

MIRREM

Measuring Irregular Migration

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ETHICAL BENCHMARKING IN IRREGULAR MIGRATION RESEARCH

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Summary

This working paper deals with the ethical dimension of measuring irregular migration. It aims to support the upcoming development of handbooks as main outputs of the MIrreM consortium. Notably, it provides a preliminary basis for the consideration of ethical aspects in measuring irregular migration and identifying regularisation possibilities. The complexity of migration processes, the transitory and uncertain feature of expertise and migration policy dilemmas pose challenges for ethical appraisals. The paper outlines the relevant legal regulations and sectoral codes of ethical conduct that confine research integrity and provide guardrails for an appraisal of ethical risks linked with breach of private data protection requirements, scientific shortcoming related to statistical and algorithmic biases, and impacts of research causing harm to individuals, groups, and society. The paper concludes with a suggestion of a systematic ethical benchmarking approach for the handbook development.

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THE MIRREM PROJECT

MIRreM examines estimates and statistical indicators on the irregular migrant population in Europe as well as related policies, including the regularisation of migrants in irregular situations.

MIRreM analyses policies defining migrant irregularity, stakeholders' data needs and usage, and assesses existing estimates and statistical indicators on irregular migration in the countries under study and at the EU level. Using several coordinated pilots, the project develops new and innovative methods for measuring irregular migration and explores if and how these instruments can be applied in other socio-economic or institutional contexts. Based on a broad mapping of regularisation practices in the EU as well as detailed case studies, MIRreM will develop 'regularisation scenarios' to better understand conditions under which regularisation should be considered as a policy option. Together with expert groups that will be set up on irregular migration data and regularisation, respectively, the project will synthesise findings into a Handbook on data on irregular migration and a Handbook on pathways out of irregularity. The project's research covers 20 countries, including 12 EU countries and the United Kingdom.

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1. INTRODUCTION

Within the MIrreM project, the ethical dimension matters twice. On the one hand, the consideration of the ethical dimension is an elementary component that needs to be considered in the preparation of the final outputs of the project, i.e., two handbooks providing advice to decision-makers and stakeholders dealing with irregular migration. The main focus of this paper is to support the upcoming development of the project handbooks by outlining a preliminary basis for the consideration of ethical aspects in measuring irregular migration and identifying regularisation possibilities. On the other hand, MIrreM itself is obligated to comply with requirements stated in legal regulations and relevant codes of ethical conduct and to report on the measures taken to address ethical risks – a task accomplished in a dedicated project publication (Ahrens et al., 2023).

For EU funded projects like MIrreM, authoritative guidance is provided by the framework of Responsible Research and Innovation (RRI), a frame of orientation regarding the ethical dimension of EU funded research projects launched by the European Commission since 2010 (European Commission. Directorate General for Research, 2013; Owen et al., 2013). RRI promotes a shift from “science in society” to “science for and with society” (Owen et al., 2013). In general terms, RRI conceives research not as independent from human values but as ethically implicated practices. Research activities are “charged with a responsibility for critical self-reflection about the role these values play both in discovery, engineering and design processes and in consideration of the real-world effects of the insights and technologies that these processes yield” (Leslie, 2023, p. 80). RRI addresses five key themes: gender equality, open access, citizen engagement, science education and ethics.

This paper focusses on the theme of research ethics. RRI formulates the requirement to respect fundamental rights and the highest ethical standards in order to guarantee greater social relevance and greater acceptance of the results of research and innovation. The emphasis on ethical conduct mirrors not only moral claims but implies an instrumental motivation to foster and maintain trust in scientific research.

Research ethics addresses scientific misconduct like (negligent or intended) fabrication (making up data or results), falsification (changing or misreporting research data or improper manipulation of experiments) and plagiarism (using ideas or words without accurate reference) not only as practices that go against all scientific values undermining the scientific progress but even more as practices that can cause harm (European Commission. Directorate General for Research., 2013, p. 2).

The recently published Horizon Europe programme guide pinpointed the ethical aspirations more constructively and positively as “research integrity”, a principle that should guide individuals, institutions, and organisations in their work as well as in their engagement with the practical, ethical, and intellectual challenges inherent in research (European Commission, 2023). The idea of research integrity comprises four principles. *Reliability* in ensuring the quality of research, reflected in the design, methodology, analysis, and use of resources. *Honesty* in developing, undertaking, reviewing, reporting, and communicating research in a transparent, fair, full, and unbiased way. *Respect* for colleagues, research participants, research subjects, society, ecosystems, cultural heritage, and the environment. And *accountability* for the research from idea to publication, for its management and organisation, for training, supervision, and mentoring, and for its wider societal impacts (ALLEA - All European Academies, 2023, p. 4).

These highly normative and abstract propositions evoke the question how to effectively operationalise RRI habits and research integrity in concrete terms. There is an institutionalised approach that sector-specific codes of ethical conduct should provide context-sensitive guidance for ethical reasoning although in practice efforts to develop and up-date codes of ethical conducts are very unevenly pronounced, and the level of bindingness is uneven.

This paper deals with research ethics of data processing in a context relevant for but not exclusively focussing on researching irregular migration. Considering the perspective of data science in migration and mobility research, Salah et al. (2022, p. 26) state that “ethical questions arise from the domain of migration itself, from the types of technologies that can be utilised or developed in relation to migration, and from the intersection of these two”. In addition, the questions related to the use of data science tools can be also placed in the broader context of migration ethics and political theory, where the responsibilities of the stakeholders, practical conditions and normative positions in the discourse are addressed (Salah et al., 2022, p. 27). In this vein, Lomborg emphasises the need for “a bottom-up, case-based approach to research ethics, one that emphasises that ethical judgment must be based on a sensible examination of the unique object and circumstances of a study, its research questions, the data involved, and the expected analysis and reporting of results, along with the possible ethical dilemmas arising from the case” (Lomborg, 2013, p. 20).

This paper is a preparatory exercise intended to support the development of central outputs of the MIrreM project, i.e., two handbooks. One will deal with possibilities to measure irregular migration and the other with possibilities to design regularisation schemes. In order to cover both areas of concern, the paper deals with the ethical dimension of using data in research contexts in a broad perspective that is not focussed on but informs the ongoing efforts of the MIrreM project. The paper is organised in seven chapters. The next chapter aims to introduce the concepts of irregular migration as an issue of uncertainty, data ethics and migration policy dilemmas. Chapter 3 provides a brief review of the legal regulatory framework of data ethics at European level, in particular the General Data Protection Regulation (GDPR), the Law Enforcement Directive (LED) and the ongoing initiative to regulate artificial intelligence in an Artificial Intelligence Act (AIA). Chapter 4 discusses specific Codes of Ethical Conduct in the four sectors of research, business, public service,

and civil society engagement. Chapter 5 explores the literature on risks related to the measurement of irregular migration and possible remedies. Chapter 6 suggest an ethical benchmarking toolkit that provides a systematic approach for reflection and correction of ethically relevant aspects. Finally, chapter 7 briefly wraps-up the paper.

2. IRREGULAR MIGRATION, DATA ETHICS AND MIGRATION POLICY DILEMMAS

This chapter describes irregular migration as an issue of uncertainty, introduces the concept of Data Ethics as a response to the development of digital technologies and indicates the idea of migration policy dilemmas as a framework that contextualises the efforts to apply data ethics in the context of measuring irregular migration.

2.1 IRREGULAR MIGRATION AS ISSUE OF UNCERTAINTY

The term irregular migration addresses a cross-border movement of people outside of legal norms (Ambrosini & Hajer, 2023; Nguindip & Nyingchia, 2022). The status of irregularity assigned to migrants by state authorities is not simply objectively given but occurs as outcome of authorities' negotiation and decision processes (Bommes & Sciortino, 2011).

Historically, the categorial distinction between regular and irregular migration was introduced in order to monopolise the legitimate means to move (Torpey, 1998). Subsequent state authorities' efforts to monitor cross border movements and to identify irregular entries and stays induced the establishment of passport and visa registration systems (Caplan & Torpey, 2001; Fahrmeir, 2005). Due to a set of reasons, among self-imposed obligations related to national self-concepts, ratification of international agreements and the consideration of interest groups' claims (Castles, 2004), the allegedly binary concept of regularity/irregularity expand hybrid status categories and turns out to be rather fuzzy and difficult to implement in practical terms (Kraler & Ahrens, 2023).

Principally, three frames inform migration policies. (1) On the one hand, irregular migration is predominantly framed as individual misconduct of people who violate legal norms and standards of migration governance. In this view, irregular movements pose a risk to public security and need to be detected and prevented, implying as last resort the application of means of coercion, although within the limits of human rights obligations (United Nations General Assembly, 2019). (2) On the other hand, irregular migration is framed as an inevitable component of a globalised world divided into nation states that produce irregular migration as a result of anomic social structures (Jordan & Düvell, 2002). In this view, irregular migration occurs when there are not enough legitimate opportunities for people to achieve their aspirations and life goals. Following this line of argument, responses should instead address structural economic and social arrangements which constitute structural incentives for irregular migration (Bommes & Sciortino, 2011; Cyrus, 2023b). (3) Taking into account the uncertainty to achieve policy goals due to the complexity of social and political

dynamics (Cairney et al., 2019; Vono De Vilhena, 2022) an alternative approach navigating between the uncompromising policy vision of closed vs. open borders provides a more pragmatic response that is informed by a willingness to learn to live with a particular level of irregular migration (McNevin, 2017).

In practical terms, governments undertake efforts to address irregular migration, although with uneven intensity and vastly different sets of measures. The pursued policies constitute a hybrid mix that combines measures to deter irregular border crossings, to remove irregular migrants after entry, to protect human rights of irregular migrants and to launch conditional opportunities for a regularisation of irregular migrants, but also displaying wilful ignorance when possible (Ambrosini & Hajer, 2023; Bommès & Sciortino, 2011; Triandafyllidou & Bartolini, 2020). The particular designing and implementation of measures at national, regional, and global level intended to manage migration and prevent irregular migration follow predominantly political concerns and logics and lack evidence-based guidance.

In spite of the intensive efforts to address irregular migration, the intensity of irregular migration is continuously increasing at a global scale, although with regional differences and particularities (Ambrosini & Hajer, 2023; IOM, 2021). The mismatch between declared policy targets and factual outcomes fuels the political discontent amongst voters; puts irregular migrants at the risk of human rights violations to the point that thousands lose their life *en route*; and strains the relations between states due to the different interests that predominate policy agendas in countries of origin, transit and destination (Ambrosini & Hajer, 2023).

Policy decisions often do not have the impact decision-makers claim they will. The main reason for this constellation is uncertainty, identified as key feature of migration “that can never be perfectly estimated or predicted” (Vono De Vilhena, 2022, p. 7). A policy change in one country can have unplanned effects on the migration flows to or from other countries. Policy makers “often overestimate the impact policies may have on migration: policies are only one factor influencing migration flows and often only a weak one. Migration patterns change a lot even when there are no policy changes in a destination country, for example when strong economic or political crises hit specific countries of origin. (...) Thus, dealing with uncertainty in the size and pattern of migration is important when devising migration policies and its potential impact on society and the economy” (Vono De Vilhena, 2022, p. 7).

Due to the complex nature of the interaction of policies and migration, in terms of policy irregular migration displays features of a wicked problem, in particular because many decision makers and stakeholders with conflicting values are involved and available information is fragmented and confusing. Accordingly, the understanding of what exactly constitutes the problem that requires a solution is contested (Termeer et al., 2019).

In the last decades, researchers and policy makers deplored that the lack of reliable data impairs the capacities to cope with migration uncertainties. Consequently, experts recommend to improve the data landscape, in particular strengthening data collection capacities, supporting national statistical offices in order to improve data quality as well as improving cooperation on migration data sharing to reduce data fragmentation (Vono De Vilhena, 2022).

This recommendation is prominently taken-up at international level by the UN Global Compact for Safe, Orderly and Regular Migration (GCM). The signatories confirm in Article 1 the importance of a robust evidence base for coherent and coordinated migration policies: “We commit to strengthen the global evidence base on international migration by improving and investing in the collection, analysis and dissemination of accurate, reliable and comparable data, disaggregated by sex, age, migration status and other characteristics relevant in national contexts, while upholding the right to privacy under international human rights law and protecting personal data. We further commit to ensure that this data fosters research, guides coherent and evidence-based policymaking and well-informed public discourse, and allows for effective monitoring and evaluation of the implementation of commitments over time” (United Nations General Assembly, 2019, p. 8).

By this statement, GCM signatory parties underline that the availability of accurate, reliable and comparable data are a prerequisite for evidence-based policymaking, well-informed public discourse and effective monitoring and evaluation of policies (Kraler & Reichel, 2022). At the same time, the statement confirms the significance of the ethical dimension of the collection, analysis and dissemination of data with particular reference to the rights of privacy and protection of private data (Hayes, 2017).

2.2 DATA ETHICS

Data Ethics emerged in response to recent developments in digital technologies (Floridi & Taddeo, 2016, p. 1). The step change in volume, immediacy and power constituted by the new sources of large-scale data did not stem from bureaucratic or academic innovation but from changes in the commercial world driven by new devices and massive investments in software, hardware, and infrastructure (Taylor, 2023). Despite calls to use data for the public good, the potential of the new data sources to make people visible and to inform interventions is primarily led by commercial firms, meanwhile policy makers largely remain only secondary users of mostly commercial data. Digitally informed analysis and intervention raise issues of power and justice given that powerful interests drive its collection and use (Taylor, 2023). The production and processing of personal data by state authorities, commercial enterprises, civil society organisations and research institutions evoke ethical questions how to evaluate and balance the legitimacy of data producers’ and users’ practices in relation to the interests and rights of data subjects (Pötzschke & Rincken, 2022; Salah, Korkmaz, et al., 2022; Taylor & Meissner, 2020).

Data Ethics studies and evaluates moral problems related to data (including generation, recording, curation, processing, dissemination, sharing and use), algorithms (including artificial intelligence, artificial agents, machine learning and robots) and corresponding practices (including responsible innovation, programming, hacking and professional codes), in order to formulate and support morally good solutions (e.g. right conducts or right values) (Salah, Canca, et al., 2022).

Data Ethics is a branch of Applied Ethics, a normative subdiscipline of philosophy that deals with the core question “what is the right thing to do in a given situation?” (Salah et al. 2022, p. 26). The *right* is understood as *good* and *just*. Dealing with real-world problems, a sound

ethical analysis does not only employ theories from moral and political philosophy but requires empirical information from other disciplines in order to “analyse the ethical justifications and implications of this question in terms of harm and benefit, individual freedom and autonomy, and distribution of benefits and burdens within the society to determine whether the policy is ethically permissible, necessary, or ethically prohibited” (Salah et al. 2022, p. 26).

Data Ethics’ aspirations of application, on the one hand, go beyond law because many ethical concerns are addressed which are not legally regulated. On the other hand, the outcomes of ethical considerations are not necessarily transformed into legal norms and thus not enforceable by way of law (Hildebrandt 2020, p. 297, quoted in Keymolen & Taylor, 2023, p. 493). In line with this reasoning, a legal guide provided by the European Commission emphasises with regard to research ethics that “the fact that your research is legally permissible does not necessarily mean that it will be deemed *ethical*” (European Commission, 2021a, p. 4).

Consequently Taylor et al. (2017, p. 11) suggest conceiving of data ethics as “the process of reasoning necessary to apply legal rules in different situations, to judge risks and to evaluate how to balance interests and rights”. In this vein, data ethics are flexible and context-sensitive corollaries of ethical benchmarking.

