 1.

Starting, for the sake of expository convenience, with 'Software B', this is a typical predictive mapping tool designed to forecast predatory crimes in urban environments, such as mugging, robberies, petty thefts, and shoplifting. The interface presents a heatmap, where varying risks of future crimes are associated with specific locations, resulting in georeferenced alerts. According to a book authored by its creator[230], the algorithm is grounded in theories such as routine activity, situational crime prevention, and the concept of disorder contagion as proposed by the Broken Windows theory. Interestingly, the same book reveals a structural parallelism between criminal behaviour and job performance under a wage regime. The typical offender is described as driven by the need to commit a pre-calculated number of offences each month to meet life's necessities—akin to a

229 The reason for this choice is that some pieces of undisclosed information could be traced back to companies and algorithms through cross-referencing with other public sources. While I cannot change the public nature of information disseminated by the companies themselves or from previous literature (including my own) based on public information that allows for some cross-referencing, maintaining here the same level of confidentiality set in substudy 3 is the most consistent way to respect the positions of the respondents that participated in substudy 3 fieldwork under the guarantee of confidentiality of their names. This sometimes means omitting the citation of even public sources. Although someone particularly interested in identifying more details (some of which will remain untraceable anyway) could try cross-referencing this synopsis with other sources, I will not foster such de-confidentialisation within this work.

230 The name of the software and its creator's book are not explicitly mentioned here. This omission is not to disclose across this text the company and police stations involved. Readers interested in further details may cross-reference the information provided with publicly accessible sources.

worker seeking monthly earnings. The software designer estimates the expected monthly haul to be approximately 1500 euros, and, like a regular pay cycle, the offender aims to achieve this by a certain date each month (the equivalent of payday).

Consequently, the potential targets of thefts and robberies are primarily deduced from spatiotemporal incentives such as large venues, month-end pension payments, shop closing hours, train and ship arrivals, and weather variations, which collectively delineate an environmental framework referred to as the criminal's 'hunting ground'. These accounts alone demonstrate how the notion of crime operationalised into the software is tailored to the idea of unlawful livelihood strategies, a prerogative of those strata of society 'in need' to offend.

The selective gaze is reinforced by other testimonies in the same book, where urban predatory crime is defined as the worst security threat in modern times to collective wellbeing, or in the official YouTube channel of the company, referring to shoplifting as one of the major global problems affecting cities.

Within the ideological toolkit employed by the company's communication platforms, it is noteworthy how naturalistic metaphors recur, serving as a more or less conscious homage to the positivist tradition. For instance, on the company's YouTube series and in the aforementioned book, the predictive package for urban security is touted as the solution for the city space that needs to be cleansed and vaccinated. A similarly exemplifying metaphor emerges from the 'manifesto-book', paralleling the urban environment with a patient suffering from a disease that is hard to diagnose, with the predatory crime being the illness, and any collected data being a symptom. This scheme follows the outspoken analogy of medical heuristics, in particular the so-called J.O.N.E.S. criteria devised for the early diagnosis of rheumatic fever through a differential pondering of symptomatic elements that, in law enforcement, correspond to crime predictors.

The rationale behind 'Software B' reveals a final point worth emphasising: its outspoken grounding in situational theories and the interdependence with selective incapacitation. Indeed, the prevention of predatory crimes is declared to depend solely on the ability to predict them, whereas it is unrelated to any modulation of punishment. Underlying this logic is the assumption that crime is a naturally occurring phenomenon, independent of institutional action. From this premise derives the notion of 'scientific' predictability of crime, which in turn supports a redefinition of punishment: once stripped of its preventive rationale, punishment can only serve an incapacitative function.

Turning to 'Software A', its inner logic can be inferred by combining data from public sources and findings from my third research paper. 'Software A' is a predictive tool focusing on commercial robberies in urban areas through a near-repeat approach. Despite some operational peculiarities that I will elaborate on

shortly, the system falls into the category of place-based, as the output consists of a spatiotemporal prediction about the next crime spot. The distinctive feature that has led some analysts to regard it as a *sui generis* predictive system, straddling both place-based and person-based categories, is that the software builds on 'crime-linking', which involves detecting past criminal incidents belonging to the same series (i.e., to the same perpetrator). Accordingly, the prediction of the time and place of the next criminal episode—and the apprehension of the perpetrator before the offence is committed—follows the linkage of different criminal occurrences, previously unconnected, within the same sequence.

According to the company representative I interviewed in my third substudy[231], the recurring hallmarks throughout the series that enable the prediction of the next occurrence are pieces of behavioural information that usually go unnoticed under traditional policing. The markers mostly consist of unconscious ethological components, which tend to prevail while committing a crime, thus revealing the perpetrator's 'behavioural footprint'. Consistently, the markers pertain to four major categories: a) proxemics, b) kinesics, c) verbal, and d) paraverbal components, complemented by general information about the crime target (type of commercial establishment and time/location). The system does not factor in socioeconomic or demographic data of the areas, using instead police data only, i.e., data collected by police officers immediately after the occurrence through direct surveys, testimonies, or security footage.

The place-based nature of the system is confirmed by the fact that, despite this focus on behavioural aspects of crime execution, the identity of the perpetrator is unknown. Therefore, unlike the risk assessment proper of person-based PP, the 'identikit' here has nothing to do with assessing the risk of certain individuals according to pre-established risk factors, as the ethological and physical variables recurring throughout the (supposedly) same series are not risk factors per se. They are 'predictive' insofar as, by linking retrospectively an undetected chain, they unveil the place of the next occurrence. Furthermore, linking variables are never exported to future iterations, as their relevance is purely internal to the single crime-linking operation—marking a decisive distinction from the actuarial approach.

In comparison to 'Software B', whose socially selective vocation is evident in every aspect of the algorithm design, 'Software A' shows more unequivocal concern for law compliance in the choice of predictive variables. This is corroborated by the

231 This interview was conducted as part of the fieldwork for Gatti, C. (2025b). Predictive policing in action: a field-based critique of the Italian case. *Crime, Law and Social Change*. Accepted for publication.

reliance on police data only and behavioural descriptors used solely as connecting rings, as well as by the fact that the only known suspension for violating data protection regulations, prompted by the Italian Data Protection Authority (GPDP), involved Software A (*see* article 3).

However, it must be noted that 'Software A' also implies an approach clearly inspired by Selective Incapacitation. *Firstly*, by prioritising crimes supposedly committed by the same person, the algorithm implements the key premise that limited sectors of the population account for the majority of crime in society. This utilitarian rationale emerges emblematically in a validation study of 'Software A', where the author welcomes the favourable variance between a) the savings ensured by PP, calculated by multiplying the average robbery haul by the number of purportedly prevented robberies, and b) the reduced overall outlay comprising investments in capital (office, computers, monitors), labour costs (police officers), and the incarceration costs due to the bringing forward of arrests.

Secondly, a clear pandering to Selective Incapacitation is the praise of the software's performance in terms of labour-saving for prosecutors seeking evidentiary material. In other words, the focus on crime series is intended to provide prosecutors with the foundation for building cases in court around entire sequences of crimes rather than isolated ones. Indeed, while the apprehension of the perpetrator should take place immediately before the predicted crime, the idea is to punish them for the past offences within the series. This rationale—rarely stated so explicitly in PP literature—reveals how the promoters of 'Software A' uphold longer prison sentences as a key goal, while the offender, much like in the logic of 'Software B', is portrayed as a non-eradicable component of the urban environment, whose existence is presumed to precede and remain unaffected by any institutional countermeasures.

5.2.1 Technical operating conditions or political delimiters?

The architecture of both systems reveals how technical constraints, presented as neutral and operationally necessary, embed political filters that silently delimit what is ultimately subject to prediction.

Before delving into potential selectivity issues, caution should be exercised regarding the intrinsic reliability of historical crime data in general. These data, more than a picture of crime, are often a picture of how the police responded to crime. For instance, crimes may go unreported or underreported due to various cultural and

institutional factors (perceptions of crime relevance or opportunity to report, social trust in the police, structural underreporting of police misconduct)[232].

Additionally, reported incidents might not be followed up or prosecuted by the police, just as being arrested doesn't necessarily mean being charged or convicted of a crime. That said, particular emphasis in PP literature is put on the need for large crime datasets in order to design and train a predictive system[233]. This precondition usually entails two corollaries, which are apparently linked only to technical operating conditions: the importance of the space-time traceability of crime incidents, and a focus on crimes that are 'repetitive in nature'. The latter, implicit in both systems, is particularly clear in 'Software A'.

Now, the point is not to deny that these factors operationally delimit the training of predictive systems; the issue is rather whether they are just technical requirements devoid of political implications. Upon closer examination, securing the conditions for space-time traceability of crime is in itself a selective look at criminal matters, since considering the exact physical place of a criminal offence only makes sense when referring to a certain concept of 'space' where only certain behaviours take place (normally inter-personal offences and property crimes in the urban or, at most, domestic space). Conversely, other types of offences (e.g., financial crime, major tax frauds), corresponding not coincidentally to the crimes of the upper class, are exactly the ones for which wondering about the place of commission makes little sense, as they do not occur at a specific tangible place and time by a single individual, but are constituted by a chain of events, executable from interchangeable locations[234].

Similarly, 'repetitiveness' is not an intrinsic quality nor a neutral descriptor. The statistical frequency of certain occurrences reflects reporting habits based on cultural

232 Garrett, B. L. (2015). The corporate criminal as scapegoat. *Virginia Law Review, 101*(7), 1789-1853. https://scholarship.law.duke.edu/faculty_scholarship/3847; Myers, S. L., (1980). Why are crimes underreported? What is the crime rate? Does it really matter? *Social Science Quarterly, 61*(1), 23-43. https://www.jstor.org/stable/42860671

233 Utset, M. (2021). Predictive policing and criminal law. In J. McDaniel & K. Pease (Eds.), *Predictive Policing and Artificial Intelligence*, p. 176. Routledge.

234 Alvesalo, A. (2001). Downsized by law, ideology, and pragmatics – Policing white-collar crime. In G. W. Potter (Ed.), *Controversies in white-collar crime*. p. 160. Routledge. https://doi.org/10.4324/9781315722009-8. However, as observed by Alvesalo, A., Virta, E., Tombs, S., & Whyte, D. (2007). Preventing corporate crime. *Criminal Justice Matters, 69*(1), 36–37. https://doi.org/10.1080/09627250708553266, certain corporate crimes, such as safety violations, do occur in specific locations and could be targets for situational prevention, although, not unexpectedly, this seldom happens

factors, or evidence created through deliberate political choices, like systematic over-policing of certain sectors of society. Other crimes may be statistically less frequent simply because they exceed the material reach of the general population (corporate crimes), even at the level of legal definitions requiring qualified status for perpetrators (corruption, abuse of office, etc.), thus resulting in further socioeconomic filtering[235].

In sum, the very idea of 'repetitiveness' is far from innocent and reflects a specific phenomenology, in which crime is primarily construed as an activity replacing legal forms of livelihood, hence limited to those social strata implicitly 'in need to' commit crime. This assumption of an underlying 'necessity' is the tacit precondition to building a predictability theorem, conveyed to the public in the shape of naturalistic or consumer-like metaphors. Indeed, what is being borrowed from the business context in these parallels with customer behaviour analytics is the estimation of how certain 'needs' are covered. Again, there is little self-evidence in conceptualising crime in terms of 'necessary repetitiveness'; rather, this is another tool of socio-economic governance in criminal matters.

5.3 Navigating Public-Private Dynamics

The involvements of private companies in a highly sensitive area such as crime prevention prompts reflection on the potential repercussions for the relationship between public and private spheres. Much like Predpol in the US[236], both Italian tools were developed by former police officers, who are also the founders of start-up companies responsible for copyrighting and marketing the systems after initial testing within their respective police headquarters and, in one case, in other small to medium-sized municipalities (see article 3). Due to their specific origin, both systems harness historical data directly collected by their creators/officers on the ground, implicitly validated as a natural starting point.

To introduce the broader context in which public-private dynamics related to PP unfold, I outlined in my second research paper the concept of 'soft privatisation'. This

235 Additionally, even when identified as repetitive, corporate crimes remain undertargeted. *See* Lähteenmäki, L., & Alvesalo-Kuusi, A. (2018). The imaginary social order of corporate criminal liability. In S. Bittle, L. Snider, S. Tombs, & D. Whyte (Eds.), *Revisiting Crimes of the Powerful* (pp. 131-142). Routledge. https://doi.org/10.4324/9781315212333

236 Puente, M. (2019). LAPD official behind controversial data programs to retire after winning lucrative contract. *Los Angeles Times*. https://www.latimes.com/local/lanow/la-me-sean-malinowski-predictive-policing-20190508-story.html

phenomenon differs from traditional privatisation of security functions or their segments, and from the notion of soft privatisation in other institutional contexts, particularly education governance. Rather than reiterating the full discussion from that paper, I now aim to refine and update some of those reflections, in light of aspects that emerged from subsequent fieldwork—still unknown to me at the time.

At first glance, the introduction of proprietary systems suggests a certain transfer of traditionally public power to the private sector, as police activities end up being influenced—if not directly guided—by algorithmic technologies whose input data and source codes are proprietary assets. However, while the procurement of proprietary products generally entails an outside-in dynamic, whereby new services are designed and offered to the public sector by private actors, the adoption of proprietary PP tools does not imply any formal delegation of public functions to private entities, nor a transfer of ownership over police functions. This absence of formal delegation, which applies broadly to known cases of proprietary predictive algorithms, marks a key difference from the more familiar notion of 'security privatisation'[237].

At the core of both Italian tools lies the systematisation of historical data, which the creators, in their capacity as serving police officers, were uniquely positioned to collect, train, and test over a sufficient period. The establishment of private companies occurred only later, with fully operational systems, and with the sole aim of copyrighting and marketing them after their development within state bodies.

It would therefore be misleading to view the private domain as the origin of a unidirectional trade flow implanting external products into the public sector. Instead, what emerges is a strategic migration of public actors (the creators) into the corporate sphere, with the aim of becoming private suppliers to new customers.

Unlike the previous point, this second feature appears less generalisable across PP experiences. While the Italian case mirrors the trajectory of HunchLab and PredPol in the US, other examples adhere more closely to linear outside-in schemes, where ready-made solutions developed externally enter local institutions from private markets, with clearer boundaries between vendors and public purchasers[238].

Simultaneously, it is crucial to note that the term 'soft privatisation', originally coined in the field of education governance, takes on a distinct meaning in this

237 See Carrapico, H. (2021). An exploration of security privatisation dynamics through the lens of social harm. In P. Davies, P. Leighton, & T. Wyatt (Eds.), *Palgrave Handbook of Social Harm* (pp. 377–399). Cham: Palgrave Macmillan; White, A. (2020). What is the privatization of policing? *Policing, 14*(3), 766–777. https://doi.org/10.1093/police/pay085

238 For instance, the Danish police's use of Palantir's POL-INTEL platform illustrates a more linear 'outside-in' trading scheme. Palantir Technologies customized its Gotham platform into POL-INTEL for the Danish police.

context, linked to the absence of 'extrinsic' (i.e., visible) transformations in the institutional architecture of security provision. Unlike the definition of 'soft privatisation' in the educational domain, the deployment of proprietary software does not signify 'a movement of ownership or responsibility away from the purportedly withering state'[239]. Furthermore, the involvement of private operators associated with proprietary PP software differs from the soft network governance typical of the European education space, which is regulated by mechanisms of adaptable distribution of competences, such as the subsidiarity principle or quality-assurance procedures. This significant difference renders the 'privatisation' introduced by PP even more elusive to clear legal categorisation and, for this same reason, sets the stage for achieving objectives – including a security agenda reconfiguration – that would be difficult to justify under ordinary reforms.

In summary, within PP experiences, the lack of formal delegation of police functions to private operators also entails the absence of any subsidiarity governance or collaborative addressing of public issues. Expanding the analysis to the market-state dialectic, the involvement of private operators in this specific dynamic does not suggest that the State is a passive victim. Contrary to Foucauldian interpretations of neoliberal governmentality as a self-limitation of government, austerity has demonstrated that the retreat of the welfare state represents merely a different form of capital governance, rather than a governmental deflation of a weakened state[240].

Against the backdrop of the 'soft privatisation' discussed in the second article, the collection of first-hand sources during fieldwork for the third research paper has helped contextualise and enrich the involvement of private actors beyond traditional frameworks. While the Italian context remains a nascent and unconsolidated market, it is also the stage for two distinct predictive models—both place-based: one built on 'crime-linking', the other on traditional hotspot mapping. This divergence is not merely operational, but becomes an element of internal competitiveness, driven by claims of superiority between systems.

A representative from 'Company A' illustrates this by asserting that the objective is to halt criminal series, a goal achievable only through predictive crime-linking, whereas hotspot policing is inherently ineffective as it merely displaces crime and criminals. Although this may appear to be just a personal preference for one system over another, it is noteworthy that the criticism targets the predominant PP method and originates from an operator within the same sector.

