Migration Intelligence: AI and Bio-surveillance of Migration Flows

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ABSTRACT: *The Coronavirus pandemic has made the use of artificial intelligence even more pervasive.*

States have decided to initiate bio-surveillance, through automated drones and other types of technologies such as GPS in mobile phones, to track COVID-19 positive individuals through apps or smart thermal cameras to control the spread of the virus. The current health crisis is making us deal with the dilemma regarding 'invisible populations', and migrants in particular, which involves a number of social and technological problems. On the one hand, lack of visibility is a systematic aspect of population management that can benefit both governments and the people concerned. The illusion of a 'data panoptic' does not take into account the conditions under which data are collected, the gaps or limitations of an interoperable system: in any system, not everything is counted, and not in the same way.

This invisibility can come in handy for shadowy economies and unscrupulous politicians ready to sound security alarms. On the flip side, for categories such as the homeless, prisoners, migrants and sex workers, invisibility can be a defence against attention that too often resembles control and surveillance. The techno-digital management of migratory flows and migrants' data clashes with ethical-legal issues that are still open, and which concern all those sectors that involve the massive use of technology.

Issues that in this case have become the two big questions of the current research: *does data monitoring risk becoming a control mechanism that hinders the recognition of fundamental human rights? Is it currently possible to predict the real risks and harms of the technologies used to digitally manage migration?*

The central thesis presented in this article aims to highlight how technology, especially artificial intelligence (also as a result of neural network training actions) can significantly influence the management of migration flows in the (post-)pandemic society"

The methodology adopted is based on an in-depth study of legal, socio-political and technological academic literature and a comparison of different sources. It examines current trends in the development of digital tools and the consequences these may have for international migration and the individual lives of migrants in the host country. It is believed that this reflection, although mainly theoretical, can contribute to the debate on the future of digital management of international migration, inviting policy makers and experts in this field to reflect on the complexity of the relationship between AI and migrants, in order to develop an open, secure, ethical and shared data system as soon as possible. Furthermore, a new concept, called 'Migration Intelligence' will be introduced, and it is understood here as a set of specific activities concerning identity checks, border security and management, and analysis of biometric data on migrants, refugees and asylum seekers.

Subject Categories and Descriptors
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1. Introduction

Artificial intelligence technology is being increasingly used in public and private communication and living spaces to perform tasks usually associated with human intelligence, such as the ability to learn from data and to recognise images and words and process natural language. More precisely, artificial intelligence is understood here as an interactive, self-learning resource that enables computational artefacts to perform tasks that would otherwise require human intelligence to perform successfully (Taddeo, Floridi 2018). AI is to be understood as a set of techniques aimed at approximating some aspects of human cognition through machines: machine learning or the study of algorithms and systems that improve knowledge, are just a few examples (Flach 2012; Calo 2017; Zuboff 2019).

When we talk about artificial intelligence we refer to technologies that perform tasks usually associated with humans, acting intelligently by learning from data with the help of algorithms (sets of instructions used to solve problems). Artificial intelligence algorithms have gained importance in our contemporary societies due to the power of computers to collect and analyse large amounts of data very quickly, in order to study (or work out) patterns and future behaviour.

In the case analysed here, an attempt has been made to go beyond the definitions already fairly well known in the literature and apply the theme of digital technologies and artificial intelligence to the field of migration. The technical and technological management of migration concerns the use of different strategies, political-institutional and techno-communicative, processes and procedures negotiated and adopted by relevant actors at the international level to provide a framework for managing migration flows in an "orderly and predictable manner (IOM 2018; Buoncompagni 2021).

Artificial intelligence (AI) is undoubtedly revolutionising the way states and international organisations seek to manage migration flows. There are now quite a number of attempts around the world, implemented by institutions, to apply AI to the migration sector to perform very specific tasks such as identity checks, security and border management, analysis of biometric data on migrants, refugees and asylum seekers.

This is already a tangible reality in some countries. In Europe, the Schengen Information System (SIS) uses facial recognition, DNA and biometric data to facilitate the return of irregular migrants; specifically in Germany, for example, special measures have been initiated using technologies such as facial and idiolect recognition of individuals from different communities for the recognition of international protection. Or, in the case of Canada, an algorithmic decision-making process was activated to distinguish immigrants and asylum seekers. Thus, it is quite evident that there is a tendency to rely more and more on new technologies, including AI, for migration management and internal security of individual countries.

