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4 Developing Artificial Intelligence in an Ethical Way in European Libraries

Abstract: Artificial intelligence (AI) is already playing a role in people's everyday lives and its proper evaluation is increasingly important. This chapter explains the priority of AI in the context of the European Union (EU) as the technology is central to the digital transformation of the economy and society. The trends in the legal framework proposed by the EU are laid out and the strategies followed by institutions dealing with the issues are explored. Appropriate handling of data is the most important aspect in the library ecosystem and the links between the use of AU in an ethical way and libraries are discussed. Various documents produced by the EU on AI are identified and their implications explored. The implications of a report on the use of AI in the fields of education, culture and audiovisual fields are particularly noteworthy for libraries. The impact of work by the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) established by UNESCO is also highlighted. An important document on artificial intelligence and libraries published in 2020 by the International Federation of Library Associations and Institutions (IFLA) inspired this chapter (IFLA 2020).

Keywords: European Union; Data protection; Artificial intelligence – moral and ethical aspects; Intellectual property

Introduction

This chapter presents a review of the guidelines on data handling that the European Union (EU) is setting due to the growing role of artificial intelligence (AI) in everyday lives. There are many dimensions related to the use of AI, but whatever the application, a top priority must be ethical considerations. Today, data is the most valuable of assets, and libraries need to be aware of its value and treat it accordingly. This chapter seeks to show that libraries can be a model to demonstrate to others how data can be treated ethically. Special attention is given to the library ecosystem and how data is managed within it. The appropriate governance of data in the library environment shows how data can be managed and demonstrates what ethical data governance means. Finally, the Slovenian approach to AI development and governance is presented.

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A definition of data ethics is provided from the handbook *Dataethics: Principles and Guidelines for Companies, Authorities & Organisations* as context for what follows in this chapter:

> Data ethics is about the responsible and sustainable use of data. It is about doing the right thing for people and society. Data processes should be designed as sustainable solutions benefitting first and foremost humans (Tranberg et al 2018, 7).

Given that current AI is data driven, it follows that data ethics underlie AI developments. But it is now well understood that AI poses fundamental ethical challenges. For example, the guide *Understanding Artificial Intelligence Ethics, and Safety* identifies the potential harms caused by AI systems and proposes concrete, operational measures to counteract them (Leslie 2019). Those harms are the misuse, abuse, poor design, or negative unintended consequences. The public sector or organisations such as libraries can anticipate and prevent potential harm by developing and stewarding a culture of responsible implementation of ethical, fair, and safe AI systems including data.

> Fostering the development and applications of data science while ensuring the respect of human rights and the values shaping open, pluralistic and tolerant information societies is a great opportunity of which we can and must take advantage (Floridi and Tadeo 2016, 2)

Developing such checks will be supported in the EU because of its approach to the regulation of AI. Therefore, much of this chapter points the reader to some of the key documents that set out the EU vision.

The European Union's Emerging Position on Artificial Intelligence

AI is a priority for the EU, because the technology is predicted to play a key role in the digital transformation of the economy and society. The European Parliament has adopted as a priority a European regulatory framework for AI, which seeks to provide a safe, stable, and competitive environment for the research and development of AI applications that can stimulate innovation and economic growth in Europe. The EU has prepared many studies and proposals.

The study by the European Parliament entitled *The Ethics of Artificial Intelligence: Issues and Initiatives* released in March 2020, presented the requirements for transparency, accountability, and equity in data collection and data ethics with their ethical implications. The study proposed guidelines and raised ethical issues

regarding mechanisms for the fair sharing of benefits and the allocation of responsibilities in light of all the changes being witnessed (European Parliament 2020). The path to implementing appropriate regulations in the EU on artificial intelligence has been complex and a useful library guide on the topic has been provided by the European Commission (European Commission 2024a).

The legal basis for the use of AI by the EU was put forward in early 2021 in a proposal from the European Commission: "Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts" (hereinafter referred to as Proposal) for a regulation of the European Parliament and Council which would lay down harmonised rules applying to the use of AI and recommending the adoption of an Artificial Intelligence Act. The European Commission set out a strategic vision to promote the internal development and use of legal, secure and trustworthy artificial intelligence systems and prepared to implement the world's first comprehensive law on artificial intelligence. The Proposal included concrete actions on how the Commission would build institutional and operational capacity to ensure the safe, transparent and human-centred use of AI in its work. It set the objectives to be achieved within the EU:

- ensure that AI systems placed on the Union market and used are safe and respect existing law on fundamental rights and Union values;
- ensure legal certainty to facilitate investment and innovation in AI;
- enhance governance and effective enforcement of existing law on fundamental rights and safety requirements applicable to AI systems;
- facilitate the development of a single market for lawful, safe and trustworthy AI applications and prevent market fragmentation (European Commission 2021).