239 Cone, L., & Brøgger, K. (2020). Soft privatisation: Mapping an emerging field of European education governance. *Globalisation, Societies and Education, 18*(4), 386. https://doi.org/10.1080/14767724.2020.1732194

240 Lazzarato, M. (2015). *Governing by debt* (J. D. Jordan, Trans.). Los Angeles: Semiotext(e).

For its part, 'Company B' exemplifies how, in an emerging market, the construction of corporate image—particularly through the artificial enhancement of the product's appeal—takes precedence over its actual substance. This assertion is not so much due to the company's unresponsiveness, but rather to how it advertises on its webpage the purported linear leap from six testers to twenty-one users.

As I highlight in my third article, this account of a supposed 'linear growth' is disproved by cross-checking geographical and demographic statistics. An initial observation is that none of the testers overlap with the users, and vice versa. This implies that, even according to the company's webpage, no tester has opted to endorse the tool. Furthermore, the six testers are all National police headquarters—under the Ministry of the Interior—amounting to provincial capitals[241]. In contrast, the twenty-one users are local police stations, hierarchically subordinate to the municipal administration, with only a few from provincial capitals, while the majority correspond to smaller municipalities and villages. Consequently, even relying on the list of testers and users on the company's website, the transition from beta testing to the patented product's usage signifies a reduction of more than 80% in territorial scope and demographic reach (considering the territory and the resident population within the jurisdictions of the tester/user institutions).

In addition to these immediate corroborations, the fieldwork revealed another phenomenon: numerous entities publicly listed by the company as users of the trademarked product have denied ever using it or even hearing of the company[242].

The circumstances, detailed in the article, and the recurring elements in these responses, often conveyed directly by police chiefs, render their mendacity implausible. In fact, a pattern emerges where most of the false claims about the supposed use of the trademarked product by several police stations are attributed to relatively small centres, where direct verification by researchers or journalists is deemed less likely. This discrepancy, as previously mentioned, suggests an attitude that prioritises the consolidation of the company's image over addressing potential objections from the public and analysts concerning the existence and characteristics of the tool. While the company's attitude can be understood in the context of the priorities typical of a competition without established positions, the strategy is nonetheless noteworthy and quite unique, as the common trend, aimed at avoiding public scrutiny, is the deliberate downscaling of the use of such technologies, sometimes even to the extent of obscuring their very existence[243].

241 These findings are based on fieldwork and analysis presented in Gatti, C. (2025b) *op. cit*.

242 See previous footnote.

243 Robinson, D., & Koepke, L. (2016), *op. cit.*

At this juncture, the intricate interplay between the public and private spheres inevitably gives rise to issues that are not only broadly political but also involve specific legal considerations. The subsequent chapter will address these matters in greater detail.

6 Interpretative Reconstruction of the Legal Framework: Key Issues and Legal Gaps

6.1 Context for Legal Analysis

Conducting a legal analysis of PP, a practice that varies significantly across jurisdictions and lacks a comprehensive regulatory framework, is challenging. One effective approach is to distinguish chronologically between the periods before and after the introduction of the Regulation (EU) 2024/1689, known as the EU AI Act.

The regulation, anticipated to address the shortcomings of previous regulatory measures, has only partially fulfilled this expectation. Therefore, it is essential to highlight a continuity that runs through all the provisions pertaining to PP, whether PP is their primary focus or not.

This element of continuity, which I refer to in my third research paper as the "privacy-centred" or "profiling" approach, upholds the need for privacy protection against the risks of profiling inherent in PP. This perspective, which suggests that the protection afforded to citizens against PP should mirror privacy safeguards, is based on several flawed assumptions. Indeed, while privacy may be key in other legal branches, its role in law enforcement is inevitably peripheral, as the overriding of privacy is precisely one of the defining *raison d'être* of police function. This is not to suggest that everything done in the name of law enforcement is lawful, but rather that the lawfulness of crime prevention activities should be primarily questioned on grounds other than privacy rights, if this questioning is to be effective.

In regulatory terms, the privacy-centred approach limits the legal assessment of PP to checking if individual profiling occurs at the output stage (a mere 'output-type' test), focusing solely on person-based PP as legally problematic.

As put forth in previous sections, establishing a natural hierarchy of intrusiveness and law-compliance between place-based and person-based systems is a legalistic naivety, focusing solely on the visible surface of the algorithmic construct. This overlooks a deeper investigation into the symbiotic relationship, and hence the false dichotomy, between the theoretical models of crime prediction inspiring both families of PP.

Highlighting such oversight is not academic nit-picking. If we assume, for example, that place-based systems only use data on crime type, location, and timing[244], the legal and operational consequences can be significant. To begin with, attention would be diverted from the need for a serious inspection of the input data, whose nature cannot be simply presumed based on the final interface delivered to the user. Some studies have demonstrated the use of demographic variables and criminal records related to the population of areas under risk assessment by place-based tools, thus disproving the presumed input-output homogeneity[245].

From a purely legal perspective, this is, in my opinion, a discretionary narrowing of the definitions of "*processing*" and "*personal data*" in paragraphs 1 and 2 of Article 3 of EU Directive 680/2016, limiting them only to those predictive chains explicitly assessing the risk of a specific natural person (see next section). The Dutch case is a good example to prove the existence of profiling (understood as the 'processing' of 'personal data') also in place-based PP systems[246].

The point, if anything, is that even where the presumption of non-processing of personal data in place-based systems is abandoned, as I propose, a deeper and more limiting problem would emerge: the secrecy surrounding predictive variables[247]. It is precisely this barrier that, by preventing the analysis of inputs in the vast majority of cases, precludes the activation of safeguards that would be due even based on current provisions. My third research paper, along with other studies, illustrates how secrecy lies at the heart of the issue since, legally speaking, its dismantling is the precondition for the effectiveness of any safeguard, regardless of how well-conceived it may be on paper.

Another corollary of the privacy-centred approach is the conflation of PP techniques and decision-making processes of a different nature (administrative or judicial), which leads to the creation of safeguards that, while sensible in other contexts, are difficult to implement in the realm of law enforcement activities. In the following subsections, I will provide examples of how these trends have materialised both before and after the introduction of the AI Act, concluding with a reflection and

244 Lynskey, O. (2019). Criminal justice profiling and EU data protection law: Precarious protection from predictive policing. *International Journal of Law in Context, 15*(2), 162–176. https://doi.org/10.1017/S1744552319000090

245 See Algorace (2025), *op. cit.*, p. 21; Couchman, H., *op. cit*.; Lorenz, L., Meijer, A., & Schuppan, T. (2021). The algocracy as a new ideal type for government organizations: Predictive policing in Berlin as an empirical case. *Information Polity*, *26*(1), 71–86. https://doi.org/10.3233/IP-200279; Oosterloo, S., & van Schie, G., *op. cit*

246 *Ibidem*.

247 In the Dutch case, the demonstration of using algorithmic inputs that were not necessarily place-based was only possible by overcoming the secrecy barrier. This was facilitated by the algorithm's non-proprietary nature.

an interpretative proposal on the issue of secrecy, in line with my idea of its logical and legal primacy.

6.2 Predictive Policing prior to the AI Act

Prior to the introduction of the AI Act, PP practices in Italy, as in many other EU countries, lacked specific national regulation. Instead, they were covered, albeit partially and indirectly, by the EU Data Protection Package, which includes the well-known GDPR and Directive 2016/680, also known as the Law Enforcement Directive (LED). According to the *lex specialis* principle, the LED takes precedence in the realm of PP, with the GDPR applying only subsidiarily. The general-special coordination is confirmed in both provisions (Art. 2.2(d) GDPR and 1.1 LED) by the clause stating that the scope of the LED is "*data processing by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, including the safeguarding against and the prevention of threats to public security*."[248]

The different legal sources—a regulation in one case, a directive in the other—should not be surprising. Law enforcement is an inherently domestic matter, arguably the most domestic by definition. It is therefore logical that the EU legislator formulated the provisions of the LED as obligations addressed to Member States rather than directly applicable law.

Notably, no general limitations or prohibitions are set on PP practices. Both frameworks, as indicated by the term 'Data Protection Package,' primarily focus on safeguarding privacy and personal data from the risks associated with profiling, defined as "*any form of automated processing of personal data consisting of the use of personal data to evaluate certain personal aspects relating to a natural person, in particular to analyse or predict aspects concerning that natural person's performance at work, economic situation, health, personal preferences, interests, reliability, behaviour, location or movements*" (LED Art. 3.4).

This approach clearly confines the regulatory focus to person-based methods, as these are the only ones where those aspects are overtly evaluated or predicted.

Conversely, it could be argued that any PP system, even place-based ones, involves the processing of personal data. According to LED art. 3.2, processing means *"any operation or set of operations which is performed on personal data or*

248 'Competent Authority' raises interpretative questions. The term refers to both public authorities and private actors entrusted by Member State law to exercise public authority and public powers for the purposes of the prevention, investigation, detection, or prosecution of criminal offences. However, it is uncertain whether this 'entrustment' requires a specific legal enactment. This question remains unresolved under AI Act art. 3 (45).

on sets of personal data […] *such as collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction*".

Furthermore, LED art. 3.1 defines 'personal data' as *"any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person".*

The above discussion leads to two important points. *Firstly*, the EU definitions of 'processing' and 'personal data' do not preclude, in principle, the inclusion of place-based PP within their scope. For instance, who could argue that the Dutch system CAS, as illustrated in section 3.2, does not involve the processing of personal data? The preliminary issue would rather be gaining access to predictive markers to prove that personal data processing is indeed occurring. *Secondly*, and more decisively, the exclusion of place-based PP from regulatory scrutiny rather results from the legislator's definition of 'profiling,' which indeed restricts the scope to a specific type of output (see LED Art. 3.4).

The lack of critical examination of these definitions reflects a broader misconception that, as this dissertation demonstrates, while emerging at the regulatory level, cannot be fully grasped through a purely legal lens.

Given the dominance of place-based techniques in practice, the centrality of 'profiling' as a regulatory filter results in highly questionable delimitation and largely ineffective countermeasures. For example, Lynskey commendably argues for extending to PP the 'data processing safeguards' borrowed from other regulatory contexts, but this overlooks crucial differences that preclude invoking the cited case law on data processing rights [249]. The cases she references involve decision-making processes within competitive or administrative contexts, where data subjects consented to provide their data (YS v. Minister voor Immigratie, Integratie en Asiel, C-141/12 and Peter Nowak v. Data Protection Commissioner, C-434/16); other cases concern the non-deletion of data, whose retention was known to the data subject, who later demanded its deletion (Patrick Breyer v. Bundesrepublik Deutschland, C-582/14).

Conversely, PP does not involve the processing of data voluntarily submitted by a data subject aware of such handling. PP is frequently enveloped in a dual layer of secrecy: on the very existence of predictive programmes and, more critically, on the input data used as predictive variables. In contrast, in the cases cited by Lynskey, access to the inputs

249 Lynskey, O., *op. cit*.

underpinning the decision-making is never the issue. Only where the inputs are known, claims for disclosure and the justifiable use of them can be robustly grounded.

The failure to recognise the crucial differences between PP and other decision-making processes reflects a short-sightedness that leads to inadequate regulatory solutions. One clear example is LED Art. 11 (a twin provision to GDPR Art. 22), which embodies a regulatory logic entirely derived from privacy protection. According to LED Art. 11, "*Member States shall provide for a decision based solely on automated processing, including profiling, which produces an adverse legal effect concerning the data subject or significantly affects him or her, to be prohibited unless authorised by Union or Member State law to which the controller is subject and which provides appropriate safeguards for the rights and freedoms of the data subject, at least the right to obtain human intervention on the part of the controller*".

As we can see, 'profiling' is central to defining the scope of the provision, suggesting that the benchmark in the legislator's mind is a decision-making chain culminating in official measures or orders issued by a public authority that immediately impact the rights of a predetermined recipient. Related to this, the "*adverse legal effect*" is also problematic, as PP techniques are used to predict targets of police intervention at the level of crime prevention and do not involve any formal decision-making leading to the delivery of decisions to the data subject, nor do they immediately affect the data subject's legal sphere in the same way a ruling or an administrative resolution would. Nevertheless, given the alternative requirement of "*significantly affecting*", and assuming, for the purpose of our reasoning, that the requirement of relying "*solely*" on automated processing is concurrently fulfilled, we may argue that PP practices would virtually fall within the scope of LED Art. 11.

Yet, the problem that appears insurmountable within PP—even in its person-based forms—is the feasibility of the mandatory guarantee of the right to human intervention. How could a data subject invoke such a right in relation to practices that are neither formal decision-making processes nor known to them? Indeed, the real recipients of the predictive output are the police forces enacting the algorithmic prompt, not the data subject. The idea behind the provision is borrowed from very different situations where the point is to reverse or revise, by involving human decision-makers, an unfair automated decision already known to the addressee: this is the precondition for the data subject to formally challenge the decision before it produces detrimental effects[250].

250 Another context in which the issue of human intervention in automated decisions is pertinent is that of admission or exclusion from services. This context is markedly different from PP. See Court of Justice of the European Union. (2022). *Ligue des droits humains v Conseil des ministres* (Case C-817/19, ECLI:EU:C:2022:491). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:62019CJ0817

However, this is not the context in which PP operates, where "effects" are achieved – and, in some aspects, already irreversible – just as the prediction is delivered to the police agents. In conclusion, LED Article 11 shows how a conception based on the 'privacy/profiling' scheme generates countermeasures modelled on formal decision-making of a different legal nature, which are hardly effective in PP contexts.

6.3 Predictive Policing under the AI Act

Doubts about the adequacy of the regulatory instruments discussed so far were evident to the European legislator from an early stage, especially given the growing use of AI tools in sensitive areas such as criminal investigation. These concerns were voiced in 2021 by the 'European Parliament report on artificial intelligence in criminal law and its use by the police and judicial authorities in criminal matters' (A9-0232/2021), also known as the 'Vitanov Report'. Although not binding law (or arguably for that very reason), this resolution clearly captures the tensions that shaped the drafting of the AI Act. Unlike the latter, the Vitanov Report prioritises power imbalances over a business-oriented perspective, more focused on legal certainty for investors and vendors of AI tools. Besides referencing principles of fairness, data minimisation, accountability, transparency, non-discrimination, explainability, strict necessity, and proportionality, the report lays the foundation for a monitoring system based on a compulsory fundamental rights impact assessment (FRIA) prior to deployment of any AI system, and periodic mandatory auditing. As will be discussed shortly, this scheme will be adopted by the AI Act for systems classified as high-risk. The report also explicitly addresses secrecy as a core concern, advocating for a clear and fair liability regime for the potential adverse consequences of these technologies. It highlights the inadmissibility of proprietary AI tools in this domain and calls for public disclosure of public-private partnerships, contracts, and acquisitions between vendors and police agencies.

After several months of negotiations, the European Council adopted the AI Act on 21 May 2024, and it came into force on 1 August 2024, with provisions being gradually implemented over the subsequent six to thirty-six months. Announced as a regulatory milestone, the regulation categorises AI systems into four risk levels, each subject to different requirements: 1) unacceptable risk, pertaining to banned AI practices; 2) high risk, facing mandatory requirements such as FRIA, continuous monitoring, and periodic auditing akin to the scheme outlined in the Vitanov Report; 3) limited risk; 4) minimal or no risk. This multilevel model is referred to as the AI Act 'Pyramid of Criticality', a visual representation of the

risk-based approach followed by the EU Commission[251]. Notably, the European Commission's initial proposal for the AI Act did not include a prohibition on PP. This omission prompted several human rights organisations to intensively campaign for such a ban[252].

Subsequently, a report by the Committee on the Internal Market and Consumer Protection and the Committee on Civil Liberties, Justice and Home Affairs recommended the prohibition of predictive identification (person-based PP) due to concerns about violations of the presumption of innocence, human dignity, and the potential for discrimination[253]. Although recognising the merit of this reaction, framing the claim in this way inadvertently reinforced a narrowed focus on person-based methods, implicitly accepting the profiling-based logic of problematisation and the assumption that place-based techniques are inherently less intrusive.

The final text of the AI Act has confirmed this approach, prohibiting only person-based PP[254]. The importance of this provision should not be underestimated, as it unequivocally prohibits certain PP practices, thereby eliminating the ambiguity of a regulatory vacuum that hypocritically delegated the safeguarding of competing rights downstream. The relevant provision is enshrined in Article 5.1(d), which establishes a ban on "*placing on the market, putting into service for this specific purpose, or the use of an AI system for making risk assessments of natural persons to assess or predict the risk of a natural person committing a criminal offence, based solely on profiling or assessing their personality traits and characteristics*".

The sore spot is that this regulatory remedy addresses only predictive identification, while leaving place-based PP unaddressed. Indeed, one clear

251 Christakis, T., & Karathanasis, T. (2024). Tools for Navigating the EU AI Act: Visualisation Pyramid. *MIAI Articles*. https://ai-regulation.com/visualisation-pyramid/; Kop, M. (2021). EU Artificial Intelligence Act: The European Approach to AI. *Transatlantic Antitrust and IPR Developments*, 2/2021, 9. Stanford - Vienna Transatlantic Technology Law Forum. https://ssrn.com/abstract=3930959

252 Fair Trials. (2023). *Fair Trials calls for ban on use of AI to predict criminal behaviour*. https://www.fairtrials.org/articles/news/fair-trials-calls-ban-use-ai-predict-criminal-behaviour/

253 European Parliament. (2022). *Report on the 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* (A9-0232/2021). https://www.europarl.europa.eu/doceo/document/CJ40-PR-731563_EN.pdf

254 Europol, *op. cit*, p.39.

requirement from its wording, aligned with a 'privacy/profiling approach,' is a risk assessment of natural persons, implying a predictive output of the same nature[255].