The central thesis presented within this article aims to highlight how technology, especially artificial intelligence can greatly influence the management of migration flows in the (post)pandemic society.

In order to describe in an orderly and clear way such a complex issue, three different dimensions of analysis were identified: - asymmetrical management of technologies on migrants by states; - study of the practices and solutions adopted by international organisations in the activation of bio-surveillance systems; possible correlation (positive and negative) between the use of AI, respect for human rights and border security.

2. Asymmetrical Management of Technologies on Migrants

Most States in the world and numerous international organisations, in the aftermath of the so-called migration crisis in the years 2015-2016, have engaged in efforts to strengthen global mechanisms of migration governance. Examples include the 2018 Global Compact on Refugees and the 2018 Global Compact for Safe, Orderly and Regular Migration). Despite this, even in the midst of a pandemic, countries interact in asymmetric ways globally. The implementation of artificial intelligence technologies can make us reflect on such asymmetries.

The first point to consider is the so-called 'digital divide', i.e. the presence of states with more advanced technological capabilities and those without such technologies, countries that invest in the dissemination of technical and cultural programmes to understand the digital world and those that are unwilling or unable to do so. Where such economic and cultural investments are absent, they also weigh on the management of migration flows.

Artificial intelligence technologies would be advantageous in particular for asylum applications, which are normally lengthy, and so a number of evaluations are under way on the use of artificial intelligence technologies in this field.

The European Union itself has recently adopted new legislation to use AI and related technologies in the areas of migration and security (Regulation 2019/816; Regulation 2019/818). The German Federal Office for Migration and Refugees (BAMF) has conducted pilot projects using technologies such as automatic face or dialect recognition, name transliteration and mobile data device analysis for identity verification (Tangermann 2017).

At the same time, many studies are underway on the possibilities of using artificial intelligence technologies to predict future large mobility flows: Swedish authorities have used "migration algorithms" based on techniques

such as machine learning to predict future migration flows (Carammia and Dumont 2018).

South American areas such as Brazil, a destination country for migration, could take this opportunity to further strengthen their position in managing international migration, but economic resources and time are needed to develop effective models in those areas. And in the midst of a health pandemic this is quite complex.

AI and migration are playing an important role for many international organizations. The World Bank has assisted less developed states with the implementation of digital identity solutions through its ID4D programme (World Bank 2018). While the International Organisation for Migration (IOM) and the United Nations High Commissioner for Refugees (UNHCR) have been strongly criticised for being too involved in implementing the EU's comprehensive approach to migration through subcontracting and rule-switching (Lavenex 2016). Artificial intelligence technologies can therefore have a profound impact on a country's political and economic relations, at the same time the AI gap could also influence the outcome in the governance of migration flows.

3. Technological paradoxes in bio-surveillance systems

Based on the above, the uses of technology in international migration management and humanitarian action raise two types of concerns related to the deployment of artificial intelligence systems.

The first relates to cybersecurity issues, as international organisations such as UNHCR aggregate the personal data of vulnerable people in centralised databases, in case unpredictable hacking attacks occur. The second point, concerning a form of intervention that has been called 'surveillance humanitarianism' (Singer, Friedman 2014; Latonero 2019), is the idea that by increasingly relying on technology to collect personal data of vulnerable people such as migrants and refugees, organisations would create (unintentionally) additional bureaucratic processes that could lead to exclusion from international protection, increasing the vulnerability of migrants.

The daunting institutional and political task is therefore to protect the data of the vulnerable people they intend to serve. Numerous studies show that artificial intelligence algorithms can reinforce stereotypes that lead to social injustice and that uses of AI technology can narrow the scope of the welfare state (Pasquale 2015; Kuner, Marelli 2017; Eubanks 2018).

We are thus faced with a technological paradox. On the one hand, AI technology can bring innovation, reduce costs and build more effective systems for migration management. On the other hand, the use of personal data for commercial and criminal purposes or technical errors such as the possibility that the algorithm may accidentally misidentify a migrant as a terrorist or miscalculate the risk of mistreatment at the time of deportation could lead to serious violations of human rights and fundamental freedoms.

Therefore, a way forward could be a human rights-based approach that leads institutions and organisations involved in migration to assess human rights impacts and verify whether uses of artificial intelligence technologies in flow management are not detrimental to migrants' rights.