Taken seriously, data ethics contributes to the development of legal regulations concerning data protection and codes of ethical conducts that impose constraints on the legitimacy of collecting, storing, processing, sharing, and re-using of personal data. In the last decade, an extensive debate relating to the concept of data ethics has started to consider and evaluate aspects referring to the protection of rights of individual data subjects, considerations on harmful impacts of data processing on individuals or groups and implications of (non-)compliance with ethical standards on the legitimacy and social acceptance of data use in public administration, media or research (Bertoni et al., 2023; Salah, Korkmaz, et al., 2022; Sandberg, Rossi, et al., 2022). The debate revealed that even when moral and ethical values are not explicitly evoked, they are implicitly present in and structure social interactions and communication as benchmarks for an appraisal of what is good and fair – and guide actions.

Data Ethics addresses and goes beyond traditional approaches focussing on the protection of rights assigned by law to natural persons, the so-called data subjects. Data Ethics builds on the foundation provided by computer and information ethics but, at the same time, it refines the approach endorsed so far in this research field, by shifting the level of abstraction of ethical enquiries, from being information-centric to being data-centric. This shift brings into focus the different moral dimensions of all kinds of data, even data that never translate directly into information but can be used to support actions or generate behaviours, for example. It thus highlights the need for ethical analyses to concentrate on the content and nature of computational operations—the interactions among hardware, software and data—rather than on the variety of digital technologies that enable them. And it emphasises the complexity of the ethical challenges posed by data science (Floridi & Taddeo, 2016).

Despite the common ground for its practical relevance, there is no clear shared understanding which principles are relevant in concrete terms. Since 2015 over a 100 sets of ethics principles have been published around the world just for practices related to Artificial Intelligence alone. While these sets of principles differ slightly from each other with

regard to emphasis on different principles, their basic structure display convergent features. Salah et al. (2022, p. 28) distinguish fundamental *core principles* which are valued for themselves as ends and not as means to achieve other goals and interchangeable *instrumental principles* which are valuable as means to achieve these ends.

Regarding Data Ethics, core principles are respect for persons (autonomy), minimization of harm (beneficence), and justice (fairness). Instrumental are then principles like consent, privacy or transparency as means to achieve these ends.

As a general feature, since core principles focus on the individual, in practice a conflict may arise when the right of one individual affects the right of another individual or a group. Collision of norms and individuals' rights are the pervasive feature of the social world and require careful attention in the assessment of ethical risks at interpersonal and institutional level (Habermas, 1996). Would protecting individual autonomy result in violation of the autonomy of others? Will a certain action result in unfair discrimination of another individual or group? An ethically responsible and clear-cut answer that can be accepted by all affected is usually hard to reach, in particular when the weighing of core values evoked by competing parties are at stake. An utilitarian ethics would be content with the answer that a response is ethically defensible when the negative impact to one group will be outweighed by the benefits other individuals or groups receive. The acceptance of this utilitarian logic emphasising the absolute preference of members of the own group (Betz, 2019) informs the currently dominating migration policy approaches.

Even political philosophers who stand for the individual right to free movement as a human right and fundamental liberty concede that in a situations of emergency or threat of basic liberties it is ethically defensible to restrict the right to individual movement, However, the restrictions of the right to free movement are only defensible when they are introduced as preliminary measure and combined with honest and decisive efforts to seek for solutions that respect and comply with human rights and ethical standards (Benhabib, 2004; Carens, 2013; Schotel, 2012). Rawl's difference principle provides a good starting point for the consideration of ethically responsible policies. The difference principle implies that social and economic inequalities are to be arranged so that they are to the greatest benefit of the least advantaged members of society (Rawls, 2005). However, the assessment of what constitutes the "greatest benefit" is a matter of deliberation on the relevance and priority of competing values in an application situation.

2.3 MIGRATION POLICY DILEMMAS

Considering migration policies and politics from the perspective of a pursuit of morally worthy goals, Bauböck et al. (2022, p. 429) argue that critical migration research has so far been more focused on exposing double standards and hidden biases in policy discourses and mainstream studies than on engaging in a discussion of the complex normative dilemmas that lie at the heart of policy controversies. Bauböck et al. propose to analyse ethical conflicts with the conceptual framework of migration policy dilemmas. They distinguish five types of ethical conflicts virulent in political decision making. (1) A *competing means dilemma*

involves a conflict between different means available to achieve the same morally worthy goal. (2) A *dirty hands dilemma* involves a conflict between goals and means, where the action to achieve what is morally right requires committing moral wrongs. (3) A *political feasibility dilemma* involves the conflicts between goals and means, where the actor lacks the political means to effectively carry out or stabilise the results of the morally right action. (4) An *ethical politics dilemma* involves a conflict between moral and political goals, where the morally right action risks strengthening a political opponent. (4) Finally, a *hard ethical policy dilemma* involves a conflict between two morally worthy goals that cannot be hierarchically ordered and therefore cannot be easily reconciled.

Bauböck et al. (2022, p. 429) argue that hard ethical policy dilemmas are specific to a certain field of migration policy, such as refugee protection (Aleinikoff & Owen, 2022), temporary labour migration (Bauböck & Ruhs, 2022; Lenard, 2022), border control (Mann & Mourão Permoser, 2022), or the presence of irregular migrants on the territory (Song & Bloemraad, 2022). However, migration policy dilemmas usually emerge as practical ones for policy makers only when the competing value at stake is deeply embedded in the political institutions of a society. Bauböck et al. (2022, p. 431) argue that hard dilemmas “can be easily resolved” only by those whose commitment to one of the moral goals underlying the dilemma is so strong that it leads them to dismiss the relevance of a competing value.”

Hard policy dilemmas cannot be addressed without considering empirical facts and likely consequences of actions because they are value-based as well as fact-based and empirically grounded. “Empirical social science can contribute insights into the characteristics and determinants of public policy making on migration, in particular the relationships (including trade-offs) between different policy goals, and into the extent to which these goals and trade-offs are socially perceived and institutionally embedded” (Bauböck et al., 2022, p. 435).

In order to deal with hard ethical dilemmas, the authors suggest a change of perspectives and assumptions. This implies the shifting from an explanatory to an action-guiding perspective in order to facilitate proposals that policy decision makers should consider when making choices. “This may include stating which moral constraints they should not violate, which other actors and interests they should take into account, how they could arrive at decisions by following a sequence of steps, and similar conclusions derived from normative analysis” (Bauböck et al., 2022, p. 435). The proposals should be grounded in a normative analysis of migration policy dilemmas that aims to identify morally worthy goals behind the dilemma and thus acknowledge the complexity of the ethical foundations of political decision making. In order to support ethically sensitive decision making, another possibility is to analyse ethical dilemmas from a phenomenological, ethnographic or discursive perspective (Bauböck et al., 2022, p. 435f). In particular the perspective of migrants in an irregular situation as the least advantaged needs to be included.

3. LEGAL REGULATORY FRAMEWORKS FOR PRIVATE DATA PROTECTION

Although data ethics goes beyond the legal framework, compliance with legal regulations is the fundamental and axiomatic requirement of ethical conduct. The legal regulation of the registration, production, sharing and use of data is adopted at international, regional and national level and add up to a partly overlapping framework that disposes differences not only between national contexts but also between sectors within a national context. This chapter refers to the main legal data protection regulations of the European Union without the claim to completeness. In terms of legal regulation at European level, the General Data Protection Regulation (GDPR), the Law Enforcement Directive (LED) and soon the European Artificial Intelligence Act (EAIA) provide the authoritative legal frameworks.

3.1 THE OVERALL INTERNATIONAL AND EUROPEAN LEGAL FRAMEWORK

Initially, the legally binding regulation of recording, sharing, storing, using and deleting personal data was traditionally the domain of national governments. At international level, early data protection emerged from efforts to protect the privacy of citizens, to begin with conceptualised as the right to be left alone. The right for privacy was laid down for the first time in an international legal instrument in the United Nations (UN) Universal Declaration of Human Rights (UDHR) of 1948. Article 12 on respect for private and family life constitutes a right to protection of an individual's private sphere against intrusion from others, especially from the state. The UDHR influenced the development of other human rights instruments that constitute the right to privacy. In Europe, the right to privacy is safeguarded in two supranational institutions, the Council of Europe (CoE) and the European Union (EU).

The Council of Europe adopted in 1981 the Convention for the Protection of Individuals that deals with the Automatic Processing of Personal Data (ETS No. 108) so far has been ratified by 55 state parties.¹ The Convention protects the individual against abuses which may accompany the collection and processing of personal data and it also seeks to regulate the transfrontier flow of personal data. In addition, it outlaws the processing of 'sensitive data' on a person's race, politics, health, religion, sexual life, criminal record, etc., in the absence of proper legal safeguards. The Convention also enshrines the individual's right to know that information is stored on him or her and, if necessary, to have their data corrected.

¹ <https://www.coe.int/en/web/conventions/full-list?module=signatures-by-treaty&treatynum=108>

Restrictions on the rights laid down in the Convention are only possible when ‘overriding interests’ (e.g., State security, defence, etc.) are at stake. The Convention also imposes some restrictions on transborder flows of personal data to States where legal regulation does not provide equivalent protection.²

Data protection is further addressed in the European Convention on Human Rights (UCHR).³ Under Article 8 of the ECHR, a right to protection against the collection and use of personal data forms part of the right to respect for private and family life, home and correspondence. The fundamental right to privacy implies the right to dispose of the own personal data and Data protection vs. privacy (Gellert, 2023, p. 415).

Under EU law, data protection was protected by the Data Protection Directive (95/46/EC) (European Union Agency for Fundamental Rights. et al., 2014), replaced in 2018 by the General Data Protection Regulation (GDPR)⁴ (Regulation (EU) 2016/679) as the most comprehensive data protection law which is directly applicable in all EU Member states. The EU’s Data Protection Reform package also contained a Directive on the processing of personal data for authorities responsible for preventing, investigating, detecting and prosecuting crimes (Directive (EU) 2016/680)⁵, abbreviated as Law Enforcement Directive (LED)(see Drechsler, 2020; Funta & Ondria, 2021; Gellert, 2023). While the GDPR is a regulation directly legally binding in EU member states, the Law Enforcement Directive defines minimum standards and has to be transposed by EU member states into national law. Actually, the EU process the European Artificial Intelligence Act (EAIA) regulating the scope and constraints of artificial intelligence applications.

The GDPR directly lays out legal requirements that matter for the MIrreM’s project whenever personal data of experts, stakeholders or migrants is captured, processed, stored and shared. The LED regulations matter when data, including Big Data, that is produced, processed, stored or shared by law enforcement authorities is re-used in the project context or considered in the handbook. The EAIA is relevant when algorithmic analysis is performed or findings from algorithmic analysis is used.

² <https://www.coe.int/en/web/conventions/full-list?module=treaty-detail&treatyenum=108>

³ https://www.echr.coe.int/documents/convention_eng.pdf

⁴ <https://gdpr-info.eu/>

⁵ https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.119.01.0089.01.ENG

3.2 REQUIREMENTS OF GENERAL DATA PROTECTION REGULATION (GDPR)

This section addresses the key right to privacy as a complex and multi-folded right. It was first conceptualised as the ‘right to be left alone’ and associated with issues of intimacy, secrecy of correspondence, protection of the domestic sphere etc (Gellert, 2023, p. 415). The right to privacy in Europe is now associated with self-determination and autonomy. Data privacy addresses issues that arise when personal data are processed by computers, which is what data protection is about (Gellert, 2023, p. 416).

The legal foundation of European data protection efforts is spelled out in the General Data Protection Regulation. The GDPR is an ‘omnibus’ legislation, which means that the law contains regulations that apply to all activities and to everyone: administrative bodies, business, other private parties etc. (Gellert, 2023, p. 416). The GDPR provides definitions of key concepts, principles and standards for the processing personal data, definitions of legal purposes that allow the processing of private data.

The core concept of GDPR is the notion of Personal Data, that relates to a living person only and is defined as “any information to an identified or identifiable natural persons (data subject)” (Art. 4.1 GDPR). Although non-personal or ‘anonymous data’ escape the reach of data protection, in practice it is “very difficult for a piece of data not to be personal” (Gellert, 2023, p. 420). The distinction between personal and non-personal data depends on the possibility of identifying the data subject, which in turn heavily depends upon each specific context. In order to avoid conflicts with data protection regulations it is necessary to consult GDPR and familiarise with provided definitions for a set of relevant concepts like restriction of processing, profiling, pseudonymisation, filing system, controller, processor or third party, and consent of the data subject. A good explanation is provided by Gellert (2023).

With regard to mandatory principles of data protection, GDPR stipulates in Article 5 the principles (1) of lawfulness, fairness and transparency; of (2) purpose limitation meaning that a new processing of already collected data for a new purpose is only allowed if it is compatible with initial purpose; of (3) data minimisation meaning that collection and processing of personal data must be adequate, relevant and limited to what is necessary in relation to the purposes; (4) of accuracy meaning that data must be accurate and, where necessary, kept up to date, of (5) storage limitation meaning that personal data must be kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed; of (6) integrity and confidentiality, meaning that personal data must be processed in a manner that ensures appropriate security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage. In addition, GDPR explains in Article 1 the rules for the sharing of data within and beyond the European Union, an issue that is in the meanwhile further pursued by the European Commission with the proposal for a Data Governance act (see Taylor, 2023, p. 51).

Another fundamental component constitutes the rule that the collection and processing of personal data requires a legally accepted ground. As a fundamental principle, it is not allowed to start processing personal data unless a ground for processing is chosen (Gellert, 2023, p. 423). The GDPR, article 9, lists six legally accepted grounds based on which data may be processed: (1) The data *subject has consented* in the processing of his/her personal data at latest at the start of the processing; the processing is necessary (2) for the *performance of a contract* to which the data subject is party; (3) for *compliance with a legal obligation* to which the data controller is subject, which refers to public service provision; (4) for the *protection of the vital interest of the data subject* for example in situations of natural or man-made disasters; (5) for the performance of a task carried out in the public interest or in exercise of official authority; and (6) for the purposes of the *legitimate interests pursued by the controller or by a third party*, except when overridden by the interests or fundamental rights of the data subject which require protection of personal data. Except for consent that rests on the individual decision to willingly grant access to and provide private data, all grounds require necessity.

The GDPR also contains exemptions. Particularly important in the context of irregular migration is the provision that the GDPR does not apply to the processing of personal data “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” (Art. 2.2 d). Exempted is also the processing of personal data by the EC institutions and bodies which is subject to Regulation (EC) No 45/2001.⁶

GDPR, article 40, also outlines the legal foundation for the introduction and competences of a control agency, the European Data Protection Board (EDPB), a multilevel accountability forum in which European and national data protection authorities cooperate (Aden, 2020, p. 93). In addition, GDPR calls Member States, supervisory authorities, the European Data Protection Board (EDPB) and the commission to encourage the drawing up of codes of conduct intended to contribute to the proper application of GDPR, taking into account the specific features of the various processing sectors and the specific needs of micro-, small and medium-sized enterprises. Furthermore, associations and other bodies representing categories of controllers or processors of data may prepare code of conduct or amend such codes (on Codes of Ethical Conducts see Chapter 4).

3.3 REQUIREMENTS OF LAW ENFORCEMENT DIRECTIVE (LED)

As indicated in the previous section, the collection and processing of private data for law enforcement purposes is regulated in a separate legal framework, the Law Enforcement Directive (LED) (Directive (EU) 2016/680). While GDPR aims to secure the rights of data subjects, the purpose of the Law Enforcement Directive’s is to ensure that law enforcement

⁶ <https://www.eumonitor.eu/9353000/1/j9vvik7m1c3gyxp/vitgbgi9a3yy>

authorities can efficiently do their work using technological means while preserving the fundamental rights of citizens.