At this juncture, an interpretative issue arises concerning the classification of place-based practices under the AI Act. By presupposing a one-step downgrading in the pyramid of criticality compared to the prohibited individual-based PP, it is sometimes assumed that place-based PP is necessarily high-risk under the AI Act.

However, when scrutinising point 6 of Annex III, which provides a list of law-enforcement related AI systems classified as high risk by AI Act art. 6, the inclusion of place-based systems is anything but straightforward.

Two of the five items enumerated in point 6 Annex III (6.a and 6.e) clearly require the profiling of natural persons as referred to in LED Art. 3(4), thus excluding place-based PP from their scope. Two other points (6.b and 6.c) have a strong evidentiary focus, involving already indicted persons and the evaluation of the reliability of evidence related to specific past offences. The only point that could arguably reference place-based technology—and thus potentially justify its inclusion among high-risk tools—is point 6.d, which contemplates "*AI systems for assessing the risk of a natural person offending or re-offending, or to assess personality traits and characteristics or past criminal behaviour of natural persons or groups*". The disjunctive reference to 'past criminal behaviour of groups' is the sole basis for hypothesising a predictive output not necessarily manifesting as a profiled risk assessment. Nonetheless, there is no technical need for a place-based system to use past criminal behaviours of groups; it may rely on other socio-demographic variables instead. Moreover, a holistic reading of item 6.d indicates that the emphasis is on behavioural characteristics associated with offending or re-offending likelihood. The reference to 'past criminal behaviours of groups' aligns more with the tradition of actuarial calculations (see section 4.3) than with predictive mapping.

255 'Profiling' in the AI Act (art. 3(52)) has the same meaning as in the GDPR and LED. See also European Commission. (2025). *Commission Guidelines on prohibited artificial intelligence practices established by Regulation (EU) 2024/1689 (AI Act)*. Shaping Europe's Digital Future. https://digital-strategy.ec.europa.eu/en/library/commission-publishes-guidelines-prohibited-artificial-intelligence-ai-practices-defined-ai-act . Interestingly, in this recent document, the European Commission appears to entertain the possibility of inputs and outputs of varying natures within the same system. It specifies that an individual profiling which includes the "*risk score of the location as an aspect in the profiling of a person [...] should be considered person-based*." This assertion underscores the primacy of the output as a criterion for legal systematisation. However, it does not address the potential complexities that may arise in the reverse scenario, where predictive variables are not solely "geographical" in place-based systems. This could present far more profound interpretative challenges.

In conclusion, unlike previous regulations, under the AI Act individual PP is unequivocally banned. However, the largely predominant place-based PP remains permitted, with its classification as high-risk remaining uncertain—neither self-evident nor automatic. And yet, even where considered high-risk, the practical consequence would not be a ban, but rather a mandatory conformity assessment before market placement and post-market monitoring to ensure regulatory compliance after deployment[256].

If I were to offer my legal interpretation, place-based systems are not high-risk under the AI Act. This is not a moral judgement or a personal desire, but my assessment of what the AI Act provides in the combined provisions of Article 6 and Annex III. Perhaps, by deviating from the letter of the regulation and proceeding through systemic interpretation, one might posit a necessary equivalence between place-based PP and other law-enforcement related systems overtly considered high-risk by Annex III, point 6, appealing to a similar endangerment of fundamental rights. However, to argue that place-based systems violate or endanger fundamental rights such as non-discrimination or the presumption of innocence, it is essential to move beyond the logic that has led to the divergent regulation of the two PP types—namely, the profiling/privacy approach.

Only by abandoning a framework that relies on an *output-type test* as the primary legality criterion and instead focusing on input variables as the basis for assessing potential threats to fundamental rights, can we sensibly propose an interpretative approach that unequivocally equates place-based PP with other high-risk systems.

Nevertheless, this interpretative proposal—based on the argument of similar endangerment of fundamental rights—is only coherent if coupled with a demand for broad access to the predictive inputs of all PP systems. Thus, we arrive at the core issue: secrecy, which I will explore in greater detail in the following section.

6.4 The problem of secrecy and its ramifications

In the context of police and surveillance technologies, arguments for secrecy traditionally follow two main patterns: *a)* trade secrecy, and *b)* anti-circumvention.

Trade secrecy, which protects proprietary information from a business perspective, is widely recognised by scholars as a typical obstacle to algorithm

256 It should also be noted that for high-risk systems referred to in points 2-8 of Annex III, including law enforcement-related systems under point 6, developers are afforded the possibility of self-assessment, as stipulated by Article 43 of the AI Act. This provision specifies that providers shall follow the conformity assessment procedure based on internal control under Annex VI, which does not necessitate the involvement of a notified body.

accessibility[257]. The EUCPN also underscores the need for transparency in PP and acknowledges the hindrance posed by proprietary tools, suggesting that "*to further facilitate transparency, it is imperative to rely on in-house software developers rather than commercial companies*"[258].

Conversely, the anti-circumvention argument does not—at least on the surface—advocate for commercial confidentiality but rather contends that awareness of surveillance technologies could enable individuals to circumvent supervision[259].

The inevitable question that arises is what the AI Act prescribes regarding the confidentiality of place-based PP systems, bearing in mind that individual-based systems are prohibited outright. As noted above, place-based tools might, at most, be classified as high-risk systems, but only if a significant threat to fundamental rights can be demonstrated—a scenario unlikely without prior access to input data.

Regarding trade secrecy, the Vitanov Report had made incisive recommendations, openly addressing the inadmissibility of proprietary tools and advocating for the disclosure of contracts and partnerships between vendors and LEAs. Despite those urgent calls, the AI Act does not prohibit law-enforcement related tools from being closed or labelled as proprietary, nor does it mandate public disclosure of all public-private partnerships, contracts, and acquisitions.

Only AI Act Art. 86 seems to accommodate the reasons for the inspectability of *high-risk* systems, granting individuals the right to obtain clear and meaningful explanations from the deployer regarding the role of the AI in decision-making processes that significantly impact fundamental rights. However, its limited scope renders this provision inapplicable to the context of PP. Aside from the open question of high-risk classification for place-based PP, the provision mirrors the same short-sightedness as LED Art. 11, where the "right to human intervention" is practicable only for decision-making processes culminating in a legal decision that is formally delivered to the recipient-data subject. Furthermore, Article 86 proves

257 Joh, E. E. (2017). The Undue Influence of Surveillance Technology Companies on Policing, *NYU Law Review*, 19–47. https://dx.doi.org/10.2139/ssrn.2924620; Moore, T. (2017). *Trade Secrets & Algorithms as Barriers to Social Justice*, Washington DC: Center for Democracy and Technology. https://cdt.org/wp-content/uploads/2017/08/2017-07-31-Trade-Secret-Algorithms-as-Barriers-to-Social-Justice.pdf; see also Europol, *op. cit*., p.35.

258 EUCPN (2022). *Artificial intelligence and predictive policing: risks and challenges*. Brussels, p. 14. https://eucpn.org/sites/default/files/document/files/PP%20%282%29.pdf

259 Bloch-Wehba, H (2021). Visible policing: Technology, transparency, and democratic control. *California Law Review, 109*(3), 917–978. https://doi.org/10.15779/Z38NS0KZ51; Manes, J. (2020). Secrecy and Evasion in Police Surveillance Technology. *Berkeley Technology Law Journal*, *34*(2), 503–566. https://doi.org/10.15779/,Z38NP1WJ7K

ineffective in the context of PP due to a more compelling reason: the exceptions in its paragraph 2. These exceptions refer to LED Article 13(3), which permit Member States to restrict or omit the provision of information in matters related to the prevention, investigation, detection, or prosecution of criminal offences.

Based on these observations, it can be asserted that the AI Act lacks mechanisms capable of effectively challenging secrecy claims, whether grounded in trade secrecy or anti-circumvention arguments. While the shield of trade secrecy is more difficult to dismantle through targeted counterarguments—particularly in the absence of a regulation that explicitly prioritises inspectability over commercial confidentiality—I will propose a broader interpretative framework at the end of this section to lay the groundwork for contesting secrecy at a general level, regardless of whether it is justified by trade secrecy or anti-circumvention.

In the meantime, however, anti-circumvention can also be undermined through a more immediate and specific counterargument. The fieldwork underpinning my third article revealed the frequent invocation of anti-circumvention arguments by the Italian LEAs[260]. It is worth clarifying that in all these cases the non-disclosure of input variables is unrelated to the confidentiality of what the AI Act defines as 'sensitive operational data' (Art. 3(38)) in the context of criminal prevention, investigation and prosecution. This refers to information emerging only after data processing on specific individuals, and to data whose disclosure could compromise the integrity of criminal proceedings. Therefore, sensitive operational data is distinct from the abstract knowledge of algorithmic input variables used as general—a priori—presumptive criteria.

Having established that linking police activities to crime prevention as a justification for withholding algorithmic variables constitutes an anti-circumvention argument in its purest form, we must scrutinise whether such a claim should be considered insurmountable. Indeed, 'anti-circumvention' cannot serve as a universal, self-sufficient clause; rather, the connection between the secrecy of a specific surveillance technology's characteristics and crime prevention must be demonstrated on a contextualised basis. Otherwise, as Manes rightly observes, if a general reference to law enforcement were sufficient to render secrecy insurmountable, it would also necessitate keeping secret the circumstances under which the police can employ wiretaps[261].

A contextualised assessment is necessary for at least two reasons. *Firstly*, the soundness of 'anti-circumvention' arguments depends on the nature of the input variables in the specific case. For example, variables that cannot be altered at will by

260 Notably, they never refer to the vendor's proprietary policy, except the Department of Public Security when discussing GIOVE, the system currently under development.

261 Manes, J., *op. cit.*

the subject do not justify the claim that their knowledge may facilitate opportunistic strategies to evade supervision. Once again, secrecy emerges as the root of the problem, creating a vicious circle: the nature of the variables can only be assessed if they are accessible.

However, by combining publicly available information with data obtained through my research, some observations can still be put forward. From earlier studies, we do know that predictive variables used by place-based systems generally build on static demographic descriptors such as historical crime data, well-being indicators, or infrastructure location data[262]. The variables used by the system CAS, listed in section 3.2, are a clear example of static data. In Europol's latest report, the Dutch system is showcased as a real-world application of place-based PP and, in the same document, Europol states that the fundamental variables for place-based systems generally consist of historical crime data (time, place, and type), socio-economic data, and opportunity variables[263].

Turning to the fieldwork of my third article, the system there referred to as 'Software B' presents, for the reasons detailed in the paper and the claims made by its inventor regarding the underlying criminological ideas, a model with characteristics very similar to CAS. For its part, 'Software A' is characterised by a less common predictive model, known as crime linking, which predicts the next event by first identifying and connecting previous incidents attributable to the same chain. The thread of crime linking is the detection of analogous modus operandi across past occurrences, revealed by 'unconscious behavioural components'. Therefore, despite not being conventional static data like socio-demographic or criminal history, these too are variables that cannot be deliberately altered to evade algorithmic prediction. In sum, in both crime linking and traditional place-based systems, anti-circumvention arguments could be refuted on this basis alone[264].

Secondly, a contextualised evaluation is necessary because only through an understanding of the concrete functioning of a predictive tool can one be aware of "overreaches" in its use, beyond future police interventions. My field-based analysis of Software A, for example, revealed that its retrospective crime linking operations,

262 Lorenz, L., *et al.* (2021). op. cit.; Lum, K., & Isaac, W. (2016). To predict and serve? *Significance 13*(5), 14–19. https://doi.org/10.1111/j.1740-9713.2016.00960.x; Oosterloo, S., & van Schie, G., *op. cit.*; Robinson & Koepke, *op. cit.*; Seidensticker, *et al.*, *op. cit.*

263 Europol, *loc. cit*.

264 It should also be noted that in the case of systems like 'Software A' from my third article, disclosing its operation not only does not compromise its effectiveness by facilitating supposed evasive strategies, but it can also serve as a strong deterrent

on which the prediction builds, also serve as evidentiary elements in court to support the issuance of longer sentences. Maintaining secrecy on the presumptive criteria for crime-series construction is then not just a matter to be balanced with anti-circumvention claims by LEAs in their investigative work; it may also raise issues concerning open proceedings and potential conflicts with Article 6 ECHR.

As previously indicated, recognising the importance of a contextualised evaluation to dismantle anti-circumvention claims brings us back to the overarching issue of secrecy that, akin to a self-perpetuating vicious circle, exacerbates all derived questions. Consequently, the issue arises of a possible interpretative stance that directly addresses secrecy within the realm of PP technologies, somewhat aligned with the Vitanov Report, irrespective of whether secrecy is justified as trade secrecy or anti-circumvention. My interpretative proposal, first deployed in my third paper, is that the very foundations of secrecy should be scrutinised before any detailed discussion of specific cases, through the 'principle of legality' in criminal law, encapsulated in the Latin maxim *nullum crimen, nulla poena sine lege*[265].

This fundamental principle, directly derived from 'free choice' as the supra-principle of criminal law theory[266], mandates that any offence and corresponding penalty be defined in advance in a statutory act accessible to anyone subject to it.

Secrecy in PP typically involves the inaccessibility of predictive variables, and I am well aware that interpreting these as atypical legal sources would be a strained reading. However, the historical meaning of the principle of legality, particularly in its robust interpretation within the European-continental legal tradition[267], extends beyond the procedural duty for legislators to define offences

265 Gallant, K. S. (2008). Legality in criminal law, its purposes, and its competitors. In *The principle of legality in international and comparative criminal law* (pp. 11-45). Cambridge University Press; Hallevy, G. (2010). *A modern treatise on the principle of legality in criminal law*. Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-642-13714-3; Kreß, C. (2010). *Nullum crimen, nulla poena sine lege*. In A. Peters & R. Wolfrum (Eds.), Max Planck Encyclopedia of Public International Law. https://opil.ouplaw.com/display/10.1093/law:epil/9780199231690/law-9780199231690-e854?rskey=5tAN9Y&result=1&prd=MPIL; Weyembergh, A., & Galli, F. (2013). *Approximation of substantive criminal law in the EU: The way forward*. Éditions de l'Université de Bruxelles.

266 According to Hallevy, *op. cit*., the principle of legality is one of the four fundamental principles immediately derived from the principle of free choice as the supra-principle of Criminal Law theory.

267 Boix Reig, F. J. (1983). El principio de legalidad en la Constitución. *Cuadernos de la Facultad de Derecho*, (4), Universitat de les Illes Balears, 7-30. https://ibdigital.uib.es/greenstone/sites/localsite/collect/cuadernosFacultadDerecho/index/assoc/Cuaderno/s_1983v0/04_pdf.dir/Cuadernos_1983v004.pdf; Fiorella, A.

and penalties in statutory provisions and citizens' right to access them. It instead reflects a deeper expectation for citizens to anticipate the institutional reaction to legally qualified situations at any time. It follows that secrecy over codes and markers that 'formalise'—as they automate— how general presumptive criteria are operationalised at the police prevention level directly conflicts with this precept.

Although police activity is not inherently judicial, police presumptions—distinct from sensitive information about specific, occurred facts—cannot be considered disconnected from the principle of legality when viewed through the lens of the system's own internal coherence. Indeed, from the standpoint of legal ideology, police presumptions are, in theory, invariably meant to fulfil the procedural function of substantiating initial suspicion within a judicial framework[268].

Addressing secrecy head-on as the root of all issues is indeed crucial. Challenging the lawfulness of secrecy—whether at a broader level, such as through my interpretation of the principle of legality, or in more specific terms, such as by arguing that static variables invalidate any anti-circumvention claims—is the first step towards transcending the privacy approach. Thus, claims inherent to the guarantees of the CJS would be brought to the fore, finally relegating the 'provider-customer' scheme, where everything revolves around a trade-off between security and privacy, to the background. Moreover, overcoming secrecy barriers to scrutinise the inputs is the most effective way to reveal the potential commonality of inputs between place-based and person-based systems, a phenomenon I have addressed in Section 4 and in my first paper by reconstructing the historical symbiosis in the criminological rationalisations underpinning both families of crime prediction.

Exposing this commonality is also a prerequisite for minimising the significance of the output type as a reliable 'legality-test', thereby questioning the overall design

(2018). *Le strutture del diritto penale: Questioni fondamentali di parte generale* (1st ed.). G. Giappichelli Editore; Hallevy, *op. cit.*; Kreß, C., *op. cit*.; Lacaze, M. (2011). *De l'exigence de prévisibilité de la loi pénale au devoir de prudence du justiciable professionnel*. Journal d'actualité du Droit International et Européen. https://revue-jadie.eu/article/view/130 . One of the most renowned and ancient examples of normative translation is found in Articles 7 and 8 of the 1789 *Déclaration des Droits de l'Homme et du Citoyen*.

268 This argument does not reflect a belief in the principle of legality as a sufficient safeguard. Rather, it constitutes an immanent critique: by adopting the internal viewpoint of the legal system, it exposes the contradiction between declared principles and operational practices. In this sense, legality is not invoked as a universal value, but as a benchmark of coherence that the system itself fails to uphold—thereby revealing its ideological function.

of the AI Act on PP and paving the way for a necessary distinction between two separate legal questions: the abstract lawfulness of the tool (the only dimension the AI Act considers), and the lawfulness of markers, which cannot just be inferred from the output type.