4. AI risks, respect for human rights: Migration Intelligence

The power of algorithms and the massive and pervasive use of AI and its unethical use in migration management could create an additional problem: datafication of migration management, the over-reliance on different types of data, including satellite data and big data, for migration management and border control. In particular, datafication stems from increasing government investment in software and information management systems for border surveillance and migration management (Broeders and Dijstelbloem 2015).

This risk is by no means to be underestimated in the field of migration. Moreover, the potential for bias that we have already highlighted is quite significant.

Therefore, it is important that quantitative and qualitative datasets, such as those collected by independently funded academic research projects, be used to train artificial intelligence algorithms for use in migration management. They could, for example, start with a non-exhaustive amount of data from qualitative interviews with migrants to discover patterns and make predictions about people's intentions to migrate. They could then triangulate these findings with statistics and other quantitative data sources (e.g., asylum claims in a given period and territory) to try to "predict" large flows of people, especially during global crises such as covid-19.

Scholars such as McGregor, Murray, and Ng (2019) have proposed building on an existing legal framework, the IHRL, to address two crucial issues globally among states: accountability of the algorithm at all stages of its lifecycle, from design to implementation, and levels of transparency and data sharing between humanitarian agencies and governments. Under these proposals, it becomes important to identify the potential harms that algorithmic decision-making could cause, assuming there is sufficient political will to adopt such common solutions.

Lack of fingerprints, wrong names and ages of the subject, photos and data shared by migrants in their social networks, all these elements put at risk the physical and legal security of the migrant. At the same time, they challenge institutions to create common digital data management plans, encouraging data theft and seizure by online

human traffickers who build false expectations and trajectories with posts or tweets in social platforms (Buoncompagni, 2020).

Recent Europol (2016) data show that 90% of immigrants arriving in Europe rely on organized crime for logistics and movement. It estimated that there are approximately 250 illegal hotspots on migration routes to the European Union for the collection and disposal of migrants.

The traffickers' network covers more than a hundred countries: in 2015 the turnover of migrant smuggling was $6 billion and the average cost average cost per capita of an illegal journey from Africa or Asia to the Old Continent ranges between 3 thousand and 10 thousand dollars, the methods of payment used are cash (52%), hawala (20%), money transfer (2%), exploitation of immigrant labor (0.2%).

The United Nations defines trafficking in persons as an organized criminal activity that takes place across national borders and that consists of the recruitment, transportation, transfer or reception of persons through the threat or use of force or other forms of coercion, abduction, fraud, deception, or fraud, deception, abuse of power, receiving payments or benefits to obtaining the consent of a person having control over another person, for the purpose of purpose of exploitation or the prostitution of others in such forms as sex work, forced labor, or slavery, including the removal and sale of organs.

Traffickers operate this lucrative business, now using the latest available technologies to conceal their criminal activities; the success of the Net has thus provided not only rapid access to information for our world, but has suggested faster and more efficient ways for organized crime to operate; according to the FBI, in 84.3% of cases, traffickers use the Internet for migrant trafficking and sexual exploitation, advertising victims to clients on actual platforms (Lambruschi, 2019).

Since 2015, organized crime has made extensive use of false identity documents, allowing many illegal immigrants to present themselves as false asylum seekers.

One of the focal points of this hub of international forgers, has been the group formed online through Facebook (now blacked out), with over 120,000 subscribers and the name The Traveller's Platform: within the page were provided directions on the routes to follow, breaking news about departures and, above all above all, they put in contact human traffickers and potential customers.

Il problema dunque, da come si evince sopra, non è "solamente" registrazione e condivisione dei dati dei migranti per una migliore integrazione sociale. Vi un alto livello di rischio legata alla dispersione delle informazioni sensibili e all'utlizzo illegale. La questione va affrontata attraverso una potente cooperazione e comunicazione interna tra Stati e Polizie a livello internazionale per la gestione dei confini e l'ordine sociale interno.

E' al termine di questo paragrafo dunque che si vuole introdurre un nuovo concetto teorico, che potrebbe trasformarsi in strumento cooperativo per una gestione digitale, etica e funzionale delle migrazioni internazionali, quello di "Migration Intelligence".

"Migration Intelligence" understood here as a series of specific activities concerning identity checks, border security and management, and the analysis of biometric data on migrants, refugees and asylum seekers.

At the same time, this concept sums up what should be the constant cooperation and dialogue between institutions and police around the world to ensure the legal inclusion of the migrant and the safety of natives. Only by working in this multidisciplinary perspective will it be possible to use new technologies in a strategic way, preventing any form of deviance and prejudice.