Importantly, the “performance of the tasks of preventing, investigating, detecting, or prosecuting criminal offences institutionally conferred by law to the competent authorities allows them to require or order natural persons to comply with requests made. In such a case, the consent of the data subject (...) should not constitute a legal ground for processing personal data by competent authorities. Where the data subject is required to comply with a legal obligation, the data subject has no genuine and free choice, so that the reaction of the data subject could not be considered to be a freely given indication of his or her wishes” (EU Directive 380/2016, considering point 35).

LED is a *lex specialis* and designed to be consistent with GDPR and applies whenever a situation involves processing of personal data by law enforcement agencies for the purpose of their tasks (see Drechsler, 2020). As a basic feature, the LED provides the legal basis for the sharing of personal data among authorities for the purpose of policing and criminal justice, including across national borders (De Hert & Papakonstantinou, 2017). LED then obliges law enforcement authorities to comply with basic principles of data protection regulation, among the principles of necessity, transparency, purpose limitation and data minimisation (De Hert & Sajfert, 2021).

However, the legal framework of LED had to be complemented in response to the development and application of interoperable digital technologies in law enforcement. The European Union initiated the launch of six digital systems that process data on persons conceived by authorities to be in an irregular situation. Three large-scale databases are currently operational: the European Asylum Dactyloscopy Database (Eurodac), the Visa Information System (VIS) and the Schengen Information System (SIS). Three more systems are in development: the Entry/Exit System (EES); the European Travel Information and Authorisation System (ETIAS) and the European Criminal Records Information System – Third Country Nationals (ECRIS-TCN). In 2022, the European Institutions introduced the interoperability initiative, notably Regulations (EU) 2919/817 and 818 to provide the legal bases for the operation and interoperability of these systems (European Union Agency for Fundamental Rights., 2023).

These new strategies seek to identify dangerous individuals who use false or multiple identities. The EU’s databases in the Area of Freedom Security and Justice (AFSJ) for policing and migration purposes will be interconnected. This constitutes a paradigm shift for purpose limitation as a core element of data protection (Aden, 2020, p. 93).

With regard to the re-use of the data processed in the context of law enforcement for scientific purposes, it is important to note that the purpose limitation principle and the data minimisation principle are formulated differently in the GDPR than in the LED. According to De Hert and Sajfert (2021), the principle’s emanation in the LED is far simpler and more flexible than in the GDPR counterpart: The LED does not mention the term *former processing* but contains a number of specific rules about the change of purpose, both within and outside the LED realm. Furthermore, the LED prohibits the processing of personal data for purposes that are incompatible with the original purposes at the time of the collection of data. In a

narrow sense, LED covers only the processing by an authority competent for prevention, investigation, detection, and prosecution of criminal offences or execution of criminal penalties (a law enforcement authority), with some exceptions, e.g. when specific (coercive) powers are delegated to private entities, such as privately run prisons or privatised parts of police forces (De Hert & Sajfert, 2021, p. 10). In addition, “the subsequent processing by the same or by another controller is permitted if authorised by law and if necessary and proportionate to the new purpose, as long as the new purpose remains within the scope of the Directive. Subsequent processing can also be done for privileged purposes (archiving in the public interest, scientific, statistical or historical use), if carried out within the LED scope, i.e., for broader law enforcement purposes by competent authorities (paragraph 3 of Article 4)” (De Hert & Sajfert, 2021, p. 11).

3.4 PROPOSAL FOR AN EUROPEAN ARTIFICIAL INTELLIGENCE ACT (EAIA)

A legal framework that has not yet come into force addresses is the regulation of Artificial Intelligence systems. The proposed European Artificial Intelligence Act (EAIA) will complement GDPR and LED with a set of harmonised rules applicable to the design, development and use of certain AI systems classified “high risk”. The EAIA pursues the objective to develop a legal framework for trustworthy AI based on EU values and fundamental rights and aims to give people and other users the confidence to embrace AI-based solutions, while encouraging business to develop them. The explanatory memorandum states that AI should be a tool for people and be a force for good in society with the ultimate aim of increasing human well-being (European Commission, 2021, p. 1). The proposed framework pursues the four specific objectives (1) to ensure that AI systems placed on the Union market and used are safe and respect existing law on fundamental rights and Union values, (2) ensure legal certainty to facilitate investment and innovation in AI, (3) enhance governance and effective enforcement of existing law on fundamental rights and safety requirements applicable to AI systems, and (4) facilitate the development of a single market for lawful, safe and trustworthy AI applications and prevent market fragmentation. The stated objectives indicate that the regulation of AI relates to a business context of AI application. Consequently, the proposal presents a horizontal regulatory approach that is limited to the minimum necessary requirements to address the risks and problems linked to AI without unduly constraining or hindering technological development or otherwise disproportionately increasing the cost of placing AI solutions on the market. The proposal foresees to avoid unnecessary restrictions to trade by a risk-based regulatory approach whereby legal interventions are tailored to those concrete situation where there is a justified cause for concerns or where such concern can reasonably be anticipated in the near future. High risk AI systems pose significant risks to the health and safety or fundamental rights of a persons. Certain particular harmful AI practices are prohibited as contravening Union values while specific restrictions and safeguards are proposed in relation to certain uses of remote biometric identification systems for the purpose of law enforcement. The proposal calls authorities to support the development of codes of conducts in areas considered to be less risky.

3.5 RELEVANT ETHICAL ISSUES

This chapter served the purpose to raise awareness for the relevance of three European legal bodies that provide the mandatory framework for research projects on irregular migration using or re-using personal data. The account indicates that legally binding regulations address first and foremost the protection of personal data and privacy as an instrumental value serving the goal to respect and secure the autonomy and dignity of the individual. While the designer of this framework of legal bodies aims to do justice and reconcile competing interests and values, the architecture and composition is subject to ethical criticism. Regarding GDPR, the discrepancies in the power and knowledge between data subjects, data processors and data owners is a matter of concern. GDPR's foundational requirement of informed consent is relativised by regulations that provide exemptions for particular purposes, among the provision of public services and law enforcement. In addition, consenting with the processing of own personal in a business context usually does not have the capacity to make well informed decisions but accept default parameters that prioritises the subsequent use and re-use for other purposes. The LED with its priority on public security concerns tends to downgrade the value of individual privacy of suspects, a tendency that affects migrants who are considered to pose a potential security threat. And the EAIA identifies high risk AI applications and even prohibits applications like the real time biometric AI use but implies a number of vaguely defined exceptions that "leave the impression that the exception is rather the general rule (..) and the protection mechanisms for individuals are scarce, although the measure is not even classified as a high-risk AI use but as a prohibited AI application" (Roksandic et al., 2022, p. 1230). Moreover, the framework of legal bodies focusses on the individual and does not address ethical challenges like group privacy or dual use (issues considered in chapter 5).

Responsible research and policy advise must consider the legal status and ethical legitimacy of data on irregular migration and point up ethical problems if necessary. The final chapter 6 introduces an ethical benchmarking toolkit that support the identification of ethically sensitive issue. The next chapter deals with codes of ethical conduct, tools mentioned in GDPR and EAIA.

4. CODES OF ETHICAL CONDUCT

The previous chapter introduced the legal framework on data protection. This chapter deals with issues not directly linked with the actual MIRreM task to assess and test approaches for the measuring of irregular migration. Rather, the information relates to the forthcoming final MIRreM task of preparing handbooks and is intended to serve as preparatory work. In this context, a basic familiarity with sector-specific codes of ethical conduct is helpful because the MIRreM handbooks will address actors situated in the sectors of research, public administration, private governance and civic engagement.

Sector-specific codes of ethical conducts constitute an approach to provide a normative basis and guidance for the ethically responsible processing of data. The European data protection regulation call to develop and officially register codes of ethical conducts with the European Data Protection Board (EDPGB). Approved codes should be binding and enforceable, via contractual or other legally binding instruments, and put safeguards including with regard to the rights of data subjects. Although, the number of organisations and enterprises with EDPB approved codes of conduct is still very small,⁷ it is important for the development of the MIRreM handbooks to be aware of the existence of sector-specific codes of ethical conduct, their practical relevance and any problematic aspects. For the purpose of this examination, I will deal with the ethical codes of conduct in four sectors: research, public administration, private business and civil society organisations.

4.1 CODES OF CONDUCT IN THE RESEARCH SECTOR

A good starting point for the appraisal of research-related codes of conduct are the documents published by the European Commission for all researchers who are preparing an application to receive funding from the European Union for their research: “For research funded by the European Union, ethics is an integral part of research from beginning to end and ethical compliance is pivotal to achieve real research excellence” (European Commission. Directorate General for Research., 2013, p. 2).

4.1.1 *The origins of research ethics*

Historically, research ethics emerged as a concept in medical research. One of the most important documents in the history of research ethics is the *Nuremberg Code* formulated

⁷ https://edpb.europa.eu/edpb_en

1947 by American judges of the Nuremberg Tribunal, who had to judge doctors of the Nazi-regime accused of murderous and torturous human experiments. The *Nuremberg Code* consists of 10 rules indicating the most basic and fundamental principles, notably consent, proportionality, necessity, and the right to withdraw. Although never adopted as law it has had a major influence on human rights law and medical ethics. The main contribution of the Nuremberg Code was the reversal of the logic of responsibility and establishing a fundamentally different view on research ethics at that time. Previous ethics codes had focused, in a paternalistic manner, on the obligations of an investigator towards the research subject, whereas the Nuremberg Code is focused on the rights of the research subjects (European Commission. Directorate General for Research., 2013, p. 3). Subsequently, the World Medical Association adopted in 1964 the *Declaration of Helsinki* on research ethics, since then it has been amended several times. It “sets forward ethical principles for the conduct of medical research on human subjects, including research on identifiable human material and data. The basic principle behind the declaration is that, for all research, the well-being of the individual research subject must take precedence over all other interests. The declaration sets principles for the conduct of medical research and additional principles for medical research combined with medical care” (European Commission. Directorate General for Research., 2013, p. 3). In addition, the Belmont report provided further guidance: Basic ethical principles were respect for persons, beneficence and justice and considered its application in the instruments of informed consent, assessment of risk and benefits and the selection of subjects (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979).

The European Commission emphasises the strong connection between research ethics and human rights as fields, that both influence each other and display significant overlaps. A formal recognition is provided by the *Oviedo Convention*, adopted by the Ministers of the Council of Europe in 1996. This convention intends to address the ethical issues raised by research within the framework of the protection of human rights and sets common standards for all members of the Council of Europe, among as principles the primacy of the interests and welfare of the human being, informed consent and privacy. Within the European Union regulatory framework, research ethics is firmly related to the European commitment to human rights, adopted into law through the *European Charter of Fundamental Rights*. Based on this ethical fundament, the European Commission identified in the ethics for researcher document as matters of concern data protection and privacy, informed consent, dual use of research finding and research involving research in the context of developing countries (European Commission. Directorate General for Research., 2013, p. 4).

4.1.2 Ethical principles for research

The values established in the European Charter of Fundamental Rights are transformed into ethical principles within the EU context of the Responsible Research and Innovation agenda. The European Commission (European Commission, 2021c, p. 6) document on “Ethics in Social Science and Humanities” introduces nine principles: (1) respecting human dignity and integrity; (2) ensuring honesty and transparency towards research subjects; (3) respecting individual autonomy and obtaining free and informed consent (as well as assent whenever relevant); (4) protecting vulnerable individuals; (5) ensuring privacy and confidentiality; (6)

promoting justice and inclusiveness; (6) minimising harm and maximising benefit; (7) sharing the benefits with disadvantaged populations, especially if the research is being carried out in developing countries; (9) respecting and protecting the environment and future generations. The violation of these principle is considered to do harm, a central and very broad notion.

With regard to data protection, the document clarifies that just because data are publicly accessible that does not mean that it can be processed by anyone for any purpose. The paper then deals with three methods assessed as ethically risky: deception of research subjects, covert research and the application of internet research and social media data in research. Researchers are obliged to assess risks. If they anticipate any risks of harm, they must take measures to avoid harm. The document emphasises that researching members of vulnerable groups – in particular those that are considered always vulnerable such as irregular migrants, refugees or children - require particular justification. “The obvious question to address is: can the research results be obtained by involving another, less vulnerable, group?” (European Commission, 2021c, p. 12). As a general rule, vulnerability is considered to be context-dependent which means that researchers are obliged to give some thought to whether a particular group is vulnerable, and for what reason. Researchers have to ensure that people’s vulnerability is not exacerbated through research or research participation. Specific information on ethical aspect in research with migrants and refugees can be found in the Guidance Note for Research on Refugees, Asylum Seekers and Migrants (European Commission, 2020).

The European Commission (European Commission, 2021c, p. 14) document on “Ethics in Social Science and Humanities” also addresses the aspect of findings outside of the scope of the research, especially unintended or unexpected incidental findings Researchers are obliged to report criminal acts to authorities, but they must inform the participants - or their guardians or other responsible people - of their intentions and reasons for disclosure, provided that doing so does not undermine the act of disclosure(European Commission, 2021c, p. 14).

4.1.3 Ethical principles for research involving artificial intelligence

Regarding the ethics of research involving the use of artificial intelligence, the European Commission published another document explaining the Ethics by Design approach (European Commission, 2021b). The document underlines that many of the ethical requirements are backed by legal requirements, but ethical compliance cannot be achieved by adhering to legal obligations alone. Ethics is concerned with the protection of individual rights like freedom and privacy, equality, and fairness, avoiding harm and promoting individual well-being, and building a better and more sustainable society often anticipating solutions that eventually becomes legal requirements to comply with. The document explicates the Ethics with six principles that address (1) Respect for Human Agency; (2) Privacy and data governance; (3) Fairness; (4) Individual, Social and Environmental Well-being; (5) Transparency, and (6) Accountability and Oversight (European Commission, 2021b, p. 5).

Particular attention is paid to the aspect of fair impacts: “Possible negative social impacts on certain groups, including impacts other than those resulting from algorithmic bias or lack of universal accessibility, may occur in the short, medium, and longer term especially if the AI is diverted from its original purpose. This *must* be mitigated. The AI system *must* ensure that it does not affect the interests of relevant groups in a negative way. Methods to identify and mitigate negative social impacts in the medium and longer term should be well documented in the research proposal” (European Commission, 2021b, p. 8). Principally, the guidelines published by the European Commission are particularly concerned with members of vulnerable groups (European Commission, 2021c, p. 12).

4.1.4 Codes of ethical conduct issued by professional bodies, academic associations and private funding associations

In addition to Codes of Ethical Conduct adopted by public agencies funding research, also professional bodies, academic associations, and private funding associations have adopted and issued specific Codes of Ethical Conduct and require compliance (Bloemraad & Menjívar, 2022; Clark-Kazak, 2021; European University Institute, 2022). Due to the commitment of professional bodies, academic associations and funding bodies including public and private entities who require declarations of ethical compliance and monitoring, non-compliance can have real consequences when funding is stopped or recalled. In addition, professional accreditations can be revoked and reputation, the capital of researchers, enduringly damaged. Consequently, Codes of Ethical Conducts display a relatively high level of binding character in the research sector.