7 Concluding Reflections

7.1 Synthesising theoretical, empirical, and legal contributions

Throughout this synopsis, I have aimed to move beyond the limitations of the individual articles in two key ways. Firstly, by exploring theoretical and legal dimensions that could not be fully addressed within the constraints of the paper format. Secondly, by weaving the articles together, presenting them as interconnected components that collectively offer a richer understanding—one that exceeds the sum of their individual contributions.

This final chapter offers a holistic synthesis of my contributions to the field, structured in two parts. Section 7.1 outlines the main areas of contribution: (a) theoretical insights, (b) empirical reconstruction, and (c) legal analysis. These themes do not strictly mirror the sequence of the articles, as my aim here is to highlight their transversality and mutual implications[269]. Section 7.2 then returns to the foundational premises introduced at the outset, integrating the materialist critique of automation and AI with the enduring issue of penal selectivity—a defining theme within critical criminology—reconsidered in light of the insights gained from the study of PP.

In terms of theoretical contributions, I began with an analytical separation between individualised and geographical inflections of crime prediction, reflected in the duality of PP techniques with different algorithmic outputs. This separation proves useful to distinguish PP from forensic predictions (AJ), which only focus on individuals and usually consist of decisions that immediately produce legal effects or otherwise require a formal communication to the data-subject recipient.

The distinction between PP and AJ is crucial for a nuanced assessment of regulatory countermeasures, some of which may be pertinent in one context but not in the other. For instance, the 'right to human intervention' under LED, Art. 11, proves ineffective when considering the operational realities of PP. My theoretical

[269] One example is the interdependence between the rejection of epistemic differentiations between place-based and person-based predictions and the legal argument critiquing profiling-based regulations.

retrospective on the development of crime prediction in relation to space (1st research paper) and to individual profiling (Chapter 4) has highlighted more parallels than points of friction, the latter primarily due to historical contingencies.

The result was the outline of a three-step sequence within each timeline, leading to three key conclusions: *a*) the socio-economic deficit paradigm runs continuously through both timelines; *b*) the understanding of the 'crime-space' relationship contributed to the ontologisation of crime and criminal aetiology well before anthropological theories; and *c*) a rejection of the long-standing, dominant assumption that the distinction between place-based and person-based predictions implies lesser or greater invasiveness.

This latter misconception, which also underpins flawed normative solutions, can only stand when ignoring the history of theoretical constructs behind the predictive claims and focusing solely on the outward aspect of the predictive output. Unfortunately, this is precisely the stance adopted in the AI Act concerning PP.

On a more empirical level, my work aimed to spotlight the Italian context, a case hitherto scarcely examined. In the dialectical interplay between real-world data and attempts at conceptualisation, I highlighted the theoretical connotations of the two predictive systems known to date, establishing a continuity of findings with the first article. The observation of the dynamics that accompanied the attempts to integrate these technologies into an already highly selective CJS, an ideal breeding ground for situational and incapacitative agendas, allowed me to rework the concept of 'soft privatisation' in the field of law enforcement. This concept, analytically, must be distinguished from the traditional privatisation of specific segments of security provision.

Concurrently, findings from the second and third articles highlighted communication strategies of the companies involved, some with unexpected outcomes. Notably, the third article revealed contradictions that disprove one company's attempt to portray a sharp increase in product usage after the experimental phase. This is a noteworthy circumstance, as the usual trend is to downplay the real extent of proprietary system use in order to minimise public scrutiny. The fieldwork also mapped the reactions of Italian institutions to information requests. The fieldwork also mapped the reactions of Italian institutions to information requests. It emerged that the police frequently resorted to the anti-circumvention argument, and the DPS disclosed the forthcoming development of a new proprietary system—without, however, revealing the name of the partner company. This information, along with that gathered in the interview with the representative of one company, formed an important basis for the subsequent legal analysis.

Finally, in addressing the case of Italy, I interpretatively outlined a legal systematisation of key issues and legal gaps in the absence of a specific legal

framework. The first step was to reconstruct a *de lege lata* framework which, being one of the few systematisation proposals in the field, deviates from the dominant approach hinging on privacy and personal data protection.

In the text, I present various reasons why I consider this approach unfruitful and not particularly pertinent in the context of law enforcement. Moreover, the pivotal criterion of 'profiling' is tied to specific legal definitions (see Section 6), all of which, more or less implicitly, rest on an individual-shaped algorithmic output, leading also to divergent regulatory consequences between the two fundamental models of predictive systems (an output-type legality test). This perspective, unchanged before and after the AI Act, results in norms that are scarcely relevant in the operational context of PP (such as Article 11 LED) or, at best, leave grey areas, such as the classification of location-based predictions in the AI Act or the issue of input data secrecy.

My argument is a transposition to the legal realm of the theoretical critique which addresses the purportedly less controversial nature of place-based systems. Overlaps and symbiosis at the level of predictive variables between place-based and person-based PP tools have been confirmed in those studies where the inputs, or their typology, were disclosed, debunking the myth that place-based systems, by definition, employ purely spatial inputs[270]. Europol cites the Dutch CAS system as an exemplary place-based model and acknowledges that socio-economic data are fundamental input variables for place-based systems in general. My fieldwork, for its part, revealed that the Italian Data Protection Authority suspended one of the two systems analysed (the place-based 'Software B') precisely for violating personal data protection law. Despite my explicit request for the disclosure of 'Software B' inputs, the predictive markers were not made public following the suspension, thus proving the limitations of a privacy approach even for practical purposes. This further indicates how input data and algorithmic output can differ in nature; in other words, how a place-based output can mask inputs that involve processing of personal data, especially in light of the legal definition of 'data processing'.

As a further result, the emphasis on privacy and the 'output shape' creates a false separation between legal questions that are inherently interconnected: a) the abstract legality of the type of system—the sole dimension addressed by the AI Act; b) the legality of the predictive variables used as inputs, regardless of the output shape; and c) the legal grounds for secrecy claims advanced by vendors or LEAs.

Indeed, without first bringing the problem of secrecy to the forefront, it is futile to discuss ethical applications of predictive technologies—as if these were dark

270 Couchman, H., *op. cit.*; Gatti, C., (2025b). *op. cit*; Lorenz, L. *et al*. (2021). *op. cit.*; Oosterloo, S., & van Schie, G., *op. cit.*

forces to be tamed in a 'humane' manner—or to renew the calls for transparent and responsible use of trustworthy technology, precisely the language employed by Europol, calling for "fair and unbiased policing"[271]. Just as police power theory, on a broader scale, does not seek to enhance police accountability[272], my critique of PP similarly refrains from claims for an ethical re-orientation of technology, without first changing the rules of the game.

The perspective I advocate is, therefore, a reversal of approach, focusing primarily on dismantling secrecy claims, particularly regarding input data. Keeping predictive markers within the secrecy bounds, whether under trade secrecy or anti-circumvention arguments, hinders recognition of the potential continuity and blending between individualised and geo-spatial predictions at the input data level, thereby precluding any challenge to the regulatory approach as a whole.

Throughout my research, I have sought to identify ways to refute the grounds for secrecy claims, based on existing legislation and in the absence of definitive provisions. By consistently distinguishing between abstract presumptive criteria and data related to an investigated fact, even a general understanding (without knowing its markers in detail) of a specific device can facilitate the formulation of legal counterarguments. For instance, the static nature of predictive variables can already undermine the alleged need to neutralise evasive behaviours by keeping these variables secret. Setting aside other possible context-based counterarguments, I also propose a more general approach to challenge the grounds of secrecy through a systemic interpretation of the principle of legality in the rule of law. This path lacks extensive doctrinal examination. However, it appears to offer a starting point for future reflections aligned with a focus on clear demands—not confined to the abstract enunciation of principles—radical in purpose, yet not descending into legal nihilism (see Section 2.2.1). My contention is that the automation of preventive practices—accompanied by the secrecy of inputs, i.e., how abstract and general presumptive criteria are translated downstream at the operational level—raises the issue of the predictability of authorities' actions, a typical area of concern for the principle of legality, along with the transparency of norms.

7.2 The politics beneath the code

Returning to the theoretical premises outlined in Chapter 2, this section deepens the foundational critique of AI and its interrelation with penal selectivity within the context of PP. From a materialist perspective, I argued that technology does not generate social relations but rather objectifies them within technical arrangements.

271 Europol. *Op.cit.,* p. 32.
272 Neocleous, M. (2021). *Op. cit*., p. 51.

This perspective challenges the technocratic approach that prioritises the quality of training data as essential for reliable and ethical predictions free from design flaws. The technocratic stance essentially operates as a linear self-justification (or 'deficiency argument' in Zavrsnik's words[273]): although presented as a mere methodological argument, it precludes substantive questioning, as any failure of the method is tautologically attributed to its underdevelopment. If the system does not function optimally, the argument goes, this is simply because the method has not been sufficiently applied and must be further enhanced —not because the method itself is the problem. This logic avoids confronting the irreducible contradiction between a falsely universal crime phenomenology and the socioeconomic filters orienting the penal system in its entirety, including, as Neocleous argues, the historical function of police power in constructing the capitalist order[274].

It is precisely this embedded selectivity—masked by technocratic neutrality—that underpins the operational logic of PP systems. More specifically, the history of crime prediction theories, whose latest developments underpin the theoretical architecture of PP systems, centres on the constant need to overlay, in a more or less mediated manner, socioeconomic characterisation onto criminogenic conditionality.

Thus, the issue is not so much the quality of the training data, but rather why *those* data are selected, the institutional practices they stem from, and the mechanisms that render them relevant.

Rather than endorsing a Luddite-like nihilism, my point of contention is not the veracity of a link between certain criminalised behaviours and socio-economic conditions, always bearing in mind the highly heterogeneous nature of 'crime'—whose formal unity conceals a wide range of empirically distinct phenomena. Predictive algorithms, for instance, could utilise the socio-economic information they gather for various purposes, such as mapping disadvantaged areas. The political question, unrelated to the existence of these technologies, remains: why, once that information is held, should the response be increased policing rather than enhanced public services?

The issue of ‘crime repetitiveness’ (see Section 5) is another excellent example of how markedly political selections are often framed as ostensibly technical feasibility requirements[275]. While it is not disputable that training an algorithm may

273 Završnik A., ed., 2017. *Op. cit*., p. 11.

274 Neocleous, M. (2021), *op. cit,*

275 The premise always being that data is objective and unbiased. See: Crawford, K. (2021). *Atlas of AI: Power, politics, and the planetary costs of artificial intelligence*. New Haven: Yale University Press; Scassa, T. (2017). Crime data and analytics: Accounting for crime in the city. In R. Kitchin, T. P. Lauriault, & G. McArdle (Eds.), *Data and the city* (pp. 59–71). London: Routledge

necessitate a minimum volume of data, the core issue lies not in the technological device or in misalignments with 'human' methods, but in the purported intrinsic scarcity or abundance of certain data as a non-political given.

We can therefore argue, that the algorithmic bias relates to the very selection of the type of algorithm[276] or the choice of variables (i.e., the feature selection[277]), with biases in training data being just a subordinate adjustment within that frame. Neither is this an 'alignment problem' as the signers of the 2023 FLI open letter would have us believe[278].

Feature selection, determining which data should be considered indicative of criminal propensity, and the choice of the type of algorithm—the steps whereby relevant data combine and culminate in a predictive output—are operational translations of the criminal policy agenda. This dictates the modalities of technological deployment rather than the reverse. Consequently, while discussing algorithms, I have kept foremost in mind the explanations of penal selectivity provided by the pioneers of critical criminology, as well as the more recent insights on the crimes of the powerful. The latter, well before algorithmic predictions, already demonstrated that systemic asymmetries in surveillance do not stem from logical or material unfeasibility, debunking the myth that technical justifications, such as data availability or data quality, are apolitical[279].

Regarding the political and cultural entrenchment of selectivity, Europol's report on AI and policing highlights the prediction of bicycle thefts to exemplify one of the most illustrative PP real-world applications[280]. Put differently, the initial police agenda is not set as a result of the use of algorithms.

The Italian case shows how the secrecy of predictive markers, in connection with corporate spin and competition in an emerging market, may reinforce pre-existing selectivity through a two-fold extension, particularly when compared to other countries. Firstly, through an acceleration – due to automation – of the previous capability of the CJS to select its targets; secondly, as crime prevention becomes a field of immediate capitalisation for private companies, which are likely to have little

276 Madrid Casado. *Op. cit*., p. 125.

277 Barocas, S., & Selbst, A. D. (2016). Big data's disparate impact. *California Law Review, 104*(3), 671-732. https://doi.org/10.2139/ssrn.2477899 ; Favaretto *et al*. *Op. cit.*

278 Future of Life Institute. (2023). *Op. cit.*

279 Alvesalo, A., Tombs, S., Virta, E., & Whyte, D. (2006). Re-imagining crime prevention: Controlling corporate crime? *Crime, Law and Social Change, 45*(1), 1-25. https://doi.org/10.1007/s10611-005-9004-2

280 Europol. *Op. cit*. p. 16.

interest in addressing other types of crimes—particularly corporate ones—while easily operationalising the ready-made templates of situational theories.

It is quite challenging to predict whether Italy will see the emergence of companies akin to giants like Palantir and Axon, or if this formative market phase will continue for long. Despite the entry of the DPS, which will provide a significant advantage to the Italian State's partner company, the situation remains uncertain.

Nonetheless, it is intriguing to consider the involvement of financial and investment firms in the capital composition of tech giants dedicated to law enforcement. Focusing on key players with substantial influence over corporate decisions, the investment management companies that possess more than 1% of Axon's shares include Vanguard Group Inc. with 10.71%, BlackRock Inc. with 10.34%, State Street Corporation with 3.98%, Franklin Resources Inc. with 2.43%, Geode Capital Management LLC with 2.34%, and Invesco Ltd with 1.76%.[281]

Palantir Technologies Inc., for its part, has significant operations in Europe. Palantir's Gotham platform, customised as POL-INTEL, is utilised by the Danish police and has also been employed by German police in Hesse and Hamburg, although its use was recently interrupted by the German Federal Constitutional Court[282]. Major investment companies hold substantial shares, including Vanguard Group Inc. with 6.5%, BlackRock Inc. with 5.3%, and State Street Corporation with 2.8%, all of which also invest in Axon, as well as the renowned Morgan Stanley with 3.2%.[283]

Given such a landscape, it is hard to believe that developing companies will suddenly shift their focus to fraud and embezzlement, at the expense of the currently popular burglary, theft, and street robbery. The scepticism extends to nascent companies, including those in Italy, which, although less structured, will inevitably face the challenge of securing capital through investors or financial institutions—a process that is likely already underway or has at least been attempted, as suggested by the internal competitiveness observed in my research fieldwork and the involvement of DPS in partnerships for future proprietary software.

281 Yahoo Finance. (2025). Axon Enterprise, Inc. (AXON) stock major holders. https://finance.yahoo.com/quote/AXON/holders/

282 Galis, V., & Karlsson, B. (2024). A world of Palantir – ontological politics in the Danish police's POL-INTEL. *Information, Communication & Society, 27*(13). https://doi.org/10.1080/1369118X.2024.2410255; International Association of Privacy Professionals. (2023). *German Constitutional Court blocks police use of surveillance software*. https://iapp.org/news/b/german-constitutional-court-blocks-police-use-of-surveillance-software

283 Yahoo Finance. (2025). Palantir Technologies Inc. (PLTR) stock major holders. https://finance.yahoo.com/quote/PLTR/holders/

In an exercise of poetic irony, I consulted a language model (LLM) to hear its "defence" of AI regarding the selective use of PP for certain target crimes and further elucidate whether insuperable technical constraints could justify such a selection of predictable crimes. Throughout this exercise, I remained mindful that AI is just a powerful synthesiser of training data and web searches that reflects the *zeitgeist* on the inquired subject, capturing the prevailing opinions and the most recurring information available. Beginning with the question of whether my premise that PP algorithms primarily focus on street crimes is valid, the LLM responded that "*the premise is largely accurate. PP systems tend to focus more on street crimes than white-collar crimes for several reasons*." When inquired about the fundamental reasons for this asymmetry, Copilot enumerated: "*(1) Street crimes, such as burglaries, assaults, and thefts, are more frequently reported and documented, providing a larger dataset for analysis; (2) Street crimes often have a more immediate and visible impact on public safety and community well-being. Law enforcement agencies prioritise these crimes to maintain public order and safety; (3) Street crimes are more likely to exhibit geographical patterns, making it easier to predict where they might occur; (4) Law enforcement agencies often have limited resources. Focusing on street crimes allows them to deploy officers more strategically to areas with higher crime rates; (5) White-collar crimes, such as fraud and embezzlement, are often more complex and less frequent."*

Not-so-unexpectedly, it is the very AI that, when prompted, reveals the origin of the real determinants: in some cases, these are immediately political (points 1, 2, and 4); in others, albeit mediated, the connection with preconditions that are only ostensibly non-political, such as the 'repetitiveness of crime' (point 5), and the reference to 'space' coordinates (point 3), is evident.