The document highlighted the areas to be covered by the *Artificial Intelligence Act*. The rules proposed by the European Commission three years ago aimed to set global standards and parameters for the use of AI in a wide range of industries. Much of the attention of experts focused on the safety of using generative AI, which, with its algorithms, can obscure facts and introduce fiction into public life.

In December 2023, the European Parliament and Council reached a provisional agreement on the Act "to ensure that fundamental rights, democracy, the rule of law and environmental sustainability are protected from high-risk AI, while boosting innovation and making Europe a leader in the field" (European Parliament 2023). France finally signed up to the agreement after ensuring strict conditions that balanced transparency and commercial confidentiality and reduced the administrative burden of high-risk AI systems.

In January 2024, the Commission adopted the AI@EC Communication, which underlines the importance of safe, transparent and human-centred use of AI technologies. The guidelines call for internal adaptation, innovation and early adoption of AI to set an example of best practice (European Commission 2024b).

Artificial Intelligence in Education and Cultural Areas

Given the importance of the particularly significant issues associated with the use of AI in education and cultural areas, the European Parliament adopted a *Report on the Use of Artificial Intelligence in the Fields of Education and Culture and Audiovisual* (European Parliament 2021a), calling for AI technologies to be designed in a way that would avoid bias based on gender, social status or culture and protect diversity. This report is currently the most appropriate starting point for consideration of the issues in a library environment. An ethical framework for data and the algorithms applied to the data is necessary because the use of AI technologies in education, culture, and the audiovisual sectors has the capacity to affect the very foundations of t society's rights and values. The report makes many important General Observations, including:

1. Underlines the strategic importance of AI and related technologies for the Union; stresses that the approach to AI and its related technologies must be human-centred and anchored in human rights and ethics, so that AI genuinely becomes an instrument that serves people, the common good and the general interest of citizens;
2. Underlines that the development, deployment and use of AI in education, culture and the audiovisual sector must fully respect fundamental rights, freedoms and values, including human dignity, privacy, the protection of personal data, non-discrimination and freedom of expression and information, as well as cultural diversity and intellectual property rights, as enshrined in the Union Treaties and the Charter of Fundamental Rights;
3. Asserts that education, culture and the audiovisual sector are sensitive areas as far as the use of AI and related technologies is concerned, as they have the potential to impact on the cornerstones of the fundamental rights and values of our society; stresses, therefore, that ethical principles should be observed in the development, deployment and use of AI and related technologies in these sectors, including the software, algorithms and data used and produced by them (European Parliament 2021a)

Specific indicators for measuring diversity and inclusive ethical datasets must be developed and humans must always take responsibility.

Trustworthy Artificial Intelligence

The European Commission proposed new rules and actions for trustworthy AI in its 2021 Proposal. The Commission presented regulations on AI as one of the key technologies for future innovation, nothing that the ethical implications needed to be considered for any specific use case.

> This proposal aims to implement the second objective for the development of an ecosystem of trust by proposing a legal framework for trustworthy AI. The proposal is based on EU values and fundamental rights and aims to give people and other users the confidence to embrace AI-based solutions, while encouraging businesses to develop them. 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).

Decisions made by AI systems only come with a certain, measurable accuracy, and rarely reach 100%. The accuracy of human oversight should be used as a benchmark for assessing the quality of an AI system. Section 2.3 of the Proposal notes:

> For high-risk AI systems, the requirements of high quality data, documentation and traceability, transparency, human oversight, accuracy and robustness, are strictly necessary to mitigate the risks to fundamental rights and safety posed by AI and that are not covered by other existing legal frameworks (European Commission 2021).

The Proposal indicates in Article 15, Accuracy, robustness and cybersecurity:

1. High-risk AI systems shall be designed and developed in such a way that they achieve, in the light of their intended purpose, an appropriate level of accuracy, robustness and cybersecurity, and perform consistently in those respects throughout their lifecycle.
2. The levels of accuracy and the relevant accuracy metrics of high-risk AI systems shall be declared in the accompanying instructions of use.
3. High-risk AI systems shall be resilient as regards errors, faults or inconsistencies that may occur within the system or the environment in which the system operates, in particular due to their interaction with natural persons or other systems (European Commission 2021).