4.1.5 Implementation of ethics requirements in context

Researchers must consider concretely if and to what extent an obligatory Code of Ethical Conduct applies to the particular research project. However, since Codes of Ethical Conducts principally limit the scope of possibilities, a value tension emerges with regard to another basic liberty, the freedom of science. Recently, Bloemraad and Menjívar (2022) addressed “the uneasy relationship between official ethical guidelines, with their universal regulations and solutions, and practices on the ground, especially among vulnerable populations” (Bloemraad & Menjívar, 2022, p. 15). A longstanding complaint of social-science researchers is that a medical model dominates the institutional review board (IRB) process, imposing at times unnecessary obstacles to research (e.g., heightened scrutiny even when pregnant women only participate in an oral interview). They point to a discrepancy between ethics regulations and on-the-ground ethics (or personal morality) as similar to the “gap between law in the books and law in practice” (Bloemraad & Menjívar, 2022, p. 15). Consequently, Salah (2022, p. 253) states that ethics assessment should consider the usefulness of research in the context of specific risks (Salah, 2022, p. 253) This implies that researchers pursue “self-reflective research practices” (Leslie et al., 2022, p. 80) and actively scrutinise the societal risks and benefits through open and inclusive dialogue with affected stakeholders as one component of ethical benchmarking (see chapter 6).

The interventions to improve the transformation from ethics in the books to ethics in practice should not be equated with tendencies to apply “evasive scientific tendencies” (Leslie, 2023, p. 67) in order to evade ethically substantiated regulation. Cases of negligent or intentional scientific misbehaviour are regularly disclosed and sanctioned. The detection of scientific misbehaviour is, however, more difficult when researchers are engaged in research partly or completely located in private commercial research constellations and liable to standards that endorse the idea of company secret.

4.2 PUBLIC SECTOR CODES OF ETHICAL CONDUCT

As a Coordination and Support Action (CSA), the MIRreM project gets into contact with several public sector organisations, among political administration, statistical offices, law enforcement agencies or other public bodies providing services for migrants including those in an irregular situation. Public sector-specific codes of ethical conduct relate to citizens’ expectation that public officials serve the public interests with fairness and manage public resources properly on a daily base.

4.2.1 Historical background

More than twenty years ago, OECD (2000) stated that governments face the key challenge to adapt the mission of the public service to current needs and to ensure that its core values and standards meet changing public expectations. “A modern set of core values should combine “traditional” values, such as impartiality, legality and integrity, with “new” values such as greater public accountability and transparency” (OECD, 2000, p. 9). Focussing on the individual public official, OECD identified misbehaviour such as corruption, nepotism, partisanship or violation of data protection requirements as occurrences that undermine citizens’ trust and negatively impact economic performance.

Around 2000, as Whitton (2001, p. 2) stated, most civil service regimes in the West still equated public sector ethics with anti-corruption efforts, and limited their engagement with professional practice issues to a minimalist written code of conduct or code of ethics, which were usually concerned with prohibiting conflict of interest and self-dealing, and encouraging political and other forms of impartiality, and services to community. He argued that publishing a code of ethics, by itself, will achieve little. He pointed out that the efficacy of codes of ethics emerges from a combination of factors, among that they are meaningful and enforceable, linked to systemic practices and procedures, based in legislation, and backed by management leadership and high-level political commitment and ongoing ethics training.

Whitton (2001, p. 3) subsequently identifies several obstacles to an effective implementation of ethics codes, including the lack of technical competence to recognise an ethics problem on the side of public officials, ignorance of the standards an organisation expects public officials to comply with, or, if they consider it to be not in their interests,

personally or professionally, to take a stand for integrity and against corruption. A code of ethics is best regarded as a general statement of ‘core values’ which define the professional role of the civil service. In general, modern civil service codes of ethics set out broad high-level principles such as serving the public interest, transparency, integrity, legitimacy, fairness, responsiveness, efficiency, and effectiveness. However, ethics codes give little attention to how these principles are to be applied in specific circumstances. By contrast, codes of conduct usually set out specific standards of conduct expected in a range of realistic circumstances, representing a particular organisation’s preferred or required interpretation of the core values or principles which are seen as important to its work. The influential OECD Public Management Service endorsed 1996 a model of standards-setting that involved both aspirational ethics standards, together with a range of codes of conduct for specific circumstances for specific types of organisation (Whitton, 2001, p. 4).

In 2000, based on an extensive exploration of ethics-management approaches implemented in OECD member states, the organisation proposed to systematically establish an Ethics Infrastructure consisting of three functions: *Guidance* provided by strong commitment from political leadership; statements of values such as codes of conduct; and professional socialisation activities such as education and training. *Management* realised through coordination by a special body or an existing central management agency, and through public service conditions, management policies and practices. *Control* assured primarily through a legal framework enabling independent investigation and prosecution; effective accountability and control mechanism; transparency, public involvement and scrutiny. The ideal mix and degree of these functions that most effectively facilitate ethical conduct depends on the cultural and political administrative milieu of each country (OECD, 2000, p. 78). The OECD further pursued the issue and published a report on good practice principles for Data Ethics in the public sector (OECD, 2020) that promotes ten principles: (1) Manage data with integrity; (2) Be aware of and observe relevant government-wide arrangements for trustworthy data access, sharing and use; (3) Incorporate data ethical considerations into governmental, organisational and public sector decision-making processes; (4) Monitor and retain control over data inputs, in particular those used to inform the development and training of AI systems, and adopt a risk-based approach to the automation of decisions; (5) Be specific about the purpose of data use, especially in the case of personal data; (6) Define boundaries for data access, sharing and use; (7) Be clear, inclusive and open; (8) Publish open data and source code; (9) Broaden individuals’ and collectives’ control over their data; (10) Be accountable and proactive in managing risks.

In recent years, the issue of Data Ethics gained increased relevance due to the digitalisation of public services.

4.2.2 Public sector code of ethical conduct and digitalisation

This sub-section bases on the seminal paper by Taylor et al. (2017) dealing with governmental responses to the proliferation of tools developed and sold by digital business companies. Taylor et al. (2017) argue that governments in many countries are experimenting and experiencing a shift from data-informed to data-driven governance.

As datafication becomes increasingly embedded in government's functions, it becomes important to ensure that government establishes lasting criteria for good data governance. Taylor et al. (2017, p. 11) claim that public authorities' codes of conduct require "a higher standard than the legal compliance that guides the private sector", because governments may be even more at risk of creating unfair treatment through data because of their particular responsibilities. Public welfare and public security are increasingly seen as demanding the linking and merging of data across domains, without the explicit responsibility of transparency (Taylor et al. 2017, p. 9).

The call for higher standards in the public sector relates to the fact that public authorities are legally permitted to capture and process personal data for matters of public interest irrespective of a data subject's consent, as legitimated by GDPR and LED. The power to collect and channel data from the public that is more detailed than any data used before by governments, combined with access to emerging analytical technologies, has the potential to be problematic on many levels. In Europe, an example for public authorities' attempts to shape citizens' behaviour in ways that are invisible to the public is the UK's agency Behavioural Insights Team which used "insights from behavioural economics and big data analytics to develop ways to "nudge" people towards desired behaviour. These range from paying taxes on time to changing the way people give money to charity and their engagement with preventive health" (Taylor, Leenes, et al., 2017, p. 10). The agency's work demonstrated the power of big data analytics to influence behaviour on the population level, but also the potential for misuse of that influence.

Against this background, based on a comparison of authorities' data ethics practices in France, UK and the Netherlands, Taylor et al. (2017, p. 24) develop a model for the ethical use of big data in government that consists of the three components of background values, accountability and oversight, and enforcement. The model is intended to provide guidance on what specific actors must do in order to incorporate legal obligations and parameters. While Taylor et al. (2017) emphasise the responsibility and accountability of public authorities, the model extends beyond the law, emphasising that not everything that is permissible should be pursued. What can be deemed ethical needs to be determined within the context of each particular application, and within a given function of government, and therefore there is a need to create guidelines in a context-specific process. In this context-specific process, it is up to the stakeholders concerned to define what they deem appropriate and act accordingly, and therefore some of the challenge consists in developing particular types of processes that are able to identify the relevant stakeholders and take their views into account. In order to make sure that practice as defined by the stakeholders stays within the boundaries defined, in addition to background values both oversight and enforcement are then required.

4.3 COMMERCIAL BUSINESS SECTOR

The datafication and digitisation of societies is mainly driven by commercial enterprises (Taylor, 2023). The role and significance of ethical conduct in the private sector business sector differs from the public sector in so far as the private sector is – in contrast to the public sector and within limitations also the research sector – only entitled to process personal data with the informed consent of a data subject.

4.3.1 The special feature of digital business data ethics

Capturing and processing data must be based on an informed consent that is expressed in the context of a market-related contractual relationship between a supplier and a buyer of goods or services. Private business is allowed to process personal data only within the limits of the grounds and restrictions stipulated in the GDPR. However, personal data are not only used to enable and realise a market transaction. Personal data can be used as a commodity and sold to other enterprises or interest groups who buy the data for the purpose to advertise for commercial or political purposes. With the development towards information society, personal and aggregated data as such developed from a sole mean to make business to the business good as such.

Business associations engage in the development of sector specific codes of ethics with the intention to prevent that dubious practices of data processing negatively affect the willingness of customers to reveal personal data. In addition, engagement in the formulation of sector specific codes of ethical conduct aim to prevent that public authorities stipulate additional and more restrictive regulations,

The perception of the kind and quality of the relationship of business and ethics is divided. Dutt and Wilber (2010, p. 229) state that from an applied economics perspective business ethics is considered to be an aspect of business management, concerned with the multiplicity of decisions business firms have to make. Dutt and Wilber oppose the traditional view of the firm as maximising profits without paying attention to any other concerns. From a business ethics perspective, even though there are many instances of unethical or illegal behaviour by firms and their leaders, it is likely that firms would reflect some ethical values. An important reason to engage in ethical activities is the expectation that this will increase profits, at least in the long run. On the other hand, “business executives often comment that they should not be asked to do what their competitors are not asked to do because even if they want to behave ethically, they can be undermined by competitors who do not so. They say that government regulation requiring all companies to follow the same rules (...) will allow companies to exercise the ethical behaviour they actually prefer without being punished by competitors” (Dutt & Wilber, 2010, p. 229). In spite of the appreciation of state regulation as an instrument to facilitate fair competition among market actors, the collective group of economic interests use to lobby rather for less than for more binding government regulation and favour instead the introduction of non-binding codes of conduct (Taylor & Dencik, 2020).

4.3.2 One example of code of ethical conduct in the business sector

One example for the self-organised development of a code of conduct in the area of data ethics is the “Swiss Code of Ethics for Data Based Value Creation” developed by the Expert Group of the Swiss Alliance for Data-Intensive Services (2020a). The Expert Group prepared a concise practice-oriented handy and up-to-date outline for an ethically informed handling with data. Based on an extensive literature review on data ethics, the Expert Group provided an Ethical Code that “can be used by any organisation that works with data. (...) The purpose of the Code is to systematically address the ethical issues that arise when creating or using data-based products and services” (Expert Group of the Swiss Alliance for Data-Intensive Services, 2020a, p. 4).

The Data Ethics Expert Group (2020: 4) defines data-based products and services as “any product or service that is produced by using data, data derived models or data-generated knowledge as a necessary part of the value creation process” and “provides recommendations on how these ethical issues can be specifically addressed.”

Going beyond the mere expectation to comply with legal data protection regulations, the Expert Group opens with a brief indication of the importance of ethically appropriate data management and point to the instrumental value of ethical conduct: The violation of ethical expectations of customers, employees or society affect the reputation of an organisation negatively. Vice versa, proper ethical data management is expected to facilitate good reputation and helps to attract employees who are cognisant of the ethical behaviour of their employers. The Expert Group emphasise that data protection legislation already provides a good basis for correct conduct. “However, this does not cover all ethical issues, and ethical grey areas often remain – for example, when working with anonymised data, where data protection laws are hardly apply” (Expert Group of the Swiss Alliance for Data-Intensive Services, 2020a, p. 4). A particular challenge emerges from the special nature of data processing in networks. “Data management is networked. The quality of companies’ data-based products and services depends in many ways on other organisations. Accordingly, it is important, that in this network of interdependence that companies can trust each other.” The Expert Group emphasise the responsibility of all organisations involved in a data processing network: “If, for example, data are collected in an illegal manner, the company that acquires the data can also be caught in the maelstrom of a data scandal. If a company develops a forecasting tool that its customers use to discriminate against third parties, either unknowingly or negligently, it cannot completely escape the ethical responsibility for doing so”. The proposed Code aims to help organisations to illuminate the grey areas and gain a better understanding of the ethical issues that can arise from the use of data.

Subsequently, the Expert Group provides well-structured and nuanced practical guidance about how to reduce the risk of ethical misconduct. Based on an extensive literature review, the Code developed by the Expert Group introduces the dimensions of basic orientation and procedural values as fundamental pillars of ethical conduct. The Code is guided by three basic ethical orientations, which stand for a number of values that regularly occur in the debate on data-based value creation. (1) The first basic orientation implies harm avoidance: “You should not harm individuals or communities.” This basic orientation includes the values

of protection (e.g., against data loss), security (e.g., of data against hackers) and sustainability (i.e., minimising negative effects on the environment, e.g., through energy-efficient data processing). (2) The second basic orientation implies justice: “You should consider a fair distribution of benefits and burdens.” This basic orientation includes, among other things, the values of equality (e.g., protection against discrimination), fairness (e.g., by giving something in return for collecting customer data) and solidarity (e.g., making data available to the public for collective use). (3) The third basic orientation implies autonomy: “You should enable individuals and communities to act in a self-determined manner.” This basic orientation includes, among other things, the values of freedom (e.g., through freedom of choice in the configuration of digital services), privacy (e.g., by not collecting certain data) and dignity (e.g., through information practices taking the customer seriously).

The Expert Group recommends these basic orientations – which can be understood at the same times as a value in itself and a cluster of values – as overarching goals that provide orientations for data-based companies and should shape their business actions. “Being ethical means”, the Expert Group stress, “pursuing these values whenever possible” (Swiss Alliance for Data-Intensive Services, 2020, p. 7). However, the inserted reservation “whenever possible” relativise the seriousness of the sector’s assertiveness to comply with ethical standards.

The Expert Group points out that ethical orientations can imply conflicting objectives. The realisation of one value can limit the pursuit of other values that are considered equally important and that this should lead to a strategy for balancing or prioritising. However, the Expert Group does not offer further guidance for this particular operation.

Regarding procedural values, the Expert Group (2020a, p. 8) stresses that the basic orientations appear in everyday business life as abstract goals and that it remains often unclear how they are compatible with the concrete business process. For this reason, the Expert Group proposes three procedural values that constitute important links between the basic ethical orientations and the recommendations intended to ensure alignment with them. (1) The first procedural value is control: “You should ensure that the internal processes surrounding the handling of data are well defined and controllable.” This includes the need to create knowledge about the processes so that a control can be effective. (2) The second procedural value implies transparency: “You should document and communicate what happens to the data and how it is done.” The focus of transparency is both the customer and, for example, an auditor; the concrete requirements for transparency differ according to these target groups. (3) The third procedural value is accountability: “You should define clear responsibilities for the handling of data and take responsibilities in case of violations.” This is particularly intended to counteract the tendencies for responsibilities to become blurred and unclear in the course of the digitisation process.

Procedural values address the questions how to achieve the declared ethical goals and express common corporate principles for ensuring the quality of products and services and the control of corporate risks. An ethical orientation of data-based value creation is based on the degree to which both these basic orientations and procedural values are achieved.

In another booklet, the Expert Group (Expert Group of the Swiss Alliance for Data-Intensive Services, 2020b) share recommendations and provide practical guidance for the

implementation of each of the mentioned basic ethical orienting, principles and procedural values examples. With regard to respect the autonomy of data subjects, intensive communication and exchange with stakeholder in the real-world setting of world-café event is recommended. Stakeholder dialogue can be used to specifically discuss data-based models, e.g. the risk that these models generate discrimination (Expert Group of the Swiss Alliance for Data-Intensive Services, 2020b, p. 18).