Subsequently, I asked whether it was then possible to develop a PP system targeting fraud. Copilot affirmed this and amusingly outlined the input data to be: *"(1) Transaction Data: Detailed records of financial transactions, including amounts, dates, times, and locations, to identify unusual patterns or anomalies. (2) User Behaviour Data: Information on user activities, such as login times, IP addresses, and device usage, to detect deviations from typical behaviour. (3) Historical Fraud Data: Past instances of fraud, including the methods used, to train the system on recognising similar patterns. (4) Demographic Data: Information about the individuals involved, such as age, occupation, and location, to identify potential risk factors. (5) External Data: Data from external sources like social media, news reports, and public records, to provide additional context and identify potential fraud indicators. (6) Network Data: Information on relationships and interactions between entities, to detect suspicious connections and networks. (7) Regulatory Data: Compliance and regulatory records, to ensure the system adheres to legal standards and identifies regulatory breaches".*

Funnily enough, some of these items specifically relate to fraudulent behaviours, while others—particularly point 4—appear borrowed from conventional literature on criminal profiling. Nevertheless, even in these instances, one might wryly keep the conventional evidentiary framework with an inverted focus: the significance of demographic data on profession and location, while preserved, would be reinterpreted within a "white-collar" context. This would entail assigning a qualified risk score to professions and locations (physical, such as offices, or virtual, such as IP addresses) that are preconditions for committing fraud, radically excluding from scrutiny those groups lacking these characteristics.

Setting aside this somewhat provocative digression, meant to further underscore the ambiguity between technical and political constraints through a blend of seriousness and jest, my intention has also been to critique conventional criticisms.

In my ‘decentring’ of technological intricacies, AI may become a potential ally, not just in the playful tone of my dialogue with the LLM. AI can indeed dismantle and corner human hypocrisy as never before. By making explicit the informal steps through which criminal policy objectives are defined and implemented as instructions to a machine, these objectives could be brought out of the human 'black boxes' that, as the founders of critical criminology noted, have shaped the destiny of the CJS long before algorithmic technologies.

Unveiling these secrets is a necessary and legally plausible step towards this exposure, which would certainly not mark the end of selective penal policies but could directly and perhaps unprecedentedly undermine their legitimacy. I hope my non-technology-centred approach can be taken for what it is: not a sidelining of technology, but a refusal to fall into the fallacy of the ‘pure automation’ thesis, and a deliberate distancing from the desolation of the ‘pros and cons’ listings.

8 Introduction to Research Articles

8.1 Substudy 1

The first research article explores the historical and theoretical evolution of the space-crime relational understanding, aiming to trace the development from the early forms of crime mapping to contemporary place-based PP. The decision to focus on the history of ideas related to spatial prediction is not incidental, but rather serves to counterbalance the prevailing assumption that space-filtered conceptualisations reflect a preference for less invasiveness and greater compliance with rights compared to predictive profiling.

The methodological approach of the article comprises an extensive literature review, spanning the Cartographic School in England and France, the Chicago Ecological School, and contemporary situational theories and PP literature. The primary objective is to uncover the epistemic continuities and disruptions in the conceptualisation of crime in relation to space. The literature review is conducted in parallel with an ideological critique.[284]

It is important to stress that, while I refer to my retrospective study as a genealogical reconstruction, "genealogy" should not be interpreted here in the Foucauldian sense. Rather it should be understood in a more literal sense[285], referring to the tracing of the origins and historical development of certain ideas to elucidate their role in mystifying and justifying the existing social order, in alignment with the ideological critique of the materialist tradition[286]. I gradually realised the importance of clarifying this distinction, especially in light of the tendency of Foucauldian scholarship to assume the unavoidable Foucauldian paternity of any critical effort

284 Williams, R. (2011). Ideology. In *Keywords: A vocabulary of culture and society*. Routledge. https://doi.org/10.4324/9780203124949

285 Limitedly to the Anglophone context, John Trevisa's translation of the "Polychronicon" by Ranulf Higden, completed around 1387, is one of the earliest known uses of the term "*genealogy*" in English.

286 Marx, K., & Engels, F. (1970). *The German Ideology* (Original work published 1846). New York, NY: International Publishers.

worthy of this name. I have sometimes been asked why Foucauldian genealogy had not been assigned a central standing in the article.

With the materialist foundations of my dissertation clarified, it may now be pertinent to delve a bit deeper into the point, trying not to devolve into a philosophical discussion. Adhering to Foucauldian genealogy is not merely a way to proceed; it is, first and foremost, adhering to a philosophy of history, an anthropological philosophy, and a philosophy of the objectivity of reality and its knowledge. If these are not shared, as in my case, there is no point in defining one's work as a Foucauldian genealogy, precisely not to trivialise Foucault's work[287].

That being clarified, the identification of epistemological continuities and disruptions across various conceptualisations of crime in relation to space is filtered through the lens of Italian-Hispanophone critical criminology, which views criminological theories as ideological tools that primarily serve to maintain – within the penal subsystem - the principal contradiction of capitalist society. Thus, I am not referring to epistemological ruptures or continuities from a computer science perspective[288], nor do I consider different representations or technical

[287] Influenced by Nietzsche's conception of history, Foucault posits that it is the present that organises and imparts meaning to the past. This perspective is inextricably linked to a view of reality as primarily shaped and structured by discourse, a practice autonomous from subjective intentions and social conditions. Discourse's power also questions the idea that reality can be objectively known, as knowledge and science are tools of domination. See, in this respect, Foucault, M. (1995). *Discipline and punish: the birth of the prison* (A. Sheridan, Tran.; Second Vintage Books edition). New York: Vintage Books, p. 27. In terms of subject formation, biopolitics suggests that individuals are products of discourses and power practices, unlike the dialectical view of individuals as autonomous moral agents responsible for their actions within history. Combining these ideas brings us back to the issue of knowing reality objectively and the link between ideology and reality. Dialectical materialism holds that truth is not absolute; it is historically determined and connected to social development. However, truth can have objective value if it is not arbitrarily derived. Thus, knowing reality objectively, though influenced by history, is possible, supporting the importance of material elements over discourse. This does not mean ignoring how science relates to class society, where it often serves to maintain class dominance. Yet, it does not diminish science's potential for emancipation. Recognising these interacting aspects helps analyse ideas not as isolated and abstract but often as ways to maintain class dominance, using theories that make social relations seem natural and eternal.

[288] Haelterlein, J. (2021). Epistemologies of predictive policing: Mathematical social science, social physics and machine learning. *Big Data & Society*, *8*(1). https://doi.org/10.1177/20539517211003118

reorganisations of the same reality data to constitute different understandings of crime[289].

The article identifies three pivotal moments in criminological production, already noted in the literature[290]: the French and English cartographic school of the 19th century, the Chicago School, and situational theories, the latter being the theoretical reservoir for all literature supporting PP. The first two moments of the periodisation reflect distinct historical and geographical phases, albeit united by a homogeneity of social and demographic processes corresponding to the first and second industrial revolutions, while situational theories reflect the penal-political agenda of the end of penal welfarism starting from the 1970s.

The differences emerging between the various stages are significant but prove essentially subordinate to maintaining, through historical and social evolution, the same basic explanatory pattern of crime in relation to space—a pattern whose identification constitutes the first important finding of the article. This common thread is a rational action scheme embedded in the socio-economic deficit. While initially blatant in the Cartographic School, this paradigm is then mediated by environmental factors in the Chicago School, and only falsely abandoned by situational theories, which, despite their declared intentions of space-centred neutrality, systematically recover it in delineating the presumptive theorems that should guide police action.

Another important finding of the article derives from the analysis of the circumstances that marked the end of the Cartographic School, which was essentially supplanted by the appearance of another line of thought behind crime prediction: anthropological theories and individualised prognosis. It was precisely the first moment of this alternative, person-based theoretical line—also punctuated by three key stages[291]—that signalled the end of the Cartographic School for reasons more related to political contingencies than theoretical incompatibilities. Although not envisaged as a central hypothesis when designing the study, the tension between the Cartographic School and anthropological theories revealed that the ontologisation of

289 Alghamdi, J., & Al-Dala'in, T. (2023). Towards spatio-temporal crime events prediction. *Multimedia Tools and Applications, 83*(2024), 18721–18737. https://doi.org/10.1007/s11042-023-16188-x; Kaufmann, M., Egbert, S., & Leese, M. *op cit*; Kounadi, O., Ristea, A., Araujo Jr., A., & Leitner, M. (2020). A systematic review on spatial crime forecasting. *Crime Science, 9*(1), Article 7. https://doi.org/10.1186/s40163-020-00116-7

290 Kindynis, T. (2014). Ripping up the map: Criminology and cartography reconsidered. *British Journal of Criminology, 54*(2), 222–243. https://doi.org/10.1093/bjc/azt077

291 I am referring to the three stages illustrated also in Section 4.1: 1) Anthropological paradigm; 2) Actuarial paradigm; 3) Selective Incapacitation. This periodisation adheres to the reconstruction proposed by Harcourt (2007), *op. cit.*

crime had already been facilitated by place-based theories well before the emergence of anthropological theories, contrary to the common perception that crime as an ontological reality was primarily posited by criminological positivism. Thus, I could conclude that the contribution of the Cartographic School to criminal aetiology is seriously underestimated[292].

Finally, the third important finding emerges from the deepening of the study of the cross-relationship between these two theoretical timelines. Indeed, for substantive, historical, and biographical reasons detailed in the article, after the initial 'misalignment' between the Cartographic School and Criminological Positivism, the subsequent moments show a symbiosis between place-based and person-based theories to such an extent that the distinction appears as a false dichotomy[293]. This synchronisation is particularly evident between the Actuarial Paradigm and the Chicago School (moment 2 of each timeline), and between Selective Incapacitation and Situational Theories (moment 3). This important observation forms the basis for my insistence on the potentially misleading nature of the distinction between 'place-based' and 'person-based', especially when resulting in differential regulation of contemporary PP systems, where these ideological bottlenecks—inherited from decades of criminological rationalisations—are perpetuated and replicated in the form of interchangeable predictive input variables.

This raises questions about the meaningfulness of calls for transparent and unbiased use of such technologies, when disconnected from deeper problematisations—ones capable of moving beyond the search for technical solutions to biases and asymmetries. In conclusion, the first article provides a foundational analysis of the broader themes of this dissertation, offering an overarching lens to expose the socioeconomic selectivity inherent in the history of crime prediction, with a particular emphasis on spatial analysis, and to critically assess the epistemic significance of the difference between person-based and place-based predictions.

8.2 Substudy 2

This section introduces the article "Monitoring the Monitors: A Demystifying Gaze at Algorithmic Prophecies in Policing," which represents an initial foray into the case study through a systematic review of secondary sources. Although all scrutinised

[292] This might also help to explain the imbalance of attention towards the problems raised by profiling techniques, to the detriment of spatial conceptualisations

[293] The problematic nature of this distinction has also been highlighted by Pavoni & Tulumello, *op. cit.*, p. 309.

data are publicly available, the article is the first to comprehensively search, locate, and systematise them.

In more strictly methodological terms, the materials consist of institutional reports, newspaper surveys, texts authored by software creators, public interviews with users and representatives of PP software owners, and these companies' websites and social media. The article is a pivotal component of the dissertation, as it bridges the theoretical analysis presented in the first research paper with the examination of a concrete case. Here, the ideological arsenal dissected in the theoretical framework is observed in its deployment in official statements and marketing material from two PP firms and their promoters.

The assessment of the significance of the pieces analysed is conducted through qualitative content analysis to extrapolate major thematic nuclei and identify recurring argumentative patterns. These themes can be schematically summarised into discourses involving a surreptitious ontologisation of crime (with 'crime' being clearly delimited by socio-economic characterisations); dire accounts of the mounting insecurity for cities and communities caused by robbery and shoplifting, the target crimes of the advertised technologies; and the providential nature of PP as the epochal solution to age-old problems that cannot be otherwise eradicated.

The case contextualisation, providing the backdrop for the analysis, first proceeds by depicting the selectivity of the Italian CJS based on official statistics and informative articles. This step, which I have extended and updated in section 5.1 of this dissertation, is essential for understanding the implications of integrating predictive technologies into a social and institutional fabric that is not a virgin ground but is already affected by discriminatory practices that may be easily exacerbated by predictive technologies trained on previously established approaches.

Predictive technologies, in turn, necessarily reinforce a specific understanding of security already promoted by several "security packages" introduced in Italy over the span of a few years. To better highlight this mutual reinforcement, I situate PP within the broader framework of neoliberal governance post-2008 crisis and the increasing involvement of private entities in public security. Regarding the first aspect, my interpretation of the Italian case is that, far from being a self-limitation of government or a governmental deflation in Foucauldian terms, the retreat of the welfare state has merely represented a different form of capital governance. Concerning the increasing presence of private entities in the security provision chain, the article has provided an opportunity to outline the notion of "soft privatisation" in the law enforcement context. This concept differs both from its scope in other legal branches and from more common examples of full-fledged privatisation of security functions. Indeed, no formal outsourcing of any public function takes place here.

However, the crafting of proprietary technologies would be impossible without the prior collection of information available only to public bodies. This involves a

back-and-forth flow between the public and private sectors, with boundaries more blurred than in any traditional private-to-public inflow. This dynamic also enables the exacerbation of the targeting of criminal policies more agilely than through formal legal reforms. Notably, the concept of soft privatisation applied to PP, while not covering all known instances of PP implementation, accurately describes many cases of proprietary systems.

In addition to the qualitative findings and the definition of a contextualised concept of ‘soft privatisation’, the article identifies three primary patterns of social harm produced by PP: the maintenance of a tolerable level of street crime as a prerequisite for the commercial viability of proprietary tools; the acceleration, or over-anticipation, of existing marginalisation and stigmatisation, both converging in the inherent pain delivery of the CJS; and the erosion of democratic accountability through the tautological self-legitimation of critical institutional practices, such as those of the police.

As previously discussed, it is important to reiterate that my use of the concept of social harm serves as a descriptive tool for organising multi-level phenomena. However, this should not be misconstrued as an endorsement of social harm as the foundational theoretical paradigm of a new discipline—zemiology—inherently opposed to any form of 'criminology.' As mentioned in section 2.2 and elaborated elsewhere[294], treating social harm as a foundational theoretical paradigm builds on premises that misinterpret and arbitrarily obscure the epistemological foundations of materialist critical criminology, making the two paradigms theoretically irreconcilable.

8.1 Substudy 3

The article "Predictive Policing in Action: A Field-Based Critique of the Italian Case" marks the culmination of the gradual shift from a broader theory-centred analysis towards an in-depth, case-specific examination. As the title suggests, the article provides an exploratory study that shifts from relying on secondary sources (2nd research paper) to incorporating first-hand information from developers and institutional users of two predictive tools, thereby outlining a richer understanding of the current implementation of PP in Italy. The collection of information from manufacturers and police agencies was primarily conducted through written exchanges, some of which were carried out, where technically necessary, via certified email, and, in one instance, through an interview.

294 Gatti, C. (2023). *Op. cit.*

Aware of the foreseeable difficulties in obtaining information known only to a few actors and likely to generate a chain effect in the request for increasingly detailed clarifications, the fieldwork was preceded by more informal exchanges with other specialists in the field to test the initial information and make any necessary adjustments. Following similar studies facing the same obstacles, the responsiveness of the approached respondents was in itself one of the objects of the research, as well as a subject of political analysis. Although not initially contemplated, the research also included interactions with the GDPD and the Department of Public Security (DPS), to which I was led by knowledge collected through the field research. Inevitably linked to the matter of responsiveness were the pursuit of new insights into the functioning and scope of these two tools compared to publicly available information, and an assessment of major legal matters emerging.

A first key finding of the article pertains to the collection of the spectrum of reactions displayed by the approached respondents. These were not sampled, thus consisting of the totality of police agencies indicated as users of either of the two software packages, and the two developing firms. While a lack of responsiveness and transparency was manifest in various ways throughout the fieldwork, the firm labelled as 'Company A' granted an interview, while several of the police headquarters among the reactive ones – including the DPS - resorted to secrecy claims corresponding to typical anti-circumvention arguments.

Instead, some LEAs, quite surprisingly, declared that they had never used predictive tools nor heard of the corresponding company, a scenario that involved exclusively alleged users of 'Software B'.

Issues related to responsiveness and secrecy claims constituted the foundation for a legal and political assessment of their significance, prompting the elaboration of counterarguments regarding the legal soundness of secrecy both on a general legal-system and a context-based level. The latter dimension, in particular, was enabled by concurrent findings about the predictive markers. Although not resulting in detailed lists of algorithmic inputs, all the indications from fieldwork and the combination of field-based clues and previously known data corroborated the static nature of the predictive variables or, like in the case of Software A, variables unmodifiable at the subject's will (unconscious behavioural components). It is evident that with variables of this kind it is quite baseless to invoke the need for secrecy as a countermeasure to evasive strategies.

Through the insights from police agencies denying having ever been PP users and the analysis of geo-demographic statistics, a clear trend emerges: non-respondent 'Company B' seek to present the image of a seamless expansion of its software from beta testing to current usage. The reality corresponds to a significant and progressive decline in its use, primarily among the original testers. This communicative attitude stands in opposition to the companies' most common

tendency to omit or downplay details about the scope of use of their predictive algorithms to sidestep public scrutiny and requests for further explanations. Such anomalies, coupled with confirmations that 'Software A' had very limited use, while 'Software B' was suspended in one municipality as a result of an investigation opened by the national GPDP, reveal a market traversed by general scepticism. In this context, companies appear to prioritise building an image of credibility and product reliability over eschewing external scrutiny.