Migration Intelligence is exactly that. Although still a theoretical line, its application in criminal and security sciences, in the study of public communication and technological and migratory processes, could turn into a useful and effective tool for action and cooperation. This need emerges especially in times of emergency or global crisis and we are not thinking only of the current covid-19 pandemic, but of all natural disasters and violent local and non-local conflicts that generate forced migratory flows without control.

Highly technological, and therefore "intelligent", tools are needed to manage major global crises such as migration. But if the use of data and the application of migration policies are processed correctly by institutions, it is possible to make migration itself more "intelligent". Therefore, more predictable, safer, going beyond simple reception and really thinking about cultural, social and digital integration.

5. Conclusion

It is clear that migration is now a complex global phenomenon that depends on individual political, economic, and social contexts.

New artificial intelligence and new digital tools have demonstrated their strength and effectiveness in many fields of science and social science, but they can also be applied to the problem of migration and also represent a more complete picture of migration. Artificial intelligence will make it possible to go beyond a purely numerical view of the phenomenon. The original and useful aspect of this link between AI and migration lies in the attempt to "humanize" data about the individual migrant classified in biosurveillance systems.

AI is likely to have an impact on the management of in

ternational migration, but it will not be so easy to establish a common policy for the application of the technologies and an ethical protocol to record and share data between different states.

We have seen previously how artificial intelligence can contribute to asymmetries between states in the management of international migration. The constant and massive use of AI could strengthen migration policies or, on the contrary, weaken them.

Much depends on whether we are talking about countries that are culturally and economically rich in terms of technological investment, or countries in historical difficulties.

International organizations, in parallel with governments, should continue to play a crucial role in helping countries that are less able to handle artificial intelligence and at the same time more at risk of migration crises and irregular immigration. Artificial intelligence would thus become another policy tool for curbing flows of people by preventing arrivals, better allocating resources, and improving reception conditions.

Second, the development of artificial intelligence technologies for international migration could strengthen old practices in the field of international migration management. For example, it could provide new tools to strengthen existing policies or alleviate state regularization practices. Supported by political will, artificial intelligence technologies could also help allied states and international organizations prepare for large movements of people in the event of global economic and health crises.

Finally, artificial intelligence will initiate new shared migration policies that aim to process migrant data by first considering identity and socio-legal aspects. As artificial intelligence algorithms are fed by data from different sources, including big data, the more they are used in migration management, the more new databases will need to be created/updated.

We have also seen how applying AI to migration management is not without risk. There are a number of challenges that mainly relate to: the quality of the data used to train the algorithms, the confidentiality of the migrant data, and the accountability of the algorithms.

Artificial intelligence alone is not the only solution, nor the most correct one, if used without the right measures and policies. It also cannot provide a single model for managing migration flows. What will determine the effectiveness or not of these new tools will be mainly 3 aspects: the quality of the technological infrastructure used which should determine low levels of social risk; collaboration between institutions of different levels in sharing sensitive data and building a common database; relational quality and constant trust between migrants and border police/local institutions.

Lack of trust tends to create new strategies on the part of the migrant, useful to take solitary and illegal routes with the risk of making his migration faster, but very uncertain. Human traffickers nll'era digital require and exploit the data of the individual person connected to his smartphone: information shared with economic and kidnapping purposes in numerous platforms already controlled and closed by Europol since 2016 (Connor 2017; IOM 2018; Buoncompagni 2020).

To conclude the complex issue described, a term/concept has been suggested here that may perhaps contain the major issues addressed within the contribution. The concept, as previously described, is that of "Migration Intelligence" (Tab.1), understood here as a series of specific activities concerning identity checks, border security and management, and the analysis of biometric data on migrants, refugees and asylum seekers.

In times of pandemic, effectively managing these activities for and with migrants also means thinking about new techno-digital forms of inclusion, now necessary for the response to covid-19, preventing all forms of discrimination to allow immune migrants to return home or work on a regular basis, maintaining their rights and, above all, their "social visibility status".

Definition: a set of activities for and with migrants means the massive use of new techno-digital forms in order to include migrant populations and better support an ethical and digital management of migratory flows, avoiding all forms of discrimination and bio-surveillance.
Functions: identity checks, border security and management, analysis of biometric data on migrants, refugees and asylum seekers, creation of international databases, strategic management of sensitive data by national and local institutions.

Table 1. Migration Intelligence

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