4.3.3 The risks of ethics washing

The example of the Swiss Alliance indicates that the private business sector is aware of and contributes to the development of high-quality codes of ethical conduct. The main problem remains, however, that the codes mainly appeal to the good-will of business. The codes of conduct are not binding, do not include mechanisms for independent monitoring of compliance and abstain from effective measures that fine or sanction misbehaviour.

In the commercial domain, the development and implementation of data ethics may become even *ethics washing* when it is used to avoid legal regulation. Wagner (2018) analysed initiatives of the private commercial sector to introduce sector specific non-binding Codes of Ethical Conduct, as an escape from regulation and in favour of opportunities for ethics washing and ethics shopping. Ethics washing is a process “where a firm performs ethical behaviour to deflect criticism of harmful practices” and thus ‘wash’ its reputation, without changing its business model. One example of this is the US data analytics and surveillance firm Palantir sponsoring privacy law conferences while also developing surveillance systems used to separate immigrant families in the USA” (Keymolen & Taylor, 2023, p. 493).

Taylor and Dencik (2020) found that business’s ethics initiative can be a *discourse* in that the commercial sector promotes a technologically determinist framing where innovation is axiomatically good and therefore marches on, and the economic value of data must be realised. “The big tech and advisory firms focus on ethics as a way to build, maintain or resurrect ‘consumer trust’, a trust that is also cited as an objective to be achieved through investments in ethics centres and research within academia” (Taylor & Dencik, 2020, p. 2). The authors found considerable variations between firms in terms of the way they use ethics. Ethical discourse is seen by some as the oil that enables the digital economy to run smoothly without interruption from law and regulation; others pragmatically use ethics discussions for the tactical containment of reputational risks. The bigger firms see data ethics as a kind of insurance: an antidote to moral panic on the part of the public while others see it as a variant of corporate social responsibility that is part of the mission statement about promoting certain public values while not doing harm.

Keymolen and Taylor (2023) consider the relationship of data science and data business as an “uneasy marriage”. In their view, data science has been hastily rushed into a relation with the business sector without a comprehensive understanding of what data ethics is actually about. “After all, data ethics as well as data science are both still rather young. However, in the darkest scenario, data ethics in the hands of data-driven businesses becomes a vehicle for intentional, malicious conduct, when it is used to hamper and ditch legal regulation. All in

all, it becomes quite clear that data ethics and data science have not arrived at a calm place yet” (Keymolen & Taylor, 2023, p. 496).

Finally, Wagner suggests that Codes of Ethical Conducts should contain the following components: external participation of stakeholders; mechanisms for external independent oversight; transparent decision making procedures on why decision were taken; a stable list of non-arbitrary standards of values; ethics and rights; the declaration that ethics do not substitute fundamental rights or human rights; and a clear statement “on the relationship between the commitments made and existing legal or regulatory frameworks, in particular what happens when the two are in conflict” (Wagner, 2018, p. 3).

4.4 CIVIL SOCIETY SECTOR

This sub-section is based on a recent report published by the Open Society Organization. The report emphasised that civil society organisations are becoming increasingly data-heavy operations, and basic fluency in data protection is essential.

4.4.1 Civil society sectors’ specific part in data protection

In contrast to the other mentioned sectors, the debate on the development and implementation of a common code of ethical conduct for organisations engaged in advocacy and service provision tends to adopt arrangements developed in the other sectors. The scarce funding options in combination with the highly fragmented structure of civil society sector impair the ability to engage systematically in the elaboration of a more generally accepted sector specific code of conduct that specifies and fine-tunes data ethics requirements (Franz et al., 2020).

And yet, the compliance with data ethics concerns some civil society organisations (CSOs) in more than one dimension. On the one hand, in particular humanitarian CSOs act as advocates of wretched and underprivileged people and defend the rights of individuals in need of protection, including their rights as data subjects (PICUM, 2020). In this regard, CSOs are engaged in practices to disclose and monitor non-compliance with legal and ethical norms conducted by state authorities, private business and also research. For that purpose, some CSOs themselves process highly sensitive personal data and have to comply with the legal requirements including GDPR, national law and codes of ethics they have voluntarily adopted as self-imposed ethical benchmark. Processing of personal data concerns mainly the administration of the personal data of donors and members but can also imply the sensitive personal data of clients who have to consent with data registration as a precondition to receive services or goods; and the personal data of persons who are contacted as resource person with special expertise or knowledge like whistle-blowers providing misbehaviour of state authorities, business enterprises or research units.

4.4.2 Civil society sectors' struggle with data protection compliance

As in the other sectors, compliance with data ethics is not an easy task. Franz et al. (2020, p. 4) argue that demonstrating fluency in data protection allows CSOs to lead by example on the value of data privacy and demonstrate an alternative to the current model of unchecked, large-scale data exploitation by many big technology companies. CSOs' own compliance with the GDPR also provides a robust defence against adversaries who may seek to use or abuse the GDPR in an attempt to undermine the activities of these organisations. Data protection breaches can be extremely costly which may then even go in the expense of core activities (Franz et al., 2020, p. 15).

For most CSOs, GDPR compliance is in line with organisational values, but challenging in terms of compliance, not least because it is time and resource intensive. GDPR regulations make it harder for civil society organisations to concentrate on their core activities. CSOs missed good GDPR compliance advice, in particular advice tailored to non-profit organisations. CSOs rely on two distinct strategies: over-compliance and pragmatic, risk-taking compliance. The most widespread example of over-compliance was the decision by many NGOs, often on the basis of external legal advice, to ask all of their mailing list subscribers to re-consent to receiving newsletter and other communication with the effect that the number of subscribers decreased, in some instances even dramatically. Other non-profit organisations instead simply acknowledged the entry into force of the GDPR and/or updated their privacy policies, stating that they believed subscribers wished to continue receiving their communication and provided them with the opportunity to opt-out at any time. Regarding the pragmatic compliance approach, some NGOs choose to take a risk-based and proportionate approach, in some cases against external legal advice. One organisation decided not to seek consent for the use of contact details for communication with public officials, even though external counsel had advised the opposite. Had the organisation followed the advice, then its ability to communicate with policy makers – a core part of its missions -- would have been seriously restricted (Franz et al., 2020, p. 8).

Finally, the report shares some recommendations for NGOs and funding organisations. NGOs are advised to review their data processing practices, to ensure that data protection is mainstreamed and that umbrella organisations in the non-profit sector should mainstream data protection into their thematic and operational work by addressing policy matters and providing their members with practical tools to meet sectoral compliance challenges (Franz et al., 2020, p. 36). A good starting point for the realisation of this desideratum can be found in the research on good governance and self-regulation models for civil society organisations (Özhabeş, 2013).

4.5 THE RELEVANCE OF CODES OF ETHICAL CONDUCT

This chapter introduced and described specific codes of ethical conduct in the four sectors of research, public administration, commercial business and civic organisations. The account

indicates the sector-overarching relevance of the ethical dimension beyond the legally prescribed standards. A common feature is the commitment to recognise human dignity, accept autonomy and to prevent harm. Organisations in all sectors share the interest to induce and keep *ethical reputation* as basic premise for a successful implementation of their sector-specific objectives.

At the same time, indications for all four sectors suggest the difficulties and more or less prevalent failure to comply fully with sector-specific ethical requirements. A crucial factor influencing the grade of compliance is the level of bindingness and oversight. The indications of the brief and selected review accord with research indicating that non-compliance with normative requirements can be caused by lack of knowledge, misunderstanding, incapacity, conformity with an environment of low norm compliance, preponderance of idiosyncratic motivations or the lack of reprehension and enforcement. Positively formulated, norm compliance is facilitated when addressees know and understand the norm, possess the ability and capacity to comply with requirements, act in an environment that favours compliance and disapprove non-compliance, and the risk that misbehaviour is detected and sanctioned is severe (Rößger et al., 2011). A key factor facilitating compliance with standards of data ethics is accountability (Jaatun et al., 2020).

Given the fact that codes of ethical conduct are explicitly mentioned in GDPR and EAIA, it is important to pay attention to them for two reasons: they provide a context-specific orientation and starting point for ethical benchmarking; and the standards enshrined in codes of ethical conduct may inform and influence the ongoing debate how to deal with migration policy dilemmas and thus serve as driver for innovative amendments of legislation.

5. INDICATIONS OF ETHICAL CONCERNS IN MEASURING (IRREGULAR) MIGRATION

In the area of scientific knowledge production, the specific objectives and practices of scientific research enjoy particular legitimation and legal affirmation of freedom of research although within limitations drawn on the basis of legal regulations and ethical principles that leave room for weighing up contrary opinions (Salah, Bircan, et al., 2022; Weinhardt, 2020). In addition, for scientific purposes the re-use of data collected for another purpose is permitted when the data are anonymised or aggregated.

Against this background, this chapter shares findings from the reading of literature on ethical risks relevant for efforts to measure and analyse migration and irregular migration. Due to constraints of time and space, the chapter deals with a limited selection of issues discussed in the literature on data ethics currently expanding in response to the digitization of society (e.g. Bertoni et al., 2023; Leslie, 2023; Meissner & Taylor, 2021; Salah, Korkmaz, et al., 2022; Sandberg, Rossi, et al., 2022; Stielike, 2023).

The chapter pursues a remedy-oriented approach guided by the consideration that the final output of the MIRreM project are two handbooks that can be consulted for guidance by practitioners in policy, research, business and civil society. The focus lies on an exploration of possibilities of ethically responsible conduct that is possible within the framework of ethical standards as described in the previous chapters. In addition, the chapter points to risks and challenges which cannot be solved within this framework and consequently suggest the necessity to amend the framework, a second-order change (Watzlawick et al., 1974). Structure and content of this chapter are influenced by seminal accounts provided by Leslie (2023) and Salah et al. (2022). Both papers pinpoint ethical risks or challenges and indicate possible responses for mitigation or dissolving in practical terms. With regard to ethical challenges, Leslie proposes a taxonomy relating to (1) the treatment of research subjects; (2) the impacts of Computational Social Sciences (CSS) research on affected individuals and communities; (4) research integrity and (5) research equity; whereas Salah et al. group data ethics concerns into three interrelated and intertwined areas of (1) data, (2) algorithms and (3) practices.

For the purpose of this examination, the basic division of three areas proposed by Salah et al. (2022) is kept. The first area relates to the *ethics of protection of personal data* and addresses the relation between researchers and the researched persons as data subjects (4.1). The second area relates to the *ethics of analysis* and addresses risks that may occur in connection with biases inherent in the collection of data and consequently the dataset itself, the analysis of data including the application of algorithms (4. 2). The third area relates to the *ethics of practice* and addresses the researchers' responsibility to consider the probable

influence and impact of data analysis and actual deployment of algorithms on real-world decisions (4.3).

5.1 CONCERNS RELATED TO PERSONAL DATA PROTECTION

This sub-section explores the concerns related to *ethics of protection of personal data* and addresses the responsibility of researchers to comply with legal regulations and institutional codes of ethical conducts regarding personal data protection. The ethical concerns are closely related to the responsibilities of researchers as data controller and processor as prescribed in GDPR. The issue of data protection and privacy is a classic topic and was already intensively considered in previous research project dealing with the quantitative dimension and measurement of irregular migration like Clandestino (Düvell et al., 2008). The risks to violate the legal requirements to gain informed consent and the duty to protect information on personal data are still pertinent and even more virulent with the advancement of datafication and digitisation that implies technical opportunities for de-anonymisation. Even more virulent, the application of digital technologies and Big Data generate opportunities to produce data about predefined collective categories that is subsequently applied for the construction of groups that would otherwise not exist. The assignment of individuals to such constructed groups impacts the possibilities and chances of those perceived to be member of the group or category.

5.1.1 Concerns related to the violation of data subjects' rights

A first challenge relates to the treatment of research subjects and addresses the interrelated aspects of confidentiality, data privacy and protection, anonymity and informed consent (Leslie, 2023, p. 61), concerns the violation of the rights of data subject as enshrined in legal data protection regulations.

Salah et al. (2022, p. 34) consider in this context the risk of ethics washing. The inadequate use of instruments designed to support compliance with ethical standards and recommended in guidelines or toolkits may end up masking the problems instead of helping to solve them. An ethics board that is not consulted, a data management plan not followed and stakeholder consultations where dual use are hidden “can function as ethics-washing, where ethics is used more as a lip-service than as a tool” (Salah et al. 2022, p. 34). Emerging technologies make new tools available for studying large scale human mobility, including satellite imaging, mobile phones, social media, and virtually any large-scale data repository that contains traces of human behaviour. The speed with which these potential surveillance venues opened up have made it impossible for the legal and regulatory frameworks to keep up, and a range of ethical issues have become very prominent. In this chapter, we provide a starting point for thinking through the ethical and legal concerns of applying data science to the host of traces human activity generates, and their use in humanitarian projects, academic studies, and policy decisions. We define core concepts, discuss examples, and provide

guidelines, tools, and further reading suggestions to help the reader navigate this burgeoning area. The standardization of ethics self-assessment tools may even abet ethics washing when it amounts to a tick box approach inadequate for a responsible coping with emerging ethics issues (Taylor & Meissner, 2020).

Salah et al. (2022) recommend as remedy to protect data by design and default, where protection is incorporated in the design stage to prevent misuse. In concrete terms, data can be anonymised already during collection in order to preserve the anonymity of individuals even if a data breach were to comprise the dataset.

Researchers are obliged to use and re-use only data sets facilitated in compliance with data protection regulations, in particular the requirement to gain informed consent. The question of consent is an issue intensively considered, and standards for conducting covered research and forms of recording consent in written or verbal form are established. Researchers have to deal with ethical concerns arising from a lack of understanding around technologies and the potential for benefits and risks for harm. It is difficult for individuals to engage in meaningful consent processes, in particular when data collectors do not sufficiently and transparently explain data subjects' rights. The requirement of informed consent may be impaired when data subjects are not properly and comprehensibly informed about their rights, the purposes and applications of personal data processing and available possibilities to opt out. Several cases of misconduct indicate that in particular in business contexts informed consent requirements are not always adequately implemented. Furthermore, the rights of a data subject are stripped off once the data set is anonymised.

In addition, the obligation to gain informed consent is suspended when personal data are collected for law enforcement purposes and thwarted when dissent leads to an exclusion from services. Regarding data collected by law enforcement agencies, Palm (2013) discusses lack of transparency as ethical concern. She argues that surveillance technology per se does not create problems of an ethical nature. Traditional control measures involve physical-barriers, border patrol and immigration checks at authorised border crossings. Today, ITC complements to traditional control mechanisms with automated surveillance devices and thus alters the range and scope of border controls and obscures migration governance. Compared to manual border control the "automated" surveillance technologies enable far-reaching remote control with a distant observer. "The main difference with the deployment of advanced technology is the magnitude of data that can be used, the swiftness of data transfer and the scale of the networked society" (Palm, 2013, p. 206). As a novel twist, Palm points to the increased lack of transparency enabled by covert surveillance systems. Those affected by surveillance-based migration control may be aware that surveillance-based border control is taking place but not how it is carried out and why. Individuals may be sorted into risk categories and hence subjected to increased surveillance without their knowledge. How such risk models are construed, based on what theories or assumptions, is typically non-transparent. A lack of understanding for the existence or modes of operation of surveillance systems implies that individuals' reasonable expectations on surveillance are obstructed. Unaware of existing surveillance conduct individuals' lack the possibility of avoiding exposure and of taking the measures necessary to protect their personal data and interests. Palm argues that in both ways, their autonomy is impaired. A proposed remedy and

clue for ethical assessment of border surveillance mechanisms is thus the adherence to the principle of visible and transparent data collection.