Incidentally, the information about the suspension by the GPDP due to the violation of data protection regulations is an argument in support of the repeatedly mentioned issue of the interchangeability of data types between input and output, considering that 'Software B' is a classic example of predictive mapping.

The ascertainment of such a scenario, while important for uncovering previously unknown information, necessitates in hindsight a recalibration of some of the observations set forth in the second article. Indeed, the trends outlined there hold validity at the level of general tendencies and potential amplifications in the political-technological interaction between long-established policies and their outsourcing to automated tools. However, within this mutual political-technological strengthening, PP is not the driving force of the duo, as the local PP industry is currently at a standstill and preparing for an attempt at reorganisation.

This is also what emerges from the exchange with the DPS, which announced the ongoing development of a proprietary system developed under ministerial auspices, and whose internal functioning, according to the listed characteristics, closely resembles Software A. However, the department did not disclose the company's name, nor did it confirm or deny any connection to Software A when asked directly. While acknowledging the current attempt to relaunch PP in Italy—this time with ministerial approval—the key point remains that, contrary to EUCNP guidelines, the approach will still be rooted in proprietary systems.

Abbreviations

AJ	Algorithmic Justice
ANN	Artificial Neuronal Network
CJS	Criminal Justice System
DPS	Department of Public Security (Italy)
EUCPN	European Crime Prevention Network
FRIA	Fundamental Right Impact assessment
GDPD	Italian Data Protection Authority
GDPR	Regulation EU 2016/679 (General Data Protection Regulation)
IMCO	Committee on the Internal Market and Consumer Protection
LASER	Los Angeles Strategic Extraction and Restoration
LEAs	Law Enforcement Agencies
LED	Directive EU 2016/680 (Law Enforcement Directive)
LIBE	Committee on Civil Liberties, Justice and Home Affairs
LLM	Large Language Model
NYPD	New York City Police Department
PP	Predictive Policing

List of References

Agamben, G. (2005). *State of Exception*. Chicago: University of Chicago Press.

AIWS.net. (2021). This week in the history of AI at AIWS.net: MIT receives a $2.2 million grant in June 1963 from DARPA. *AIWS.net*. https://aiws.net/the-history-of-ai/this-week-in-the-history-of-ai-at-aiws-net-mit-receives-a-2-2-million-grant-in-june-1963-from-darpa/

Alghamdi, J., & Al-Dala'in, T. (2023). Towards spatio-temporal crime events prediction. *Multimedia Tools and Applications, 83*(2024), 18721–18737. https://doi.org/10.1007/s11042-023-16188-x

Algorace. (2025). *Injustice by algorithm: 'Predictive' policing and criminal 'prediction' and profiling systems used by law enforcement and criminal justice authorities in Spain*. Algorace & Statewatch. https://www.algorace.org/wp-content/uploads/2025/06/Report_Injustice-by-algorithm_JusticeandPolice-EN.pdf

AlgorithmWatch. (2020). *Automating society report 2020*. https://algorithmwatch.org/en/automating-society-2020/

Alschuler, A. W. (2003). The changing purposes of criminal punishment: A retrospective on the past century and some thoughts about the next. *The University of Chicago Law Review, 70*(1), 1–22. https://doi.org/10.2307/1600541

Alvesalo, A. (2001). Downsized by law, ideology, and pragmatics – Policing white-collar crime. In G. W. Potter (Ed.), *Controversies in white-collar crime*. (1st ed., pp. 149-164). Routledge. https://doi.org/10.4324/9781315722009-8

Alvesalo, A., Tombs, S., Virta, E., & Whyte, D. (2006). Re-imagining crime prevention: Controlling corporate crime? *Crime, Law and Social Change, 45*(1). https://doi.org/10.1007/s10611-005-9004-2

Angwin, J., Larson, J., Mattu, S., & Kirchner, L. (2016). Machine bias. *ProPublica*. https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing

Aniyar de Castro, L. (1987). *Teorías de la reacción social*. Caracas: Editorial Jurídica Venezolana.

Babuta, A., & Oswald, M. (2019). *Data analytics and algorithmic bias in policing*. Royal United Services Institute for Defence and Security Studies. https://www.rusi.org/explore-our-research/publications/briefing-papers/data-analytics-and-algorithmic-bias-policing

Balbi, A., & Guerry, A. M. (1829). *Statistique comparée de l'état de l'instruction et du nombre des crimes dans les divers Arrondissements des Académies et des Cours Royales de France*. Paris: Jules Renouard.

Barabas, C., Dinakar, K., Ito, J., Virza, M., & Zittrain, J. (2018). Interventions over predictions: Reframing the ethical debate for actuarial risk assessment. In *Proceedings of the 1st Conference on Fairness, Accountability, and Transparency* (pp. 62-76). PMLR. https://doi.org/10.48550/arXiv.1712.08238

Baratta, A. (1975). Criminologia liberale e ideologia della difesa sociale. *La Questione Criminale*, *1*, 7–65

Baratta, A. (1980). Criminología y dogmática penal. Pasado y futuro del modelo integral de la ciencia penal. *Papers : revista de sociología*, *13*(13), 13-48. https://doi.org/10.5565/rev/papers/v13n0.1192

Baratta, A. (1986), *Criminología crítica y crítica del derecho penal. Introducción a la sociología jurídico penal*, Buenos Aires: Siglo XXI.

Baratta, A. (1989). Por una teoría materialista de la criminalidad y del control social. *Estudios Penales y Criminológicos*, (*XII*)57, Servizo de Publicacións da Universidade de Santiago de Compostela, pp. 14-68.

Barocas, S., & Selbst, A. D. (2016). Big data's disparate impact. *California Law Review, 104*(3), 671-732. https://doi.org/10.2139/ssrn.2477899

Bazilchuk, N. (2015, November 27). Could we predict crimes the way we predict weather? *Science Norway*. https://www.sciencenorway.no/criminality-forskningno-information-technology/could-we-predict-crimes-the-way-we-predict-weather/1425999

Beck, C., & McCue, C. (2009). Predictive policing: What can we learn from Wal-Mart and Amazon about fighting crime in a recession? *Police Chief*, 76(11), 18-24.

Becker, H. S. (1963). *Outsiders: studies in the sociology of deviance*. New York: Free Press of Glencoe.

Bentham, J. (1931). *Theory of Legislation* (C. K. Ogden, Ed.). Routledge & Kegan Paul Ltd. (Original work published 1802)

Bentham, J. (2001). *The collected works of Jeremy Bentham: Writings on the poor laws* (M. Quinn, Ed., Vol. 1). Oxford University Press. (Original work published 1796)

Beirne, P. (1979). Empiricism and the Critique of Marxism on Law and Crime. *Social Problems (Berkeley, Calif.)*, *26*(4), 373–385. https://doi.org/10.2307/800501

Benbouzid, B. (2017). On crime and earthquakes: Predictive policing at the crossroads between science, technology, and divining. *Réseaux*, 206(6), 95-123. https://doi.org/10.3917/res.206.0095

Benbouzid, B. (2019). To predict and to manage: Predictive policing in the United States. *Big Data & Society, 6*(1). https://doi.org/10.1177/2053951719861703

Beniger, J. R. (1986). *The control revolution: technological and economic origins of the information society*. Cambridge, MA: Harvard UP.

Berg, M. (1980). *The machinery question and the making of political economy, 1815-1848*. Cambridge: Cambridge University Press.

Bergalli, R. (1980). Origen de las teorías de la reacción social (un aporte al análisis y crítica del 'labelling-aproach'). *Papers: Revista de Sociologia,13*. https://doi.org/10.5565/rev/papers/v13n0.1193

Bianchi, H., Simondi, M., & Taylor, I. (Eds.). (1975). *Deviance and control in Europe: Papers from the European Group for the Study of Deviance and Social Control*. London: Wiley.

Blackstone, W. (1770). *Commentaries on the laws of England. In four books. By William Blackstone, Esq. Solicitor General to Her Majesty*. 4th edition. Vol. 4. Oxford: Clarendon Press.

Bloch-Wehba, H (2021). Visible policing: Technology, transparency, and democratic control. *California Law Review, 109*(3), 917–978. https://doi.org/10.15779/Z38NS0KZ51

Bodin, J. (1583). Les six livres de la République. In G. Mairet (Ed.), *Un abrégé du texte de l'édition de Paris de 1583* (1993). Paris: Librairie générale française: https://classiques.uqam.ca/classiques/bodin_jean/six_livres_republique/six_livres_republique.html

Boix Reig, F. J. (1983). El principio de legalidad en la Constitución. *Cuadernos de la Facultad de Derecho*, (4), Universitat de les Illes Balears, 7-30. https://ibdigital.uib.es/greenstone/sites/localsite/collect/cuadernosFacultadDerecho/index/assoc/Cuaderno/s_1983v0/04_pdf.dir/Cuadernos_1983v004.pdf

Bonta, J. (1996). Risk-needs assessment and treatment. In A. T. Harland (Ed.), *Choosing correctional options that work: Defining the demand and evaluating the supply* (pp. 18-32). Newbury Park, CA: Sage.

Bratton, W. J., & Malinowski, S. W. (2008). Police performance management in practice: Taking COMPSTAT to the next level. *Policing, 2*(3), 259-265.

Brayne, S. (2021). *Predict and surveil: Data, discretion, and the future of policing*. New York: Oxford University Press

Burgess, E. W. (1928). Factors determining success or failure on parole. In A. A. Bruce, A. J. Harno, E. W. Burgess, & J. Landesco (Eds.), *The workings of the indeterminate sentence law and the parole system in Illinois* (pp. 205-249). Springfield, IL: Illinois State Board of Parole

Burgess, E. W. (1936). Protecting the public by parole and by parole prediction. *Journal of Criminal Law and Criminology, 27*(4), 491-502

Camilleri, H., Ashurst, C., Jaisankar, N., Weller, A., & Zilka, M. (2023). Media coverage of predictive policing: Bias, police engagement, and the future of transparency. In *Proceedings of the EAAMO '23 Conference*. https://doi.org/10.1145/3617694.3623249

Campesi, G. (2016), *A Genealogy of Public Security*. *The theory and History of Modern Police Powers.* New York: Routledge.

Canning, V., & Tombs, S. (2021). *From Social Harm to Zemiology: A Critical Introduction*. Oxford: Routledge. https://doi.org/10.4324/9780429430497

Carlen, P. (2014). Just Criminology: The Legacy of Jock Young. *Crime, Media, Culture*, *10*(3), 191–202. https://doi.org/10.1177/1741659014556038

Carrapico, H. (2021). An exploration of security privatisation dynamics through the lens of social harm. In P. Davies, P. Leighton, & T. Wyatt (Eds.), *Palgrave Handbook of Social Harm* (pp. 377–399). Cham: Palgrave Macmillan.

Censis. (2018). *Primo rapporto sulla filiera della sicurezza in Italia*. https://www.censis.it/sicurezza-e-cittadinanza/1%C2%B0-rapporto-sulla-filiera-della-sicurezza-italia/l%E2%80%99ordine-pubblico-non-pu%C3%B2

Censis. (2021). *Secondo rapporto sulla filiera della sicurezza in Italia*. https://www.censis.it/sites/default/files/downloads/Rapporto%20finale.pdf

Chapman, D. (1968). *Sociology and the stereotype of the criminal*. London: Tavistock.

Christakis, T., & Karathanasis, T. (2024). Tools for Navigating the EU AI Act: Visualisation Pyramid. *MIAI Articles*. https://ai-regulation.com/visualisation-pyramid/

Coeckelbergh, M. (2020). *AI ethics*. Cambridge, Mass: MIT Press.

Colquhoun, P. (1799). *The state of indigence, and the situation of the casual poor in the metropolis, explained*. London: Baldwin and Son, Bridge-Street, Blackfriars.

Cone, L., & Brøgger, K. (2020). Soft privatisation: Mapping an emerging field of European education governance. *Globalisation, Societies and Education, 18*(4), 374–390. https://doi.org/10.1080/14767724.2020.1732194

Couchman, H. (2019). *Policing by machine: Predictive policing and the threats to our rights*. London, UK: Liberty

Court of Justice of the European Union. (2022). *Ligue des droits humains v Conseil des ministres* (Case C-817/19, ECLI:EU:C:2022:491). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:62019CJ0817

Crawford, K. (2021). *Atlas of AI: Power, politics, and the planetary costs of artificial intelligence*. New Haven: Yale University Press

Cugurullo, F. (2024). The obscure politics of artificial intelligence: a Marxian socio-technical critique of the AI alignment problem thesis. *Ai and Ethics*. https://doi.org/10.1007/s43681-024-00476-9

Data Smart. (2013, May 8). *Dr. Colleen McCue: A pioneer in data analytics*. Harvard Kennedy School. https://datasmart.hks.harvard.edu/news/article/dr-colleen-mccue-pioneer-data-analytics-133

Delamare, N. de (1705). *Traité de la police. Tome premier, où l'on trouvera l'histoire de son etablissement, les fonctions et les prerogatives de ses magistrats; toutes les loix et tous les reglemens qui la concernent*. Paris: J. et P. Cot. https://gallica.bnf.fr/ark:/12148/bpt6k1098988

Dithmar, J. C. (1731). *Die Oeconomische Fama: Von allerhand zu den Oeconomischen- Policey- und Cameral-Wissenschafften gehörigen Büchern, außerlesenen Materien, nützlichen Erfindungen, Projekten, Bedencken, und andern dergleichen Sachen*. Franckfurth und Leipzig: Bey Johann Gottfried Conradi. https://www.digitale-sammlungen.de/en/view/bsb11408508?page=,1

Dormehl, L. (2020, June 19). *A literal minority report: Predictive policing's algorithmic biases*. Digital Trends. https://www.digitaltrends.com/computing/predictive-policing-algorithmic-bias/

Dubber, M. D. (Ed.). (2014). *Foundational Texts in Modern Criminal Law*. Oxford University Press.

Engels, F. (2001). *The Part Played by Labour in the Transition from Ape to Man*. (Original work published 1895-1896). London: Electric Book Co.

EUCPN (2022). *Artificial intelligence and predictive policing: risks and challenges*. Brussels: EUCPN. https://eucpn.org/sites/default/files/document/files/PP%20%282%29.pdf

European Commission, High-Level Expert Group on Artificial Intelligence. (2018). *A definition of AI: Main capabilities and scientific disciplines*. European Commission. https://ec.europa.eu/futurium/en/system/files/ged/ai_hleg_definition_of_ai_18_december_1.pdf

European Commission. (2025). *Commission Guidelines on prohibited artificial intelligence practices established by Regulation (EU) 2024/1689 (AI Act)*. Shaping Europe's Digital Future. https://digital-strategy.ec.europa.eu/en/library/commission-publishes-guidelines-prohibited-artificial-intelligence-ai-practices-defined-ai-act

European Parliament. (2021). *Report on artificial intelligence in criminal law and its use by law enforcement and judicial authorities in criminal matters*. https://www.europarl.europa.eu/doceo/document/A-9-2021-0232_EN.html

European Parliament. (2022). *Report on the 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* (A9-0232/2021). https://www.europarl.europa.eu/doceo/document/CJ40-PR-731563_EN.pdf

Europol (2024). *AI and policing: The benefits and challenges of artificial intelligence for law enforcement*. Publications Office of the European Union: Luxembourg. https://www.europol.europa.eu/cms/sites/default/files/documents/AI-and-policing.pdf

Fair Trials. (2021). *Automating injustice: The use of artificial intelligence & automated decision-making systems in criminal justice in Europe*. https://www.fairtrials.org/articles/publications/automating-injustice/

Fair Trials. (2023). *Fair Trials calls for ban on use of AI to predict criminal behaviour*. https://www.fairtrials.org/articles/news/fair-trials-calls-ban-use-ai-predict-criminal-behaviour/

Fattore, G. (2023). The impact of the three crises on health in Italy: evidence and lack of adequate information systems. *SIS*. https://www.sis-statistica.it/old_upload/contenuti/2013/09/RS12-The-impact-of-the-three-crises-on-health-in-Italy.pdf

Favaretto, M., De Clercq, E., & Elger, B. S. (2019). Big Data and discrimination: perils, promises and solutions. A systematic review. *Journal of Big Data*, *6*(1), 1–27. https://doi.org/10.1186/s40537-019-0177-4

Featherly, K. (2024). ARPANET. *Encyclopedia Britannica*. https://www.britannica.com/topic/ARPANET

Feeley, M. M., & Simon, J. (1992). The new penology: Notes on the emerging strategy of corrections and its implications. *Criminology*, *30*(4), 449–474. https://doi.org/10.1111/j.1745-9125.1992.tb01112.x

Ferguson, A. G. (2017). Policing predictive policing. *Washington University Law Review, 94*(5), 1109-1189

Fiorella, A. (2018). *Le strutture del diritto penale: Questioni fondamentali di parte generale* (1st ed.). G. Giappichelli Editore.