The Work of Other Organisations

It is important to take note of the work around AI of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) as an advisory body and forum established by UNESCO in 1998. The Commission is composed of leading scholars from scientific, legal, philosophical, cultural and political disciplines from various regions of the world and is mandated to formulate ethical principles for

decision-makers. The COMEST Extended Working Group on Ethics of Artificial Intelligence developed a *Preliminary Study on the Ethics of Artificial Intelligence* in 2019 (UNESCO COMEST 2019)). The Bureau of COMEST was mandated to develop ethical principles that would provide decisionmakers with criteria that go beyond purely economic considerations. It works in several areas of ethics in science and technology. In March 2022 the Bureau of COMEST included in its work programme for 2022–2023:

> The Commission will address the Ethics of Science in Society, in light of recent lessons learnt from the pandemic of COVID-19.
> The Commission will also address the topic of the Ethics of Climate Engineering, including its importance for the sustainable development agenda.
> The Commission will remain open to addressing other emerging challenges related to the ethics of science and technology during the 2022–2023 biennium (UNESCO COMEST n.d.).

Related European Union Activity

In addition to the *Artificial Intelligence Act* which is specifically designed to regulate the development, deployment, and use of artificial intelligence (AI) systems across the European Union focusing primarily on safety, fairness, transparency, and accountability in all aspects of AI, is the *Digital Services Act* which seeks to create a safer and fairer online environment by establishing rules for online platforms and intermediaries operating in the EU. EU Member States and the European Parliament have also agreed on new rules for future data sharing, embodied in the so-called *Data Governance Act*. "These new rules set the foundation for trust in the data economy. Only if trust and fairness are guaranteed, can data sharing flourish to its fullest potential" noted Angelika Niebler, MEP, the European Parliament chief negotiator on new rules for future data sharing (EPP Group 2021; European Parliament 2021b). The new rules emphasised that more trustworthy data is needed to unlock the potential of AI:

- Scheme aims to boost data sharing through trust, giving more control to citizens and companies
- MEPs secured specific provisions to ensure fair access and stimulate voluntary data sharing
- …
- "Our goal with the DGA was to set the foundation for a data economy in which people and businesses can trust. Data sharing can only flourish if trust and fairness are guaranteed, stimulating new business models and social innovation. Experience has shown that trust – be it trust in privacy or in the confidentiality of valuable business data – is a paramount issue. The Parliament insisted on a clear scope, making sure that the credo of trust is

> inscribed in the future of Europe's data economy", said lead MEP Angelika Niebler (EPP, DE). "We are at the beginning of the age of AI and Europe will require more and more data. This legislation should make it easy and safe to tap into the rich data silos spread all over the EU. The data revolution will not wait for Europe. We need to act now if European digital companies want to have a place among the world's top digital innovators", she said (European Parliament 2021b).

The new rules were approved in 2022 (European Parliament 2022b).

In the continuing story of EU developments, in 2022, the Special Committee on Artificial Intelligence in the Digital Age (AIDA) presented reporting on artificial intelligence in the digital age which complemented ongoing legislative work in the area (European Parliament 2022a). The report indicated that a more favourable regulatory environment, including flexible lawmaking and modern governance, should be encouraged, as current European and national legislation was fragmented, slow, and lacked legal certainty. Only high-risk uses of Ai should be strictly regulated to enable innovation and minimise the bureaucratic burden. As AI technologies are based on accessible data, data sharing in the EU needed to be modernised and scaled up. Full integration would help cross-border exchanges and innovation. The work of the Special Committee concluded in 2022 (European Parliament 2024).

Various actors within the EU are helping to shape the ethical use of AI. For example, DataEthics.eu is an independent non-profit organisation with a global reach, founded in 2015 by a group of female leaders in data and AI ethics. Based in Denmark, its purpose is to ensure individual control over data based on the European legal and values framework. The organisation focuses on collecting, generating, and disseminating knowledge on data ethics in close collaboration with international institutions, organisations, and academia. The range of information they supply is carefully selected and useful for many.

Developments in the EU around intellectual property rights are important. Various documents have been prepared under the auspices of the EU which address various aspects of the topic for different groups of users. One such document aimed at researchers, a Toolkit for Researchers on Legal Issues, was issued in 2019 under the auspices of OpenAIRE (OpenAIRE 2019). Usefully in respect of intellectual property matters, the European Union Intellectual Property Office (EUIPO) which is the EU agency responsible for managing EU trade marks and registered designs at EU level is focusing on clarifying the position in relation to intellectual property. It provides a transparency portal (EUIPO n.d.) and a variety of support materials on legal issues related to the re-use of research data, privacy, copyright and access to the Data Protection Register.