Regarding the collection of personal data as mandatory requirement for receiving services, explorative research on data protection and digital agency for refugees indicate that asylum seekers are required by UN agencies or local border control and law enforcement staff to provide significant amounts of personal data without being fully informed of their data rights (Molnar, 2020). Kaurin (2019, p. 1) states that asylum seekers and refugees are stripped of their digital agency, as they are forced to disclose information and biometric data that then is no longer in their sole possession. Agreements cannot constitute a proper informed consent, when the individual cannot assess the consequences of data sharing, when the individual belongs to a vulnerable group and feels urged to cooperate in order to receive services. The failure to properly obtain consent from refugees and asylum seekers may result not only in a violation of the right to privacy and self-determination, but also thwart the right to liberty and security, and even the right to life. A striking example Salah et al. (2022, 30) mention regards the controversy about the United Nations Refugee Agency (UNHCR) collecting and sharing of Rohingya refugees' personal data with Bangladesh which then shared it with Myanmar authorities. The data was then used to organize repatriation against the will and without consideration of Rohingya people's fear to face violence and discrimination after involuntary return.

Ethical concerns thus increase when the collection and sharing of data implies that different regulative frameworks are involved. „Having many stakeholders creates additional risks for the vulnerable, because while data are shared, the conditions under which this is achieved and the influence of different parties in determining what is stored and processed is not fully transparent“ (Salah, Bircan, et al., 2022, p. 14). As Taylor et al. (2017, p. 13) observe with regard to government related data processing, the “mingling of public and private-sector data, and the potential for analysis by third parties in academia or quasi-governmental organisations, are increasingly features of governmental data science, and are likely only to grow with time”.

Kaurin (2019, p. 1) emphasises that refugees need to be provided with reliable information that enable to assess the risks. They need to be able to trust the people and organizations requesting this data and to understand who it will be shared with and how it will be protected. Without this information, refugees navigate the system with uncertainty, making decisions that may ultimately cause them more harm. Thus, Kaurin (2019, p. 15f) recommends to establish mechanisms for the legal education and information of refugees and migrants about their protection options, the storage, use and access of the data they share, and their rights, including rights as data subjects to access, rectify and erase personal data and to lodge a complaint anonymously. Refugees and migrants should be involved as stakeholders in the decision-making and design process on data processing.

For a technical remedy of deficiencies related to the consent requirement, Salah et al. (2022) indicate the possibility to expand the procedure for consenting and integrate steps in a user-friendly form that secure that the users of digital services have really noticed and understood the basic information on data privacy and the available options. While this remedy is possible for survey data it is insufficient for Big Data analysis and machine learning applications.

With regard to risks related to sharing and re-use of data, Salah et al. (2022) propose as technological remedy the careful de-identification and anonymisation of personal data meaning that data cannot be associated with an individual anymore. Effective de-identification and anonymisation of data provides an accepted opportunity to supersede the consent requirement in the original capturing as well as in the re-use and sharing with other parties. However, such a solution conflicts with research ethics' requirements of transparency and reproducibility.

5.1.2 Concerns related to ineffective de-anonymization and re-identification

However, as algorithms become more powerful and more datasets become available, it is increasingly difficult to completely anonymise the data and prevent re-identification. "Re-identification poses a problem to privacy and thereby to personal autonomy" (Salah et al. 2022, p. 31). Triangulation and data linkage provide opportunities for de-anonymisation and re-identification of data sets (Leslie, 2023, p. 63).

Particular caution is required when anonymous datasets should be shared with a party who might possess additional information that can be used to remove anonymity from (some of) the records. Salah et al. (2022) point to an analysis of mobile phone data indicating that refugees were employed without required permissions at a large construction site in Turkey. Although anonymisation removes personal identifiers from a database, the remaining patterns may still be sufficient to identify a person uniquely when for example behaviour is used as a biometric data. As remedy, the research team decided to delay the publication in order to avoid harmful consequences for tracked individual refugees.

Regarding the risks related to sharing of data, Salah et al. (2022) recommend as technical remedy to share data not only in an aggregated form but to eliminate before sharing information that may enable re-anonymisation like for example communication graphs in Call Detail Records (CDR) datasets that turned out to be a gateway for re-anonymisation. However, also in this case the proposed solution conflicts with research ethics' requirements of transparency and reproducibility.

5.2 CONCERNS RELATED TO THE QUALITY AND ANALYSIS OF DATA

As second area of concern, Salah et al. (2022) identified the ethics of algorithms. My recommendation therefore is to adopt a broader understanding and deal with the quality and analysis of data as a distinct area of concerns. This expansion follows Bloemraad and Menjívar (2022, p. 12) who argue that ethical risks regard not only the area of data but also data analysis techniques. Following Leslie (2023, p. 61), this group of concerns implies challenges related to the quality of CSS research and to its epistemological status, including erroneous data linkage, dubious ideal user assumptions, infusion of algorithmic influence in observational datasets of digital traces or blind spots vis-à-vis non-human data generation that undermine data quality and integrity. Also research integrity is addressed when

asymmetrical dynamics of resourcing and influence that can emerge from power imbalances display impact (Leslie, 2023, p. 61).

The relevant ethical frame of reference provides the concept of research integrity, in particular the principle of reliability (e.g. ensuring the quality of research, reflected in the design, methodology, analysis, and use of resources) and the principle of honesty (e.g. in developing, undertaking, reviewing, reporting, and communicating research in a transparent, fair, full, and unbiased way) (ALLEA - All European Academies, 2023, p. 4).

5.2.1 Raw Data and Dataism

Reflexive approaches in data and software studies criticise an understanding of data as mere representations of pre-existing, external realities (Leese et al., 2022). But data are never “raw” and cannot be taken for granted as a settled matter of fact (Gitelman, 2013). Instead, data are fundamentally shaped by the assumptions and standpoint of all the actors (many of them commercial) controlling its trajectory from creation to analysis and use (Taylor 2023, p. 44). Not only are the questions asked of data usually oriented towards the needs and perspectives of the most powerful (Taylor & Meissner, 2020) but the data itself is generated, collected and shared in ways that reflect and confirm the status quo in terms of resource distribution, visibility and agency. Data are produced, cleaned, circulated, certified, imputed, linked, and matched through often invisible or invisibilised practices and infrastructures (Leese et al., 2022, p. 4). Once produced, the data are utilised for the development of systems that categorise and sort out people with regard to the perceived membership to a category or group (Bowker & Star, 2008).

The development of digital technologies and by now ubiquitous computing facilitate information enable datafied representations in real-time and as data pools. Van Dijck (2014) coined the term dataism in order to scrutinise the widespread belief in the objective quantification and potential tracking of all kinds of human behaviour and sociality through online media technologies. Dataism implies trust in institutions and organisations that collect, interpret, and share (meta)data that is culled from social media, internet platforms, and other communication technologies.

Taylor (2023, p. 44) emphasise that data are now not only useful for making visible the behaviour and movement of populations, but they are also useful for optimising them in the interest of powerful actors. Correspondingly, any lack of representativeness or understanding of the interests and dynamics the data reflects are translated in this move from modelling to optimising into a direct shaping of subjects’ opportunities and possibilities.

As a remedy, Stielike (2023, p. 192) argues with respect to refugee migration that Big Data analysis have the potential to support an ethics-sensitive and reflexive innovative consideration when analysis does not start from categories like nationality, citizenship or origin countries but focus on the diversity of mobility in time and space. The shift of perspectives could support to reappraise the distortions inherent in methodological nationalism, descriptions guided by concepts of ethnicity and nationality, and assumptions that migration takes place as a uni-directional singular occurrence. While this proposal aligns

with ethical norms its realisation would be at the cost of optimising analytical operations that are based on formalisation.

5.2.2 Concerns related to statistical bias

The risks of biased data and analysis is a well-known and intensively discussed issue in statistics and big data analytics (Mehrabi et al., 2022).

Values and assumptions taken for granted by those who build models for data processing constitute a first source for biases and can have significant effects on the model output, in particular through the assessment of what is counted as data in the first place and through a process of determining categories that relies on and applies perspectives of researchers not familiar with domain-specific research.

Statistical bias implies the misconception and misrepresentation of categories. A bias emerges when, for example, the uneven distribution and use of social media and mobile phones among regions, gender, age groups and social classes is not adequately taken into account (Leslie, 2020, p. 34 f). With regard to migration, data quality is impaired by the under-representation of female refugees (Salah et al., 2019). Bias may also arise from incorrect analysis, when for example data sets include categories of subgroups exhibiting biases that cancel each other out when data are aggregated. This phenomenon, called Simpson's paradox, can also happen with trend analysis, where aggregation can make trends appear or disappear.

The identification and correction of biased data and analysis also is applicable to the re-use of datasets. Researchers do not only utilise research-elicited data engendered in the research process for scientific purposes but re-use also process-generated data facilitated in the context of activities performed with different purposes by public authorities, civic organisations, service providers or digital business companies (Baur et al., 2020).

Salah et al. suggest as methodological remedy to carefully investigate patterns in aggregated analysis or shuffling and randomisation tests in order to disclose biases. Salah et al. (2022, p. 33) emphasise moreover that dealing with issues of bias requires looking at the data collection and analysis process critically and holistically by asking questions that address the risks of bias before and during analysis: who collects the data (e.g. a private vs. public entity) and whether this entity has a specific agenda, how the data are sampled (whether there are any structural issues and whether representativeness is ensured), and how the data are annotated. Such a critical assessment is informed by the insight that data can never be neutral or raw (Gitelman, 2013).

5.2.3 Concerns related to algorithmic biases

Algorithmic biases indicate systematic and unfair outcomes of the operations of an Artificial Intelligence (AI) system. The increasing use of complex machine learning models lacking as black box system transparency implies uncertainty how the system has reached its outcome.

Biases enter into an algorithm as unrepresentative datasets, datasets that reflect existing biases, discriminatory labelling of data, variables and proxies used within the model and

framing of the problem for the model. “Algorithmic biases constitute a serious problem for social justice because systems and technologies can amplify existing biases while hiding them behind a façade of mathematical objectivity” (Salah et al. 2022, p. 33).

The bird-eyes perspective of Big Data analysis in combination with insufficient context knowledge and lack of immediate contact with the people bear the risks that a taken-for-granted perspective is reproduced (Taylor, 2016b; Van Maanen, 2022).

Leslie (2020, p. 34) recommend that those who design digital apps used for contact tracing (and all other proposed mHealth tools and solutions) should pay special attention to those slices of the population where mobile smartphones are not used or unavailable for reasons of disadvantage, age, inequity, or other vulnerability. The burden is on policymakers, officials, data scientists, and AI/ML developers to come together with affected stakeholders to figure out how to include these potentially left-out members of communities in consequential policies, initiatives, and innovations.

As a technical remedy, Salah et al. (2022, p. 32) suggest as a useful de-biasing approach the application of the protected attribute suppression system (PASS) that discourages a network from encoding protected attribute information (Dhar et al., 2021). Furthermore, they recommend to use models of explainable artificial intelligence (see Confalonieri et al., 2021). Explainable AI models are those that can be understood by humans. Explainability addresses the designer who benefits from improved understanding, can identify ethical issues and take initiatives to reduce various risks of harm including those related to safety, security and unjustified discrimination. Explainability also addresses the user who can achieve a better understanding of the decisions of the systems.

Another way to enhance explainability and to control algorithmic analysis proposed by Sandberg et al. (2022) is the manual sampling of websites that serve as data basis for machine learning operations. The controlled imposition of such restrictions enables to regain researchers’ ownership and responsibility.

Finally, Salah et al. (2022, p. 33) emphasise that the disclosure of algorithmic bias – and more generally, bias – is necessarily related to the concepts of justice and fairness that ground the exploration. In order to achieve useful results, research on algorithmic biases and fairness in machine learning has to engage with theories of justice in political philosophy.

Overall, the indications of possibilities to dissolve challenges related to statistical biases imply the careful formulation of research questions and the contextualisation of the research agenda (Leslie 2023).

While the propositions on migration policy dilemmas (Bauböck et al., 2022) provide a helpful frame of orientation for this task, the proposal for an ethical benchmarking toolkit introduced in chapter 6 provides guidance for the procedural implementation in a systematic and iterative manner.

5.3 CONCERNS RELATED TO PRACTICAL IMPACTS

The third area relates to the ethics of practice and addresses researchers' responsibility to consider the probable influence and impact of data analysis and actual deployment of algorithms on real-world decisions. Challenges regard the impacts of CSS research on affected individuals and communities and cover areas such as the potential adverse impacts of CSS research activities on the respect for human dignity and on other fundamental rights and freedoms (Leslie, 2023, p. 61).

The relevant frame of reference for ethics assessment provides the concept of research integrity, in particular the principles of respect (e.g. research participants, research subjects, society, ecosystems, cultural heritage, and the environment) and the principle of accountability (e.g. in particular for its wider societal impacts), as outlined in a report by All European Academies (2023, p. 4).

The concerns addressed are non-scientific influence, attention setting, dual use, group privacy, complexity and false certainty.

5.3.1 Concerns regarding non-scientific influence

The central aim of using large-scale data and Computational Social Science methods to inform policy is to positively impact society. This aim, however, comes with no definition of which people should benefit and whether those are the same people who are reflected in the data. A general concern addresses risks related to the influence of the close relationship between researchers, business, authorities and interest groups (Leslie, 2023; Taylor, 2023). Male dominance and the dependence on private commercial enterprises have an influence, which questions are posed and which practical consequences are enacted (Stielike, 2023). The unevenness of the new large-scale data sources, their representativeness and their potential for uneven effects when used in policy, therefore, are central concerns for any researcher or policymaker interested in not doing harm (Taylor, 2023, p. 43).

5.3.2 Diverting attention from macro ethics to micro ethics

The close relation between migration researchers and political institutions may lead to the believe that the main challenge in the governance of migration consists in the lack of data – as the reference to the Global Compact on Migration indicated - instead of realising that the main challenge is a better understanding of the conflictive relation between political aspirations to control migration and the migrants' determined mobility practices (Stielike, 2023, p. 192).

Taylor and Dencik (2020) distinguish macro and micro ethics. A micro ethics of data often points away from the political questions. An individual worker or a group within a technology company may be following the company's ethical code or guidelines, designing for privacy, practising for data minimisation, and generally working on their own level for the betterment of humanity. But if the company as a whole is engaged in providing software for autonomous weapon systems, supporting discriminatory law enforcement or helping to jail children and separate them from their parents, it is not hard to see how a focus on micro-level privacy and ethics, however necessary, could pull focus from higher-level ethical problems (Taylor & Dencik, 2020, p. 8).

5.3.3 Concerns regarding Group Privacy

A particular concern addresses the debate on “group privacy” (Taylor, 2016a) starting from the observation that data protection regulations’ focus on individual private data seems to be falling short with regard to emerging digitalisation. Big Data analytic techniques are directed at a group level and collect data beyond individuals. Yet there is the possibility that decisions made with reference to the aggregate level pose real risks for grouped people.

Taylor et al. (2017) provide brief and condensed description of such real risk. The new data sources facilitate monitoring and surveillance, either directed toward care (human rights, epidemiology, ‘nowcasting’ of economic trends or shocks) or control (security, anti-terrorism). They also allow sorting and categorising – ranging from the profiling of possible security threats or dissident activists to biometrics and welfare delivery systems and poverty mapping in lower-income countries. They can be used to identify trends, for example in the fields of economics, human mobility, urbanisation or health, or to understand phenomena such as the genetic origins of disease, migration trajectories, and resource flows of all kinds. The new data sources also allow authorities (and others, including researchers and commercial interests) to influence and intervene, in situations ranging from everyday urban or national governance to crisis response and international development.