Floridi, L. (2022). Ultraintelligent Machines, Singularity, and Other Sci-fi Distractions about AI. *Lavoro, Diritti, Europa*. SSRN. https://doi.org/10.2139/ssrn.4222347

Foucault, M. (1995). *Discipline and punish: the birth of the prison* (A. Sheridan, Tran.; Second Vintage Books edition). New York: Vintage Books.

Foucault, M. (2006). *History of madness* (J. Khalfa & J. Murphy, Trans.). London: Routledge.

Foucault, M. (2007). *Security, territory, population: Lectures at the Collège de France, 1977-1978* (M. Senellart, Ed.; F. Ewald & A. Fontana, Gen. Eds.). Basingstoke: Palgrave Macmillan.

Fuchs, C. (2021). *Engels@200: Friedrich Engels and Digital Capitalism*. tripleC: Communication, Capitalism & Critique, 19(1), 15-51. https://doi.org/10.31269/triplec.v19i1.1233

Future of Life Institute. (2023). *Pause giant AI experiments: An open letter*. https://futureoflife.org/open-letter/pause-giant-ai-experiments/

Galis, V., & Karlsson, B. (2024). A world of Palantir – ontological politics in the Danish police's POL-INTEL. *Information, Communication & Society, 27*(13). https://doi.org/10.1080/1369118X.2024.2410255

Gallant, K. S. (2008). Legality in criminal law, its purposes, and its competitors. In *The principle of legality in international and comparative criminal law* (pp. 11-45). Cambridge University Press.

Garfinkel, H. (1956). Conditions of Successful Degradation Ceremonies. *The American Journal of Sociology*, *61*(5) https://doi.org/10.1086/221800

Garland, D. (1985). *Punishment and welfare: A history of penal strategies*. Brookfield: Gower Publishing Company.

Garland, D. (2001). *The culture of control: Crime and social order in contemporary society*. Oxford University Press.

Garland, D. (2012). Criminology, Culture, Critique: A Review of Jock Young, The Criminological Imagination. *British Journal of Criminology*, *52*(2), 417–425. https://doi.org/10.1093/bjc/azr095

Garside, R. (2013). Addressing social harm: better regulation versus social transformation. *Crítica penal y poder,* 5, pp. 247-265. Available on: https://revistes.ub.edu/index.php/CriticaPenalPoder/article/view/6228

Garrett, B. L. (2015). The corporate criminal as scapegoat. *Virginia Law Review, 101*(7), 1789-1853. https://scholarship.law.duke.edu/faculty_scholarship/3847

Gatti, C. (2022a). Policing the poor through space: The fil rouge from criminal cartography to geospatial predictive policing. *Oñati Socio-Legal Series, 12*(6), 1733–1758. https://doi.org/10.35295/osls.iisl/0000-0000-0000-1360

Gatti, C. (2022b). Monitoring the monitors: A demystifying gaze at algorithmic prophecies in policing. *Justice, Power and Resistance, 5*(3), 227–248. https://doi.org/10.1332/UBQA2752

Gatti, C. (2023). The Bologna-Barcelona axis between Criminal Law Dogmatics and Critical Sociology of punitive control. Hidden Continuities and Apparent Overcomings. *Crítica Penal y Poder*, (25). https://doi.org/10.1344/cpyp.2023.25.44853

Gatti, C. (2025a). Myths and narratives of predictive policing: An approach from radical criminology. In J. Bonet Pérez, et al. (Eds.), *IV and V UB International PhD in Law and Political Science Conference* (pp. 137-164). McGraw Hill.

Gatti, C. (2025b). Predictive policing in action: a field-based critique of the Italian case. *Crime, Law and Social Change*. (Accepted for publication)

Germani, G. (1961). Prologue. In C. Wright Mills, *La imaginación sociológica* (pp. i-xii). Buenos Aires: Fondo de Cultura Económica.

Gerstner, D. (2018). Predictive policing in the context of residential burglary: An empirical illustration on the basis of a pilot project in Baden-Württemberg, Germany. *European Journal for Security Research, 3*(2), 115–138. https://doi.org/10.1007/s41125-018-0033-0

Glaser, D. (1954). A reconsideration of some parole prediction factors. *American Sociological Review, 19*(5), 335-341.

Goffman, E. (1956). *The presentation of self in everyday life*. University of Edinburgh Social Sciences Research Centre

Goffman, E. (1963). *Stigma: Notes on the Management of Spoiled Identity*. New York: Penguin Books.

Goldstein, H. (1979). *Improving policing: A problem-oriented approach*. *Crime & Delinquency, 25*(2), 236–258. https://doi.org/10.1177/001112877902500207

Gouldner, A. W. (1968). The Sociologist as Partisan: Sociology and the Welfare State. *The American Sociologist*, *3*(2), 103–116

Greenwood, P. W., & Abrahamse, A. (1982). *Selective incapacitation*. Santa Monica, CA: RAND Corporation.

Grossi, L. (2020). Software predittivi e diritto penale. In A. Massaro (Ed.), *Intelligenza artificiale e giustizia penale* (pp. 155–184). Caltanissetta: Paruzzo Editore. https://caterinachinnici.it/wp-content/uploads/2020/12/intelligenza-artificiale_ricerca.pdf

Guthmann, Y., & Rivera Beiras, I. (2023). *La creación de la escuela de criminología crítica de Barcelona: La institucionalización académica de una nueva mirada sobre el control social y punitivo (1980-2022)*. Valencia: Editorial Tirant lo Blanch.

Hacking, I. (1990). *The taming of chance*. Cambridge University Press.

Haelterlein, J. (2021). Epistemologies of predictive policing: Mathematical social science, social physics and machine learning. *Big Data & Society*, *8*(1). https://doi.org/10.1177/20539517211003118

Hafner, M., Dufresne, E., Hoorens, S., & Disley, E. (2023). *A quantitative analysis of the costs of corruption in the EU*. In *Stepping up the EU's efforts to tackle corruption: Cost of Non-Europe report* (Annex, pp. 31–77). RAND Corporation. https://doi.org/10.2861/796351

Hakeem, M. (1948). The validity of the Burgess method of parole prediction. *American Journal of Sociology, 53*(5), 376-386.

Hallevy, G. (2010). *A modern treatise on the principle of legality in criminal law*. Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-642-13714-3

Harari, Y. N. (2020, October 22). *Yuval Noah Harari: Panel discussion on technology and the future of democracy* [Video]. YouTube. https://www.youtube.com/watch?v=JfyIW9wRvB4&t=214s

Harcourt, B. E. (2003). The Shaping of Chance: Actuarial Models and Criminal Profiling at the Turn of the Twenty-First Century. *The University of Chicago Law Review*, *70*(1), 105–128. https://doi.org/10.2307/1600548

Harcourt, B. E. (2007). *Against prediction: profiling, policing, and punishing in an actuarial age*. University of Chicago Press. https://doi.org/10.7208/9780226315997

Harcourt, B. E. (2010). Risk as a proxy for race. *University of Chicago Public Law & Legal Theory Working Paper No. 323* https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=1265&context=public_law_and_legal_theory

Hart, H. (1923). Predicting Parole Success. *Journal of the American Institute of Criminal Law and Criminology*, *14*(3), 405–413. https://doi.org/10.2307/1133642

Hildebrandt, M. (2015). *Smart Technologies and the End(s) of Law: Novel Entanglements of Law and Technology*. Cheltenham: Edward Elgar Publishing. https://doi.org/10.4337/9781849808774

Hillyard, P., Pantazis, C., Tombs, S., & Gordon, D. (Eds.). (2004). *Beyond criminology: Taking harm seriously*. Winnipeg: Pluto Press. https://doi.org/10.2307/j.ctt18fscmm

Hoffman, P. B., & Beck, J. L. (1974). Parole decision-making: A salient factor score. *Journal of Criminal Justice*, *2*(3), 195–206. https://doi.org/10.1016/0047-2352(74)90031-2

Holmes, O. W. (1897). The Path of the Law. *Harvard Law Review, 10*, 457-478. https://moglen.law.columbia.edu/LCS/palaw.pdf

Horkheimer, M. (1974). *Critique of instrumental reason* (M. J. O'Connell, Ed.). New York: Seabury Press.

Horkheimer, M., & Adorno, T. W. (2002). *Dialectic of Enlightenment: Philosophical Fragments* (G. S. Noerr, Ed.). Stanford University Press. (Original work published 1947).

Hulsman, L. H. C. (1986). Critical criminology and the concept of crime. *Contemporary Crises*, *10*(1), 63–80. https://doi.org/10.1007/BF00728496

Hung, T.-W., & Yen, C.-P. (2021). On the person-based predictive policing of AI. *Ethics and Information Technology*, *23*(3), 165–176. https://doi.org/10.1007/s10676-020-09539-x

International Association of Privacy Professionals. (2023). *German Constitutional Court blocks police use of surveillance software*. https://iapp.org/news/b/german-constitutional-court-blocks-police-use-of-surveillance-software

Irwin, J. (1985). *The Jail: Managing the Underclass in American Society*. University of California Press.

Istituto Nazionale di Statistica. (2023). Noi Italia 2024 - Popolazione straniera residente. https://noi-italia.istat.it/pagina.php?L=0&categoria=4&dove=ITA

Istituto Nazionale di Statistica. (2024). *La povertà in Italia: Anno 2023*. ISTAT. https://www.istat.it/wp-content/uploads/2024/10/REPORT_POVERTA_2023.pdf

Jackson, L. (2023, April 16). *What if AI sentience is a question of degree?* The New York Times. https://www.ekathimerini.com/nytimes/1208929/what-if-ai-sentience-is-a-question-of-degree/

Joh, E. E. (2017). The Undue Influence of Surveillance Technology Companies on Policing, *NYU Law Review*, 19 – 47. https://dx.doi.org/10.2139/ssrn.2924620

Justi, J. H. G. von. (1759). *Grundsätze der Policey-Wissenschaft: zum Gebrauch Academischer Vorlesungen abgefasset*. Göttingen: Vandenhoeck. Available on: https://www.digitale-sammlungen.de/en/view/bsb11278323?page=,1

Kant, I. (2003). *Critique of pure reason* (M. Weigelt, Trans.). London: Penguin Classics.

Kaufmann, M., Egbert, S., & Leese, M. (2019). Predictive Policing and the Politics of Patterns. *British Journal of Criminology*, *59*(3). https://doi.org/10.1093/bjc/azy060

KeyCrime. (2020a). *The impact of KeyCrime in Milan, Bocconi University: Economic analysis of crime* [Video]. YouTube. https://www.youtube.com/watch?v=DxSjxR4KRe0

KeyCrime. (2020b). *KeyCrime video series Part 4: Location adaptability through AI and ML* [Video]. YouTube. https://www.youtube.com/watch?v=aHF68W9Z_3M&t=16s

Kindynis, T. (2014). Ripping up the map: Criminology and cartography reconsidered. *British Journal of Criminology, 54*(2), 222–243. https://doi.org/10.1093/bjc/azt077

Kop, M. (2021). EU Artificial Intelligence Act: The European Approach to AI. *Transatlantic Antitrust and IPR Developments*, 2/2021, 9. Stanford - Vienna Transatlantic Technology Law Forum. https://ssrn.com/abstract=3930959

Kounadi, O., Ristea, A., Araujo Jr., A., & Leitner, M. (2020). A systematic review on spatial crime forecasting. *Crime Science, 9*(1), Article 7. https://doi.org/10.1186/s40163-020-00116-7

Kreß, C. (2010). *Nullum crimen, nulla poena sine lege*. In A. Peters & R. Wolfrum (Eds.), Max Planck Encyclopedia of Public International Law. https://opil.ouplaw.com/display/10.1093/law:epil/9780199231690/law-9780199231690-e854?rskey=5tAN9Y&result=1&prd=MPIL

Kuhn, T. S. (2012). *The structure of scientific revolutions* (4th ed.). Chicago: University of Chicago Press.

Lacaze, M. (2011). *De l'exigence de prévisibilité de la loi pénale au devoir de prudence du justiciable professionnel*. Journal d'actualité du Droit International et Européen. https://revue-jadie.eu/article/view/130

Lähteenmäki, L., & Alvesalo-Kuusi, A. (2018). The imaginary social order of corporate criminal liability. In S. Bittle, L. Snider, S. Tombs, & D. Whyte (Eds.), *Revisiting Crimes of the Powerful* (pp. 131-142). Routledge. https://doi.org/10.4324/9781315212333

Lasslett, K. (2010). Crime or social harm? A dialectical perspective. *Crime, Law, and Social Change*, *54*(1), 1–19. https://doi.org/10.1007/s10611-010-9241-x

Lau, T. (2020, April 1). *Predictive policing explained*. Brennan Center for Justice. https://www.brennancenter.org/our-work/research-reports/predictive-policing-explained

Law, J. (2004). *After method: Mess in social science research*. London: Routledge.

Lazzarato, M. (2015). *Governing by debt* (J. D. Jordan, Trans.). Los Angeles: Semiotext(e).

Lazzarato, M. (2021). *Capital hates everyone: Fascism or revolution*. MIT Press.

Leipold, A. D. (2006). Recidivism, incapacitation, and criminal sentencing policy. *University of St. Thomas Law Journal, 3*(3), 536-560. https://ssrn.com/abstract=988117

Lemert, E. M. (1967). *Human deviance, social problems, and social control*. Englewood Cliffs, NJ: Prentice-Hall.

Levano, J. (2024). Predictive policing in the AI Act: Meaningful ban or paper tiger? *European Law Blog*. https://www.europeanlawblog.eu/pub/tbgfjobj/release/1

Lever, R. (2012, July 31). *Predictive policing takes a byte out of crime*. Times of Malta. https://timesofmalta.com/article/Predictive-policing-takes-byte-out-of-crime.430936

von Liszt, F. (1882). *Der Zweckgedanke im Strafrecht*. Marburg: Pfeil.lisz

Lombroso, C. (2006). *Criminal man* (M. Gibson & N. H. Rafter, Eds. & Trans.). Duke University Press. https://doi.org/10.1515/9780822387800

Lorenz, L., Meijer, A., & Schuppan, T. (2021). The algocracy as a new ideal type for government organizations: Predictive policing in Berlin as an empirical case. *Information Polity*, *26*(1), 71–86. https://doi.org/10.3233/IP-200279

Loyseau, C. (1608). *Traité des seigneuries*. Paris: A. L'Angelier. Available on: https://gallica.bnf.fr/ark:/12148/bpt6k87007971

Lukács, G. (1971). Reification and the consciousness of the proletariat. In *History and class consciousness: Studies in Marxist dialectics* (pp. 83-110). Cambridge, MA: MIT Press. (Original work published 1923)

Lum, K., & Isaac, W. (2016). To predict and serve? *Significance 13*(5), 14–19. https://doi.org/10.1111/j.1740-9713.2016.00960.x

Lynskey, O. (2019). Criminal justice profiling and EU data protection law: Precarious protection from predictive policing. *International Journal of Law in Context, 15*(2), 162–176. https://doi.org/10.1017/S1744552319000090

Macchi, L. (2024). *Primary and secondary education in Italy - statistics & facts*. Statista. https://www.statista.com/topics/3960/primary-and-secondary-education-in-italy/

Madrid Casado, C. M. (2024). *Filosofía de la inteligencia artificial*. Oviedo: Pentalfa.

Manes, J. (2020). Secrecy and Evasion in Police Surveillance Technology. *Berkeley Technology Law Journal*, *34*(2), 503–566. https://doi.org/10.15779/.Z38NP1WJ7K

Martineau, J., & Durand Folco, J. (2024). Vers une théorie globale du capitalisme algorithmique. *Nouveaux Cahiers du socialisme*, *31*, 56–67

Marx, K. (1909). *Capital: A critique of political economy. Volume I: The process of capitalist production* (S. Moore & E. Aveling, Trans.; F. Engels, Ed.). Chicago: Charles H. Kerr and Co.

Marx, K. (1993). *Grundrisse: Foundations of the Critique of Political Economy* (M. Nicolaus, Trans.; Original work published 1857-1858). London: Penguin.

Marx, K. (1994). On the Jewish Question. In J. J. O'Malley (Ed.), *Marx: Early Political Writings* (pp. 28–56). Cambridge: Cambridge University Press.

Marx, K., & Engels, F. (1970). *The German Ideology* (Original work published 1846). New York, NY: International Publishers

Mastrobuoni, G. (2020). Crime is terribly revealing: Information technology and police productivity. *Review of Economic Studies, 87*(6), 2727–2753. https://doi.org/10.1093/restud/rdaa009

McCarthy, J., Minsky, M. L., Rochester, N., & Shannon, C. E. (1955). *A proposal for the Dartmouth summer research project on artificial intelligence*. http://jmc.stanford.edu/articles/dartmouth.html

McLaughlin, P., & Schlaudt, O. (2023). The Creation of Numbers from Clay: Understanding Damerow's Theory of Material Abstraction. *Cuneiform Digital Library Journal*, *2023*(2). https://cdli.mpiwg-berlin.mpg.de/articles/cdlj/2023-2

Mead, G. H., & Morris, C. W. (1934). *Mind, self, and society: from the standpoint of a social behaviorist*. Chicago: The Univ. of Chicago Press.