The Library Context: Handling Data Ethically

The library ecosystem is facing challenges with the use of AI in libraries. Libraries have always adapted to the use of new technology and must continue to do so. One of the areas concerning AI in libraries relates to the processing and analysis of copyrighted text. Intellectual property for digital content in the context of libraries often refers to copyright, which protects literary, scientific, and artistic content. Libraries must obtain appropriate permission or licences to use copyrighted content in their AI systems and it is crucial that libraries and librarians work with rightsholders to ensure copyright compliance and respect for intellectual property.

The International Federation of Library Associations and Institutions (IFLA) has developed a statement on AI for use by libraries. "The use of AI technologies in libraries should be subject to clear ethical standards, such as those spelled out in the IFLA Code of Ethics for Librarians and other Information Workers" (IFLA 2012; IFLA 2020, 1). "Libraries and library associations can, for example, interact with AI researchers and developers to create applications specifically for library use and/or in response to user needs, including by creating accessible services which have not been possible before" (IFLA 2020, 1). But IFLA's guidelines consistently warn that libraries should consider ethical aspects and respect user privacy when using AI systems. When undertaking procurement for the purchase of AI technologies, libraries should choose providers that respect ethical standards of privacy and inclusion. Europe has effective legal protections in place. The guarantee of privacy is one of the library's fundamental values, and the concept of intellectual freedom remains one of the most important values of libraries in the 21st century.

What can libraries contribute to the development and implementation of AI, and how are changes reflected in the field of library and information science? AI is already being implemented in libraries in the field of applied ontology, in applications of natural language processing, in machine translation and in knowledge systematisation. The requirements for software to manage, for example, thesauri are relevant, as are uses for databases used directly in search or indexing applications. The results of automatic metadata generation depend heavily on the quality of the bibliographic metadata, which means that efforts should be focused on clarifying, interpreting, and classifying the semantic differences between library-assigned metadata and machine-generated metadata. Many libraries are considering using language technologies to combine library metadata with the possibility of machine-generated classification.

Librarians as trained information management professionals can make a major contribution to the development of data management services in their institutions and work directly with researchers in the field to support data management and publication. There are opportunities to learn about the management

and cleaning of large databases to understand how bibliographic data from library catalogues can be better used. There are differences between data sources, with implications for metrics and classification at the institutional level. There are significant differences between databases. The differences put data users in an unequal position. Librarians must consider the effect of the choice of data sources and choose approaches where data from multiple sources is integrated to provide a more robust dataset. Issues must be addressed at the institutional level and at other levels involving collaborative activities.

Data Ethics Practices in Libraries

Open ethical and legal frameworks must be put in place to build consensus around values and norms that can be accepted by the community. AI shapes individuals, societies, and their environments in a way that has ethical implications and open debate must be undertaken on issues of social acceptability. The ethics of AI is a sub-field of applied ethics and is part of the ethics of technology, specific to artificially intelligent entities. How should planners act to mitigate the ethical risks that may arise from the use of AI in society, whether through design, inappropriate use, or deliberate misuse of the technology?

The cultural heritage of the future is based on today's digital information. The ethical use of AI requires that digital skills in the library environment support a more open and transparent lifecycle of data, making it more findable, accessible, interoperable, and reusable (G0FAIR 2020). Openness of data must be achieved in such a way that data can be consulted and used for a variety of purposes by other users. Open access to data means, in principle, equal conditions of access within each category of interested users, such as researchers, educators, students, and others.

There are several important aspects to consider when dealing with data ethics in libraries.

- User privacy: Protecting user privacy is crucial. Libraries must ensure that users' personal data is secure and that it is used in only legal ways
- Legal and ethical handling of data: Libraries must comply with applicable laws and ethical guidelines regarding the collection, storage, and use of data. This includes respect for copyright, protection of personal data, compliance with GDPR, and other similar regulations
- Transparency: Libraries must be transparent about their data collection practices. Users must be regularly informed of privacy policies and given control over their data

– Data protection: Libraries must ensure that appropriate security measures are in place to protect data from unauthorized access, loss, or misuse, and
– Data retention and deletion: Libraries must have clear policies on data retention and the period after which data is deleted.

AI has changed the ethical landscape, forcing a rethink and reanalysis of the ethical basis of library activities. In thinking about AI and its societal implications, the ethics of AI must come first. Consideration is needed for all frameworks to review codes of ethics for data-driven algorithmic systems.