Enforcement practices can spill over to family members and entire communities and disclosing information about an individual can potentially affect families (including citizen members) (Bloemraad & Menjívar, 2022, p. 24).

In order to cope with these risks, the extension of the right to privacy from the individual level to the group level is intensively discussed (Taylor, 2016a). However, as Loi and Christen (2020) argue, the idea of a group privacy is problematic due to serious conceptual and consequential difficulties. They argue that Big Data processing constructs “inferential groups”, an aggregate that lacks features of a social group like collective interests and social interaction. The concept of a right to inferential group privacy can be reduced to a more familiar problem about harmful uses of generalizable knowledge. „Such knowledge potentially affects many more people besides the limited sample which enabled the generation of such knowledge. One possible conclusion is that not all forms of privacy can be protected by giving individuals, or groups, rights to control information. On the contrary, inferential privacy requires a vision of the societal impact of knowledge generation, which crucially, researchers and other users of big data analytics also (perhaps, mainly) have the responsibility to develop“ (Loi & Christen, 2020, p. 222). The debate signals that the issue of group privacy addresses a fundamental ethical concern closely entangled with questions of the legitimacy of technically possible and legally accepted operative measures that does not question but stabilise existing asymmetries in power and life chances.

5.3.4 Dual Use of technologies

The European Commission Directorate General for Research point out that dual use is a term that refers to technology which can be used for both peaceful and military aims. In the context of research, dual use is to be understood as potential misuse of research. Possible

dual use of new technologies and new scientific results creates ethical problems for the scientist and the scientific community, especially with regard to how to define the responsibility to prevent such dual use (European Commission. Directorate General for Research., 2013).

The concept of dual use indicates that a mean or technology display the potential for ambiguous utilisation. An illustration of the dual use provides a population-level mobility tracking application that could be the key to control a pandemic but also a dangerous surveillance tool in the hands of an autocratic government that use it to control and suppress oppositionists (Leslie, 2023; Salah, Canca, et al., 2022). As Stielike observed for refugee migration, Big Data analysis intended to serve the purpose to improve humanitarian interventions or integration measures are subsequently used for the surveillance of refugees or prevention of mobility (Stielike, 2023, p. 191).

However, Big Data analysis that reveals the routes and strategies of refugees could be principally utilised for different purposes: to support rescue operations saving refugees in distress, to detect and refuse migrants at international sea and escort back, to push back or use the information to avoid presence in an area in order to leave them alone.

The issue of dual use goes beyond the individual and collective responsibility of researchers and belongs to the realm of political decision making. As possible remedies, researchers may proactively emphasise the responsibility to act in accordance with the Responsible Research and Innovation habit and consequently take a position of caring for vulnerable and disadvantaged population (Sandberg, Rossi, et al., 2022). This implies not only to refrain from cooperation with research projects considered to be unethical but also to publicly disclose unethical practices and consequences and to support and take part in the search for non-harmful alternative possibilities that respond to public concerns about security or justice.

5.3.5 Risks regarding to uncertainty and dynamics of complexity

Salah et al. (2022, p. 35) emphasise that a major source of difficulty in ethical design, development, and use of technologies comes from the complexity of human social dynamics and the difficulty of estimating technologies' effects on these dynamics. Addressing complexity, conceptualised as property of systems or organisations (Byrne & Callaghan, 2014, p. 4), shifts the focus from analysis of the individual parts of a system to the system as a whole, with a focus on the interactions of both the components and systems, and the exploration of non-linear and disruptive dynamics (Cairney, 2012). Only recently, the issue of complexity is addressed more systematically in migration studies with the concept of uncertainty that impregnates migration governance and scientific analysis (Bijak et al., 2023).

Salah et al. stress that technology interacts with the society that uses it and changes it in unexpected ways, as the example of social media shows. Content filtering algorithms “designed to improve user experience end up widening the gaps within the society and polarising it. Such risks are exacerbated when the computer scientists who design the

algorithms are unaware of the nuances and debates around the topic and in related domains, treating” (Salah et al., 2022, p. 27). The ignorance of complexity increases the difficulties in risk assessment and pose a direct problem for minimisation of harm and feed into other ethical issues. “When the risks are not well-understood and well calibrated even by the researchers and developers, it becomes increasingly difficult for them to minimise the risk of harm to individuals, to vulnerable groups and to the society as well as to explain these risks to the individuals for their informed consent when sharing personal data or participating in research” (Salah et al. 2022, p. 35).

As a remedy, Salah et al. suggest to systematically consider the feedback-effects with recourse to concepts developed in complexity theories (Strogatz, 2018). Acknowledging the dynamics of complexity has three implications for ethical design in the domain of migration and mobility. (1) Models and systems relying on big data analysis should be seen as potential agents of change. A technology initially designed to help classifying asylum cases may create a benchmark that changes the behaviour of asylum-seeking individuals. (2) Data processing endeavours require like most complex systems a control framework where measurements should be obtained and continuously checked for a drift. (3) Finally, the conceptual tools of complex systems should be used effectively, instead of simpler but inadequately linear cause and effect explanations.

In practical terms, Snowden and Boone (2007) advise decision makers to distinguish, with regard to the level of certainty, the four situational contexts of simple, complicated, complex and chaotic. *Simple contexts* are managed routinely and *complex contexts* with recourse to expertise. *Chaotic contexts* are characterised by high turbulences without clear cause-effect relationships and offers no point to look for right answers. Decisions must be made without appropriate knowledge in the hope that they will deliver a first anchor that provides ground for further decisions. *Complex contexts* occur when situation is in flux and unpredictable, cause-and-effect relationships are not identifiable, no right answers are available, and emergent instructive patterns prevent linear predictability. In order to master a complex situation, creative and innovative approaches are required, and the many competing ideas should be tentatively tested in a reversible manner.

This recommendation implies that decision makers should clearly pursue tentative responses and communicate uncertainty instead heralding false certainties with tough solutions (Vono De Vilhena, 2022). In order to effectively communicate uncertainty, Dhami and Mandel (2022) recommend to express uncertainty in a numerical form that does not indicate a single figure but designates a minimum-maximum range.

5.3.6 Risks regarding algorithmic hubris

Finally, ethical risks emerge when researchers overstretch the application of algorithms. Green and Viljoen (2020) argue that even in contexts where algorithms can help to address social challenges, they cannot do so in isolation. The most impactful algorithmic interventions occur when algorithms are deployed in conjunction with policy and governance reforms (Green & Viljoen, 2020, p. 53). This approach also allows algorithmic thinking to be

incorporated into social and policy reform efforts without requiring the deployment of an algorithm and the imposition of algorithmic logics. Contextualism makes legible questions about whether algorithms can capture the essential aspects of a real-world context and whether algorithms can generate the desired social impacts.

Green and Viljoen (2020) share an example illuminating the strengths of efforts that abandon a more of the same logic (Watzlawick et al., 1974). One of the authors was asked to improve ambulance response times a municipal Emergency Medical Services (EMS) with data analytics. The instinct of an algorithmic formalist, following a universalist orientation, would be to develop an algorithm that optimises ambulance dispatch. Yet when the authors studied the context of the problem, it became clear that such a “solution” would not fit into EMS’s operations, nor would it address the underlying issues generating long response times. The author’s analysis revealed that significant resources were being deployed to emergency calls for people struggling with homelessness, mental illness, and drug addiction. These individuals did not require the acute medical care that EMS was providing (at the expense of providing it for other incidents); instead, these individuals needed social services that EMS was ill-equipped to provide. It became clear that ambulance response efficiency was a limited frame for understanding (and thus reforming) EMS’s operations: the efficiency of ambulance responses said nothing about the broader goal of providing services that address people’s needs. Although a dispatch optimisation algorithm may perform well along formalist metrics of efficiency, such an algorithm would have failed to address the underlying issue. The author instead worked with EMS to create a new unit that responds to these incidents via bicycle or car and personnel specially trained to connect people to local social services. The parameters of when and where this unit would operate were determined by analysing EMS incident data. Notably, the ultimate intervention was not to integrate an algorithm into existing procedures: a policy change informed by data was better suited to improve both efficiency and service quality. Rather than representing a failure to take advantage of algorithms, this effort was recognised as a positive collaboration that integrated data analysis and institutional context to improve social services (Green & Viljoen, 2020, p. 28).

Computer scientists pursuing interventions through a contextual approach can pose numerous questions: What elements of this context does an algorithmic approach capture and overlook? What values are important for any solution? To what extent can an algorithm account for those values? How does an algorithm compare to other reforms in terms of producing better outcomes? If the answers to these questions suggest a significant divide between the context and an algorithm’s ability to model and improve that context, then it is likely that an algorithmic intervention is an ill-advised approach to providing the desired social benefits.

The contextualist approach can help not just to avoid harmful algorithms, but also to place algorithms alongside institutional and policy reforms in order to robustly promote well-articulated social ends.

6. ETHICAL BENCHMARKING FOR MEASURING IRREGULAR MIGRATION

Based on the previous information and considerations, this chapter propose the outline of a systematic practical outline for ethical benchmarking in research contexts. The first sub-chapter explains the idea of ethical benchmarking. The second sub-chapter provides a short summary of the proposed toolkit for ethical benchmarking that combines a set of tools.

6.1 ETHICAL BENCHMARKING APPROACH

All assessment efforts work with specific benchmarks that provide a baseline for appraisal and allows to rank identified feature with reference to the benchmark. Initially, the idea of benchmarking was developed in the context of business as a method to evaluate the economic performance within organisations. Benchmarking refers to the development of comparative metrics of performances which typically take the form of highly stylised comparisons which are generated by translating complex phenomena into numerical values via simplification and extrapolation, is today applied and developed by states, international organisations, corporation, and non-governmental organisations (Broome & Quirk, 2015).

Benchmarking is also used to assess ethical performances, as for example the ongoing initiatives for the promotion of a Public Ethics Framework launched by the Council of Europe indicate (Centre of Expertise for Good Governance, 2020). COE conceives of benchmarking as a tool primarily used for diagnostic purposes to help identifying the areas of interventions in terms of the completeness and coherence of the Public Ethics Framework and to prioritise actions for better performance and increased effectiveness. Benchmarking is expected to provide evidence for decision makers and senior management through scoring and ranking for assurances about implementation, uniformity, relevance and probes, as well as evidence of best practice, convergence and improvement. In this vein, benchmarking is described as a structured good practice approach to contribute to improving working methods, enhance accountability, help take better decisions and make better judgements for cost-efficiency and to achieve the best results (Centre of Expertise for Good Governance, 2020, p. 47)

However, the critical point of benchmarking is the determination of ethical standards taken as benchmarks. The reference to philosophy is not really conclusive taking into account that philosophers developed different conceptions of what ethics constitute in different times, spaces and situations (Lever & Poama, 2019, p. 2) and ideas about the ethical question what constitutes the good are highly context-bounded and contested among interest groups in an

application situation (Habermas, 2005). Also even when everybody would agree with a general moral propositions like Rawl's difference principle, stating that social and economic inequalities are to be arranged so that they are to the greatest benefit of the least advantaged members of society (Rawls, 2005), the concrete ascertainment of the effects of particular arrangements on the least advantaged members of society remain a matter of dissent.

In a pre-print paper, LaCroix et al. (2022, p. 2) share meta-ethical reflections on benchmarking AI ethics. They define benchmarks as a key tool for measuring technical progress in artificial intelligence (AI) research and argue that it is impossible to develop a benchmark for measuring whether an AI system is ethical or for comparing the performance (in morally loaded scenarios) between two distinct models or use cases. They argue that it makes more sense to talk about values (and value alignment) rather than ethics when considering the possible actions of present and future AI systems. LaCroix et al. further "further highlight that because values are unambiguously relative, focusing on values rather than ethics forces us to consider explicitly what and whose values they are. This practice has additional downstream benefits for conceptual clarity and transparency in AI research. Therefore, shifting the emphasis from ethics to values gives rise to several new ways of understanding how researchers might move forward with a programme for robustly safe or beneficial AI" (LaCroix & Luccioni, 2022, p. 2). Consequently, the authors emphasise the importance to investigate values embedded in AI models by asking what values are encoded in AI research and whose value are they (LaCroix & Luccioni, 2022, p. 15). Subsequently, the authors present a list of tentative proposal for the practical implementation of the suggested shift from ethics to values.

The conclusions do not pose an exclusive alternative but can be integrated in an ethical benchmarking approach that does not aim to judge and classify those performing ethical benchmarking as good or bad but aim to support the reflection of good research (in scientific and ethical terms) and its implementation in practical terms. In the next sub-chapter, a toolkit for a systematic ethical benchmarking is described.

6.2 THE ETHICAL BENCHMARKING TOOLKIT

This section provides a brief account of the Ethical Benchmarking Toolkit, a coherent set of tools for ethics risk assessment of research activities including artificial intelligence technologies both applied as scientific analysis tool and an output of scientific analysis designed to serve as a tool to be used in society. The architecture of the toolkit rests on the framework explicated by Leslie (2020) for the ethical assessment of research activities and health interventions in the Covid-19 pandemic integrating ethics tools from different origins in a series of five steps.

The framework builds on general guidance by the FAIR data principles (findable, accessible, interoperable and reusable data) (Wilkinson et al., 2016), the 2013 AREA framework (anticipate, reflect, engage, act) developed by The Engineering and Physical Sciences

Research Council (EPSRC)'s,⁸ Leslie's proposal of the CARE & ACT Framework (consider context; anticipate impacts; reflect on purposes, positionality and power; engage inclusively; act responsibly and transparently) (Leslie, 2020; Leslie et al., 2022). As a sixth and transversal tool the idea of Critique Guided Designing is added. A strong component of the toolkit for ethical benchmarking is a researchers' self-reflexive and responsible deliberation of the ethical dimension that goes beyond the community of researchers and encompass the perspective of all affecting and being affected by research outcomes and impacts.

I decided to propose this framework because Leslie explicitly stresses the importance of the Responsible Research and Innovation framework launched by the European Commission as guidance and authoritative benchmark for ethics assessment. At the same time, the proposed framework includes the requirement to consider which and whose values are pertinent. The framework integrates in a systematic and structured way components of ethical benchmarking which were hitherto separately pursued. The framework deals explicitly with the ethical assessment of artificial intelligence/machine learning (AI/ML) innovation and thus covers the most recent developments which matters in the context of both handbook development and the genuine work of the MIrreM consortium with its main task to assess the quality of methods for measuring of irregular migration.

As my brief and selective outline will show, this ethics assessment approach does not provide static benchmarks for imposing limits or bans on certain approaches. Instead, it is the *application* of ethical benchmarking tools that serves as criteria (or benchmark) for the identification of ethically responsible research. The self-reflexive and responsible deliberation should at least consider the perspectives of stakeholders – all affected or affecting the measuring of irregular migration – and ideally include stakeholders systematically in the deliberation efforts.