Ministero della Giustizia. (2023a). Detenuti per titolo di studio - Anni 2005 - 2023. https://www.giustizia.it/giustizia/it/mg_1_14_1.page?facetNode_1=2_4&facetNode_2=0_2&facetNode_3=1_5_28&contentId=SST613897&previsiousPage=mg_1_14

Ministero della Giustizia. (2023b). Detenuti per tipologia di reato - Anni 2008 - 2023. https://www.giustizia.it/giustizia/it/mg_1_14_1.page?facetNode_1=1_5_2&facetNode_2=3_1_6&contentId=SST613925&previsiousPage=mg_1_14

Ministero della Giustizia. (2024). Detenuti presenti - aggiornamento al 31 gennaio 2024. https://www.giustizia.it/giustizia/it/mg_1_14_1.page?contentId=SST459008

Ministero dell'Economia e delle Finanze. (2024). *Relazione sull'economia non osservata e sull'evasione fiscale e contributiva: Anno 2024*. https://www.mef.gov.it/export/sites/MEF/documenti-allegati/2024/Relazione-2024.pdf

Monachesi, E. D. (1932). *Prediction Factors in Probation*. Hanover, NH: The Sociological Press.

Moore, T. (2017). *Trade Secrets & Algorithms as Barriers to Social Justice*, Washington DC: Center for Democracy and Technology. https://cdt.org/wp-content/uploads/2017/08/2017-07-31-Trade-Secret-Algorithms-as-Barriers-to-Social-Justice.pdf

Munster, B., & Roberts, H. (2024, November 20). *Meloni's bluff: Italy's covert return to austerity as EU debt rules eat into health budget*. POLITICO. https://www.politico.eu/article/melonis-bluff-italys-covert-return-to-austerity-as-eu-debt-rules-eat-into-health-budget/

Murauskas, D. (2021). Predictive analytics in crime prevention and the European Convention on Human Rights: tackling risks in privacy and fair trial frameworks. *Acta Universitatis Lodziensis. Folia Iuridica*, *97*, 225–250. https://doi.org/10.18778/0208-6069.97.13

Myers, S. L., (1980). Why are crimes underreported? What is the crime rate? Does it really matter? *Social Science Quarterly, 61*(1), 23-43. https://www.jstor.org/stable/42860671

Neocleous, M. (1998). Policing the system of needs: Hegel, political economy, and the police of the market. *History of European Ideas*, *24*(1). https://doi.org/10.1016/S0191-6599(98)00009-6

Neocleous, M. (2006). The problem with normality: Taking exception to "permanent emergency." *Alternatives: Global, Local, Political*, *31*(2), 191–213. https://doi.org/10.1177/030437540603100204

Neocleous, M. (2008). *Critique of security*. Montreal: McGill-Queen's University Press. https://doi.org/10.1515/9780748632329

Neocleous, M. (2018). Security and Police. In *The SAGE Handbook of Frankfurt School Critical Theory*, pp. 886–898.

Neocleous, M. (2019). Securitati perpetuae: Death, fear and the history of insecurity. *Radical Philosophy*, (206), 19-33.

Neocleous, M. (2021). *A Critical Theory of Police Power. The Fabrication of Social Order.* London: Verso.

Neslen, A. (2021). *Pushback against AI policing in Europe heats up over racism fears*. Thomson Reuters Foundation. https://news.trust.org/item/20211020095858-p47ao

Norga, A. (2021, July 12). *4 benefits and 4 drawbacks of predictive policing*. The Civil Liberties Union for Europe. https://www.liberties.eu/en/stories/predictive-policing/43679

Ohlin, L. E. (1951). *Selection for parole: A manual of parole prediction*. New York: Russell Sage Foundation.

Olson, H., Cummings, H., & Wigmore, J. H. (1924). A symposium of comments from the legal profession. *Journal of the American Institute of Criminal Law and Criminology, 15*(3), 395–405. https://doi.org/10.2307/1134809

Oosterloo, S., & van Schie, G. (2018). The politics and biases of the "crime anticipation system" of the Dutch police. In J. Bates, P. D. Clough, R. Jäschke, & J. Otterbacher (Eds.), *Proceedings of the International Workshop on Bias in Information, Algorithms, and Systems* (pp. 30-41). CEUR Workshop Proceedings, 2103

Osservatorio sui Conti Pubblici Italiani. (2022). *L'evasione fiscale e contributiva in Italia*. https://osservatoriocpi.unicatt.it/ocpi-pubblicazioni-l-evasione-fiscale-e-contributiva-in-italia

Oswald, M., Grace, J., Urwin, S., & Barnes, G. C. (2018). Algorithmic risk assessment policing models: Lessons from the Durham HART model and 'experimental' proportionality. *Information & Communications Technology Law, 27*(2), 223-250. https://doi.org/10.1080/13600834.2018.1458455

Park, R. E. (1915). The City: Suggestions for the Investigation of Human Behavior in the City Environment. *The American Journal of Sociology*, *20*(5), 577–612. https://doi.org/10.1086/212433

Park, R. E. (1928). Human Migration and the Marginal Man. *The American Journal of Sociology*, *33*(6), 881–893. https://doi.org/10.1086/214592

Pasquinelli, M. (2023). *The eye of the master: A social history of artificial intelligence*. London: Verso Books.

Pavoni, A., & Tulumello, S. (2023). *Urban Violence: Security, Imaginary, Atmosphere*. London: Lexington Books.

Pavoni, A., & D'Alba, R. (2024). The many lives of degrado. An introduction. *Etnografia e ricerca qualitativa*, *Rivista quadrimestrale, 1*, 19-42. https://doi.org/10.3240/113458

Pearce, F. (1976). *Crimes of the Powerful: Marxism, Crime and Deviance*. London: Pluto Press.

Pearce, F. (1976). *Imaginary Social Order: A Critical Theory of Crime and Deviance*. London: Routledge

Perry, W. L., McInnis, B., Price, C. C., Smith, S., & Hollywood, J. S. (2013). *Predictive policing: The role of crime forecasting in law enforcement operations*. Santa Monica, CA: RAND Corporation.

Pershan, L. S. (1983). *Selective incapacitation and the justifications for imprisonment*. N.Y.U. Review of Law & Social Change, *12*(2), 386-448. https://socialchangenyu.com/wp-content/uploads/2017/12/Lee-S.-Pershan_RLSC_12.2.pdf

Pitch, T. (1983). Sociology of Law in Italy. *Journal of Law and Society*, *10*(1), 119–134. https://doi.org/10.2307/1410004

Pitts, W., & McCulloch, W. S. (1947). How we know universals; the perception of auditory and visual forms. *Bulletin of Mathematical Biophysics, 9,* 127–147. https://doi.org/10.1007/BF02478291

Platt, T. (1974). Prospects for a Radical Criminology in the United States. *Crime and Social Justice*, *1*, 2-10. https://www.jstor.org/stable/29765882

Pound, R. (1906). The causes of popular dissatisfaction with the administration of justice. *American Law Review, 40*(5), 729-749. https://heinonline-org.ezproxy.utu.fi/HOL/Page?handle=hein.journals/amlr40&id=743&collection=journals&index=

Puente, M. (2019, May 8). LAPD official behind controversial data programs to retire after winning lucrative contract. *Los Angeles Times*. https://www.latimes.com/local/lanow/la-me-sean-malinowski-predictive-policing-20190508-story.html

Reiman, J. (2007). *The Rich Get Richer and the Poor Get Prison: Ideology, Class, and Criminal Justice*. Boston: Allyn & Bacon.

Rescigno, G. U. (2006). *Corso di diritto pubblico* (X ed.), Bologna: Zanichelli

Rescigno, G. U. (2011). L'ultima lezione. Come ho pensato di poter conciliare la politica rivoluzionaria e la scientificità della professione di giurista. *Costituzionalismo.it, Fascicolo 1* https://www.costituzionalismo.it/lultima-lezione-come-ho-pensato-di-poter-conciliare-la-politica-rivoluzionaria-e-la-scientificita-della-professione-di-giurista/

Robinson, D., & Koepke, L. (2016). *Stuck in a pattern: Early evidence on predictive policing and civil rights*. Upturn. https://www.upturn.org/reports/2016/stuck-in-a-pattern/

Robinson, P. H. (2001). Punishing dangerousness: Cloaking preventive detention as criminal justice. *Harvard Law Review, 114*(5), 1429–1456. https://doi.org/10.2307/1342684

Rouvroy, A., & Berns, T. (2013). Algorithmic Governmentality and Emancipation Perspectives: Is the Disparate a Condition of Individuation Through Relations? *Réseaux (Centre National d'études Des Télécommunications)*, *177*, 163–196. https://doi.org/10.3917/res.177.0163

Saunders, J., Hunt, P., & Hollywood, J. S. (2016). Predictions put into practice: A quasi-experimental evaluation of Chicago's predictive policing pilot. *Journal of Experimental Criminology, 12*(3), 347-371. https://doi.org/10.1007/s11292-016-9272-0

Scassa, T. (2017). Crime data and analytics: Accounting for crime in the city. In R. Kitchin, T. P. Lauriault, & G. McArdle (Eds.), *Data and the city* (pp. 59–71). London: Routledge.

Schwinge, E. (1930). *Teleologische Begriffsbildung im Strafrecht : Ein Beitrag zur Strafrechtlichen Methodenlehre*, Bonn: Ludwig Röhrscheid.

Seidensticker, K., Bode, F., & Stoffel, F. (2018). *Predictive policing in Germany*. Bibliothek der Universität Konstanz. http://nbn-resolving.de/urn:nbn:de:bsz:352-2-14sbvox1ik0z06

Shapiro, A. (2021). Accountability and indeterminacy in predictive policing. In J. McDaniel & K. Pease (Eds.), *Predictive Policing and Artificial Intelligence* (1st ed., pp. 185-213). Routledge. https://doi.org/10.4324/9780429265365-8

Simondon, G. (2022). Technical mentality. In A. De Boever, A. Murray, J. Roffe, & A. Woodward (Eds.), *Gilbert Simondon: Being and technology* (pp. 1–16). Edinburgh: Edinburgh University Press. https://doi.org/10.1515/9780748645268-003

Smith, A. (1978). *Lectures on jurisprudence* (R. L. Meek, D. D. Raphael, & P. G. Stein, Eds.). Oxford: Clarendon Press; Oxford University Press.

Smith, A. (2001). *An Inquiry into the Nature and Causes of the Wealth of Nations*. (Original work published 1776). London: Electric Book Co.

Smith, N. (1996). *The new urban frontier: Gentrification and the revanchist city*. London: Routledge.

Smith, W. (1872). *A Dictionary of Greek and Roman biography and mythology.* London: Murray. https://www.digitale-sammlungen.de/en/view/bsb10997258?page=12,13

Starkey, T. (1871). *England in the reign of King Henry the Eighth: A dialogue between Cardinal Pole and Thomas Lupset, lecturer in rhetoric at Oxford; with an appendix, giving an abstract from Sir William Forrest's pleasaunt poesye of princelie practise, 1548* (S. J. H. Herrtage & J. M. Cowper, Eds., Vol. 12). London: Trübner. (Original work published 1548). Available on: https://www.digitale-sammlungen.de/en/view/bsb10748456?page=,1

Stop LAPD Spying Coalition. (2018). *Operation LASER: Los Angeles Strategic Extraction and Restoration*. https://stoplapdspying.org/wp-content/uploads/2018/05/LASER.pdf

Tannenbaum, F. (1938). *Crime and the Community*. New York: Columbia University Press.

Technopolice. (2024, January 18). *La police prédictive en France: contre l'opacité et les discriminations, la nécessité d'une interdiction*. https://technopolice.fr/blog/la-police-predictive-en-france-contre-lopacite-et-les-discriminations-la-necessite-dune-interdiction/

Tomasik, B. (2014). *Do artificial reinforcement-learning agents matter morally?* arXiv. https://doi.org/10.48550/arXiv.1410.8233

Tulumello, S., & Bertoni, F. (2019). "Nessun decoro sui nostri corpi": sicurezza, produzione di margini e movimenti indecoros. *Tracce Urbane, 5*, 90–109. https://doi.org/10.13133/2532-6562_3.5.14561

Tulumello, S., & Iapaolo, F. (2021). Policing the future, disrupting urban policy today: Predictive policing, smart city, and urban policy in Memphis (TN). *Urban Geography, 43*(3), 448–469. https://doi.org/10.1080/02723638.2021.1887634

Turing, A. (1950). Computing machinery and intelligence. *Mind, 59*(236), 433-460. https://doi.org/10.1093/mind/LIX.236.433

Uchida, C. (2014). Predictive policing. In G. Bruinsma & D. Weisburd (Eds.), *Encyclopedia of criminology and criminal justice* (pp. 3871-3880). New York: Springer.

Utset, M. (2021). Predictive policing and criminal law. In J. McDaniel & K. Pease (Eds.), *Predictive Policing and Artificial Intelligence* (1st ed., pp. 163-182). Routledge. https://doi.org/10.4324/9780429265365-8

Van Brakel, R. E. (2025). Legal, ethical, and social issues of AI and law enforcement in Europe: The case of predictive policing. In N. A. Smuha (Ed.), *The Cambridge handbook of the law, ethics and policy of artificial intelligence* (pp. 367–382). Cambridge University Press. https://doi.org/10.1017/9781009367783.022

Van Vechten, C. C., Jr. (1935). *A study of success and failure of one thousand delinquents committed to a boy's republic* (PhD dissertation). Department of Sociology, University of Chicago.

Verte, V. (2024). *Person-Based Predictive Policing Under the AI Act*. RAILS - Robotics and AI Law Society. https://blog.ai-laws.org/person-based-predictive-policing-under-the-ai-act/

Vogiatzoglou, P. (2025). *Mass data surveillance and predictive policing: Contested foundations and human rights impact*. Routledge.

Vold, G. B. (1931). *Prediction methods and parole*. Hanover, NH: Sociological Press

Vold, G. B. (1979). *Theoretical criminology* (2nd ed.). New York, NY: Oxford University Press.

Warner, S. B. (1923). Factors determining parole from the Massachusetts Reformatory. *Journal of the American Institute of Criminal Law and Criminology, 14*(2), 172–207. https://doi.org/10.2307/1133615

Weber, M. (1978). *Economy and society: An outline of interpretive sociology* (G. Roth & C. Wittich, Eds.). Berkeley: University of California Press.

Weyembergh, A., & Galli, F. (2013). *Approximation of substantive criminal law in the EU: The way forward*. Éditions de l'Université de Bruxelles.

White, A. (2020). What is the privatization of policing? *Policing, 14*(3), 766–777. https://doi.org/10.1093/police/pay085

Williams, E. C. (2013). Invisible organization: Reading Romano Alquati. *Viewpoint Magazine*. https://viewpointmag.com/2013/09/26/invisible-organization-reading-romano-alquati/

Williams, R. (2011). *Keywords : a vocabulary of culture and society*. Routledge. https://doi.org/10.4324/9780203124949

Willis, J. J. (2014). Compstat. In G. Bruinsma & D. Weisburd (Eds.), *Encyclopedia of Criminology and Criminal Justice* (pp. 496–505). New York: Springer https://doi.org/10.1007/978-1-4614-5690-2_271

Wilson, D. (2020). *Predictive policing management: A brief history of patrol automation*. University of Sussex. https://doi.org/10.3898/NEWF:98.09.2019

Wilson, D. (2021). Bentham in the colonies. In S. Jacques & P. Schofield (Eds.), *Jeremy Bentham on police* (pp. 233-252). UCL Press. https://doi.org/10.2307/j.ctv1kwxfkz.24

Wilson, J., & Kelling, G. (1982). Broken windows: The police and neighborhood safety. *Atlantic Monthly*, 249(3), 29–38.

Winner, L. (1977). *Autonomous technology: Technics-out-of-control as a theme in political thought*. Cambridge, MA: MIT Press.

Wolff, C. (1740). *Ius naturae methodo scientifica pertractatum: De dominio utili*. Frankfurt and Leipzig: Prostat in officina libraria Rengeriana. Available on: https://books.google.be/books?vid=GENT900000136936&printsec=frontcover#v=onepage&q&f=false

Wright Mills, C. (1959), On Intellectual Craftsmanship. In *The Sociological Imagination*. New York: Oxford University Press.

Yahoo Finance. (2025). Axon Enterprise, Inc. (AXON) stock major holders. https://finance.yahoo.com/quote/AXON/holders/

Yahoo Finance. (2025). Palantir Technologies Inc. (PLTR) stock major holders. https://finance.yahoo.com/quote/PLTR/holders/

Yeung, K. (2018). Algorithmic regulation: A critical interrogation. *Regulation & Governance*, *12*(4), 505–523. https://doi.org/10.1111/rego.12158

Young, J. (2011). *The criminological imagination*. Cambridge: Polity Press.

Završnik, A. (Ed.). (2017). *Big Data, Crime and Social Control* (1st ed.). Routledge.

Završnik, A. (2021). Algorithmic justice: Algorithms and big data in criminal justice settings. *European Journal of Criminology*, *18*(5), 623–642. https://doi.org/10.1177/1477370819876762

TURUN
YLIOPISTO
UNIVERSITY
OF TURKU

Painosalama, Turku, Finland 2025

ISBN 978-952-02-0354-2 (PRINT)
ISBN 978-952-02-0355-9 (PDF)
ISSN 0082-6987 (Print)
ISSN 2343-3191 (Online)