AI and Open Access, Open Source and Open Science are important areas in libraries and their integration can bring many benefits. The benefits include:
– Improved information retrieval and access to information enhance the user experience
– Personal recommendations increase the efficiency of recommendation systems and allow users to discover new works of interest
– Process automation and access to open-source software can be supported by AI to support research based on principles of transparency, collaboration, and knowledge sharing, and
– Greater transparency and collaboration between libraries, and
– Enhanced reliability and adaptability of systems.

Openness in Libraries

Bibliographic data is proving to be an important asset for libraries and becoming increasingly exposed with the dominance of AI in the library environment. Libraries must examine and re-evaluate the institutional value of their bibliographic tools and resources. The data created by libraries in describing and making available information resources held and created by their institutions has considerable value for reuse in various ways. Databases permit manipulation of bibliographic citations. Bibliometric statistics are used by libraries to examine and determine their own performance and the performance of their institutions. There are various differences across data sources used with implications for metrics and rankings at the institutional scale. The results of the evaluations can in turn affect the mandate, funding and other functional aspects of the library, any governing board and the institution as a whole. There is an obsession with excellence in undertaking the valuations which can lead to various negative influences on both academic behaviour and research bias. “Any institutional evaluation framework that is serious about coverage should consider incorporating multiple bibliographic sources. The chal-

lenge is in concatenating unstandardized data infrastructures that do not necessarily agree with each other" (Huang et al. 2020).

Developments in Slovenia

Before closing this chapter, some reflections are offered on AI developments in Slovenia. The International Research Centre on AI (IRCAI) was established in Slovenia in 2019 under the auspices of UNESCO (IRCAI 2023). The UNESCO General Conference in Paris confirmed that the first UNESCO-sponsored international centre for AI would be based in Slovenia. The centre represents the result of close cooperation between the Slovenian government and UNESCO, particularly in the area of open-access educational resources. IRCAI offers insights and examines impact via an open and transparent dialogue on research specifically addressing the United Nations Sustainable Development Goals (SDGs). The purpose of the centre is to provide an open, transparent environment extending public and political support to stakeholders around the world for the drafting of policies and action plans in the field of AI. The focus is on the use of AI and assistive technologies to improve the performance of digital libraries and digital humanities. It develops technological solutions and provides expertise and advice for libraries and researchers in the digital environment and aims to improve the accessibility, usability, and efficiency of digital libraries and to support open research in the digital humanities. Specifically, IRCAI conducts activities for libraries: AI development and use, process automation, user interface development, and decision support. IRCAI aims to bring together researchers, practitioners, and users of digital libraries and the digital humanities.

Slovenia is also one of the founding members of the Global Partnership on Artificial Intelligence (GPAI 2023). All GPAI activities are based on a shared commitment to the OECD Recommendation on Artificial Intelligence, which aims to bridge the gap between theory and practice on AI by supporting cutting-edge research and applied activities on AI-related priorities. GPAI aims to promote the responsible development of AI based on the principles of human rights, inclusion, diversity, innovation, and economic growth.

Conclusion

This chapter has focused on the European library environment, defined by its legal basis in EU policies and documents which shape the everyday life of librarians and

users. The various approaches taken by the EU have been invaluable in shaping the responses made by libraries and others in implementing AI solutions. There is an awareness that EU's approach to AI is only one of the many facets of our new changed reality and that librarians and researchers need to be aware of many other aspects. The implementation of AI systems must be carefully undertaken to ensure measurable accuracy with equivalent human performance used as a benchmark to assess the quality of an AI system. Various ethical frameworks are available to prevent bias based on gender, social position or culture, and diversity must be protected through the development of appropriate performance indicators. Librarians must step up and take responsibility. Human beings are ultimately responsible for ensuring that society's mistakes are not passed on to machines.

To manage AI effectively, libraries know that they must be prepared to continuously learn and keep abreast of developments in the industry. The world of AI is changing rapidly, and libraries and librarians must be willing to continuously improve their knowledge. AI can have a profound impact on the experience of library users in the way they access information. The ethical aspect of using AI in libraries is extremely important in ensuring user privacy, transparency of algorithms, and the avoidance of potential biases in automated decisions. Libraries' practices and services must be responsible and socially inclusive. It is important to comply with guidelines, standards, and legislation regarding data protection and the ethical use of AI in library environments. A permanent network of experts who can provide support and guidance to libraries in the introduction of AI technologies into their services is required. AI is changing the world and affecting the way libraries operate as service providers to their users. Libraries must have excellent knowledge of the potential of concrete application of AI in libraries, the willingness to introduce AI projects, and the ability to implement them. A better understanding of AI means better use of AI, which libraries can gain by promoting the exchange of good practices, collaboration, and standardisation of AI between institutions.

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