6.2.1 FAIR Open Science and Share Data Responsibly

The first step introduced by Leslie (2020) addresses the current claim that *Open Science* and *Open Research* is a means to build public trust. Leslie mentions the adherence to standards of reproducibility, replicability, transparency, and research integrity. In addition to these quality standards established in the natural sciences and health research, the specific quality standards of qualitative research, e.g., credibility, dependability, confirmability, transferability, reflexivity (Stenfors et al., 2020) should be explicitly mentioned (although Leslie refers to them in later steps). Leslie stresses the importance of properly managed accessibility and maximal data integrity allowing for trusted data to more freely circulate amongst an ever-widening circle of responsible researchers, so that results can be replicated, and new, societally beneficial insights produced. Responsible research that moves in this direction should refer to well-established protocols for responsible data management like those of the FAIR data principles (findable, accessible, interoperable and reusable data) (Wilkinson et al., 2016), trusted digital repositories (ISO 16363), Criteria for

⁸ <https://www.ukri.org/about-us/epsrc/our-policies-and-standards/framework-for-responsible-innovation/>

Trustworthy Digital Archives (DIN 31644), and the Data Archiving and Networked Services' CoreTrustSeal.

6.2.2 CARE & ACT through Responsible Research and Innovation (RRI)

The second step addresses the responsibility of researcher to abstain from harmful and damaging research. This demand for researchers to be responsive to the material and social preconditions of responsible innovation practices refers to the wider practical purview of the RRI framework. The RRI perspective provides researchers and innovators with a vital awareness that all processes of scientific discovery and problem-solving possess sociotechnical aspects and ethical stakes. Rather than conceiving of research and innovation as independent from human values, RRI regards these activities as morally implicated social practices that are duly charged with a responsibility for critical self-reflection about the role that such values play in discovery, engineering, and design processes and in consideration of the real-world effects of the insights and technologies that these processes yield. The RRI view of 'science with and for society' (Owen et al., 2012) has been transformed into helpful general guidance in such interventions as the AREA approach (Anticipate, Reflect, Engage, Act) outlined by EPSRS or the Rome Declaration (Leslie, 2020, with reference to EPSRC) These guidelines emphasise the importance of anticipating the societal risks and benefits of research and innovation through open and inclusive dialogue, of engaging with affected stakeholders as a means to co-creation at all stages of the design, development, and deployment of emerging technologies, and of ensuring transparent and accessible innovation processes, products, and outcome. Leslie recommends the use of the AREA framework as a practical tool to continuously sense-check the social and ethical implications of innovation practices.

In concrete terms, researchers are required to (1) *consider context* implying to think about the conditions and circumstances surrounding research and innovation and to focus on the practices, norms, and interests behind it; to (2) anticipate impacts by describing and analysing the impacts, intended or not, that might arise in order to explore possible risks; to (3) reflect on purposes, goals, motivations, and potential implications of the research consider associated uncertainties, areas of ignorance, assumptions, framings, questions, dilemmas and social transformations these may bring; to (4) engage inclusively by deliberation and dialogue with stakeholders at all levels and welcome different views ; to (5) act responsibly by using these processes to influence the direction and trajectory of the research and innovation process itself (Leslie, 2020, with reference to EPSRC).

A concrete tool recommended by Salah et al. (2022, p. 37) is the Data Ethics Canvas of the Open Data Institute (ODI), grouping several ethics-related questions into 15 headings, and prompting the researcher to answer each of these questions in turn. For example, one of the headings is "Negative effects on people", and under that heading, the following questions are asked: Who could be negatively affected by this project? Could the way that data are collected, used, or shared cause harm or expose individuals to risk of being re-identified? Could it be used to target, profile or prejudice people, or unfairly restrict access (e.g.,

exclusive arrangements)? How are limitations and risks communicated to people? Consider: people who the data are about, people impacted by its use and organisations using the data.

6.2.3 Adopt ethical principles to create a shared vocabulary for balancing and prioritising conflicting values

The third step addresses the societal constitution characterised by diversity of values, interests, and power. In pluralistic and culturally diverse contexts, resolving ethical dilemmas is often dependent on building inclusive and well-informed consensus rather than appealing to higher authorities or to the say-so of tradition. The need for consensus-building is especially crucial in the context of artificial intelligence and machine learning (AI/ML) innovation, where circumstances often arise in which ethical values come into tension with each other. For instance, there may be situations (such as with digital contact tracing) in which the use of data driven technologies may advance the public interest only at the cost of safeguarding certain dimensions of privacy and autonomy. Trade-offs, in cases like these, may be inevitable, but, regardless, the choices made between differing values should occur through a medium of equitable deliberation, mutual understanding, and inclusive and knowledgeable communication. To this end, it is especially important to set up procedural mechanisms that enable reciprocally respectful, sincere, and open dialogue about ethical challenges. These mechanisms should help conversation participants speak a common language so that, when an innovation project's potential social and ethical impacts are being assessed and reassessed, diverging positions can be weighed and reasons from all affected voices can be heard, understood, and suitably considered. This can be accomplished by adopting common ethical principles from the outset to create a shared vocabulary for informed dialogue about balancing conflicting values. Guidance for the implementation of this step provide a set of principles that require researchers to (1) respect the dignity and autonomy of individuals as persons and ensure the abilities of individuals to make free and well-informed decisions about their own lives; to (2) safeguard the integrity of interpersonal dialogue and connect with each other sincerely, openly and inclusively; to (3) care for the wellbeing of each and all by designing and deploying of AI to foster and cultivate the welfare of all and do no harm with these technologies; to (4) protect the priorities of justice, social values and the public interest by treating all individuals equally, protecting social equity, using of AI to empower and to advance the interests and well-being of as many individuals as possible by thinking big.

A participatory approach to data ethics acknowledges that responsible data practices cannot be achieved through merely prescribing sets of core values, providing checklists, or even delegating responsibility to certification processes or audits. While these might be useful, they neglect the inclusion of the various stakeholders and their different perspectives and are insufficient in responding to the volatility of changing contexts, data, and self-learning algorithms. In order to achieve the context-sensitive implementation of ethical principles, Leslie recommends utilising the method of Data Ethics Decision Aid (DEDA) in workshops with stakeholders. This recommendation aligns with the statement of Salah et al. (2022, 36) who argue that local knowledge is necessary to interpret how people are using a technology

in question and forming local collaboration is an important aspect of the work. They also recommend the application of the Data Ethics Decision Aid (DEDA, developed at Utrecht University for reviewing public projects with social impact using large scale citizen data). Especially for municipalities and local governance, data driven management is an important tool, because near real-time monitoring helps with rapidly responding to the needs of the city. The authors point out the fact that legal frameworks and regulations are inadequate to deal with all the issues related to such data usage, and that there are legal usage instances which are ethically problematic. The unique feature of DEDA is that it defines several roles (such as project lead and policy officer) within the organisation and associates specific actions to these roles. DEDA also structures its activities around asking a pre-determined set of questions, which are organised into the headings of data related considerations (collection algorithms, source, data use, including anonymisation and visualisation, data storage, including access, sharing, reusing, and re-purposing) and general considerations (responsibility, communication, transparency, privacy, and bias). This approach complies with the ethical principle to participatory and dialogic deliberation of data and AI projects (Schäfer & Clausen, 2021) and proposals to design the application of AI systems with an guidance-ethics approach (GEA) (La Fors & Meissner, 2022).

6.2.4 Generate and Cultivate Public Trust Through Transparency, Accountability, and Consent

The fourth step calls for a reflection of societal response to research outcomes and impacts. Considering the uneven and partly hostile responses to the implementation of non-pharmaceutical interventions (imposition of curfew, lock-down of public places) and pharmaceutical offer (vaccination), Leslie emphasise that the ultimate success of any AI/ML innovation project will not only hang on the quality and performance of the product. It will also rest on whether or not a degree of public confidence in the safety and responsibility of the innovation has been established that is sufficient to foster its adoption by the affected institutions and society at large. For Leslie, three key preconditions of trustworthy innovation deserve special attention. Researchers are required to (1) proceed all AI/ML innovation projects with end-to-end transparency to establish that design, discovery, and implementation processes have been undertaken responsibly and that outcomes are appropriately explainable and can be conveyed in plain language to all affected parties; to (2) safeguard accountability in all AI/ML innovation projects by proceeding with end-to-end accountability to ensure both that humans are answerable for the parts they play across the entire AI/ML design, discovery, and implementation workflow and that the results of this work are traceable from start to finish; and to (3) take care that these regimes of transparency and accountability should facilitate informed community and individual consent that reflects the contexts and reasonable expectations of affected stakeholders. Trust-building through community consultation should be utilised to foster the development of equal and respectful relationships—true partnerships—among researchers, practitioners, and affected individuals and communities.

In practical terms, Salah et al. (2022, p. 37) recommend using the Box by AI Ethics Lab, a tool for operationalizing ethics principles. It aims to help researchers, developers, and designers think through the ethical implications of the technologies that they are building. The Box is a simplified tool that lists important ethical concerns by putting 18 instrumental ethics principles in relation to three core principles: respect for autonomy, minimisation of harm and maximisation of benefits, and securing justice. For example, instrumental principles of human control, transparency, explainability, information, agency, consent, and privacy mainly help to promote the core principle of respecting individual autonomy. Once we correctly distinguish between core and instrumental principles, we can turn many vague AI principles into an operational checklist to guide practice, because the core principles reveal the underlying values practitioners should aim to achieve, while the instrumental principles offer various paths for achieving them. The categorisation of the instrumental principles in relation to specific core principles can help researchers and practitioners to focus on different aspects of each core principle and offers a way to determine how to best satisfy the core principles by substituting or supporting one instrumental principle with another. In the Box, each of these instrumental principles are further detailed through prompt questions. Once the researcher engages with all of these questions, the tool also helps them visualise ethical strengths and weaknesses of the technologies that they are evaluating and enables visual comparison of these technologies.

6.2.5 Foster equitable innovation and protect the interests of the vulnerable

As fifth step, Leslie emphasises that adherence to the RRI approach implies a particular focus to avoid practices that negatively impact vulnerable and disadvantaged people. He states that vulnerable and historically disadvantaged social groups were especially in peril of being harmed by or excluded from the benefits of data-driven technologies even before the COVID-19 pandemic. Patterns of social inequity, marginalisation, and injustice are often “baked in” to the data distributions on which AI/ML systems learn. Computer engineering and programming thus have to be sensitive to prevent the development and application of algorithms that provide easy possibilities or facilitate discriminatory or harmful practices.

Leslie emphasises that researchers have identified such risks and work on antidotes. Over the past decade, a growing body of fairness-aware and bias-mitigating approaches to AI/ML design and use has been bringing many of these issues out into the open both in terms of academic research and in terms of practically applicable user interfaces (several tools for fairness-aware design and bias auditing have been created. Leslie mentions applications such as the University of Chicago’s Aequitas open-source bias audit toolkit for machine learning developers, the TU Berlin’s datasets and software for detecting algorithmic discrimination, and IBM’s Fairness 360 open-source toolkit. Leslie concluded that the ethical challenges faced by those innovators who are engaged in the second-front battle against COVID-19 have both immediate and intergenerational stakes. Leslie is optimistic that by carrying out their research and innovation ethically, transparently, and accountably, they will be better able to gain public trust, to accelerate collaborative problem-solving amid a global community of scientists, to support the evidence-based clinical judgments of overtaxed

doctors, to ease the immense and growing socioeconomic hardships borne by most of present humanity, and to better prepare us for future pandemics.

6.2.6 Critique-Guided Designing as a transversal feature

Although Leslie addressed the importance of communication and trust-building as third step, he seems to overestimate the impact and relevance assigned to RRI compliance. The spread of strong anti-scientific sentiments, loud interventions of conspiracy believers and post-factual discourses (Sunstein & Vermeule, 2008) indicates that RRI compliance is definitely necessary but not sufficient in circumstances when the holding institutional pillars of the world society, as politics, research, business and civil society, fail to develop answers to the most pressing problems such welfare discrepancies at national and individual level, environmental disasters, climate catastrophe, lack of protection against violence and disregard of human rights. The issue of irregular migration is located at the intersection of these developments and pose a distractable or wicked problem difficult to handle.

I suggest adding as a transversal component the methodological approach of Critique-Guided Designing that integrates and is integrated in the five steps of the ethical benchmarking toolkit. This proposal is guided by the consideration that the five steps are analytically separated but juxtapose and overlap in the practice of ethical assessment. Critique Guided Designing is the intersection point where the step-specific operations *iteratively* meet, interact, and align. In concrete terms, Critique Guided Designing is a tool for the developing blueprints of preferred futures and the testing and facilitation of its social robustness (Cyrus, 2023a). The aim of CGD is the development of socially robust and feasible possibilities that provide a preferred alternative to a given pressing but unsolved problem. In a first step, CGD develops an idea that provides a preferred alternative to a problematic state, the best possible option. Secondly, reservations and sceptical arguments that counter and doubt the feasibility of the blueprint is systematically collected and evaluated with respect to feasibility, preferability and acceptability. Third, the initial blueprint is re-designed as concrete formulation of possibilities and steps towards their realisation. Fourth, activities for the implementation in concert with stakeholders are organised. CGD is conceived as an iterative process that is implemented at every stage of the FAIR-CARE framework activities (for more information see Cyrus, 2023a).

7. CONCLUDING REMARKS

This paper considered the ethical dimension of data use and re-use in research with the aim to provide a preliminary preparatory outline for the M_{Irre}M task of handbook development.

As relevant and overarching ethical framework, the paper points to the Responsible Research and Innovation (RRI) framework and Research Integrity with its related core and instrumental values and principles. The ethical framework displays a strong proposition that research ethics is not restricted to mere compliance with legal requirements but seeks to avoid or minimise the risks of doing harm.

Ethical considerations have to take into account the uncertainties related with irregular migration as a complex and wicked policy issue, the specificity of data ethics shaped by the development of digital technologies, and the constellation of migration policy dilemmas that require a careful balancing of value tensions.

Subsequently, the legal sources for the regulation of personal data and its basic requirements were introduced. While the General Data Protection Regulation (GDPR) constitute the authoritative source of legal provisions, the Law Enforcement Directive (LED) establishes a separate legal framework that provides law enforcement authorities with special competencies to require or order to deliver personal data in the context of public security efforts. With the introduction of special surveillance systems and digital registers that process personal data of border crossing mobility inter-operationally, not only migrants in an irregular situation but all visitors from non-EU countries are affected. The European Artificial Intelligence Act (EAIA) will soon provide a legal framework that explicitly prohibits applications considered harmful and foresees stricter regulations and oversight for applications considered to be high-risk, while at the same time allowing for vaguely defined exemptions.

The following snapshot review of specific Codes of Ethical Conduct in the four sectors of research, public authority, private business and civil society revealed that the levels of responsibility, accountability, oversight, and enforcement differ considerably. However, a cross-sectoral feature is the difficulty to comply with ethics requirements, although for distinct reasons. Moreover, Codes of Ethical Conducts are suspected to be instrumentalised as a mean to prevent binding legal regulation, in particular in the commercial sector.

Against the background of legal regulation and Codes of Ethical Conduct the implications for research projects on migration and irregular migration are considered. Migrants, also those in an irregular situation, are protected by human rights and European fundamental rights including data protection regulation. However, the processing of their personal and aggregate data raises several concerns with regard to unfair treatment, stigmatisation, or the

de-facto exclusion from legally guaranteed mechanism to claim their rights as data subjects. General ethical challenges were considered in the three areas of private data protection, quality of data and analysis, and practical harmful effects. Finally, the paper suggests an ethical benchmarking toolkit that provides guidance for an ethically sound project design that systematically considers various relevant ethical dimension. With reference to the overarching RRI objective to minimise the risk of harm, the paper encourages to continue asking how projects like MIrreM can respond in an ethically sound manner to the expectations of stakeholders to consolidate an evidence basis for decision making. Taking into account the pervasive uncertainty, RRI guided ethics demands to both make visible the side-effects of a desperate ‘more of the same’ strategy of surveillance and exclusion of irregular migrants as well as support the search for alternative, less harmful approaches to deal with migration.

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