

## Annexure ii: AI Literacy

To leverage the potential of AI to promote inclusive development, it is important to ensure that everyone has the skills and competencies needed to make meaningful choices regarding AI use, and to benefit from (and not be harmed by) AI applications in both public and private spheres.

That is why several AI governance frameworks and policy documents – particularly those focusing on ethics and human rights – point out the need for public awareness and capacity-building. For example, clauses on AI literacy and awareness are included in both the Council of Europe’s recommendations on *‘Unboxing Artificial Intelligence: 10 steps to protecting Human Rights’*<sup>43</sup> and in a standard-setting instrument suggested by the UNESCO World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) Extended Working Group on Ethics of Artificial Intelligence.<sup>44</sup>

The importance of public awareness is also highlighted in the G7 Innovation Ministers’ *Statement on Artificial Intelligence*,<sup>45</sup> and the *OECD Council Recommendation on Artificial Intelligence* includes a recommendation for governments to help equip people with the skills necessary to interact, use and work with AI.<sup>46</sup> Similarly, the IEEE Position Statement on Artificial Intelligence points out the importance of AI literacy for the general population, as well as informing and engaging the public in AI policy discourse and decision-making.<sup>47</sup>

What does ‘AI literacy’ entail? Alongside basic digital literacy and ICT skills,<sup>48</sup> ‘AI literacy’ usually begins with an **elementary understanding of how Artificial Intelligence and Machine Learning work**, what they can and cannot do. For an example of what this can cover, one could look at ‘Elements of AI’, a massive open online course developed by a tech consultancy Reaktor and the University of Helsinki.

The purpose of the MOOC is to help non-experts get a basic understanding of AI. The course covers such topics as: defining AI, search and problem solving, the Bayes theorem, probabilities and their application in AI, types of machine learning, classification and regression in ML, the basics of neural networks, and societal implications of AI.

The last point highlights a second key element of AI literacy – **understanding the potential impacts of AI**, especially in the area of human rights.<sup>49</sup> This can include, for example, knowing the risks of discriminatory AI.<sup>50</sup> More broadly, it includes

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<sup>43</sup> <https://rm.coe.int/unboxing-artificial-intelligence-10-steps-to-protect-human-rights-reco/1680946e64>

<sup>44</sup> <https://unesdoc.unesco.org/ark:/48223/pf0000367823>

<sup>45</sup> <http://www.g8.utoronto.ca/employment/2018-labour-annex-b-en.html>

<sup>46</sup> <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449>

<sup>47</sup> <https://globalpolicy.ieee.org/wp-content/uploads/2019/06/IEEE18029.pdf>

<sup>48</sup> For example, “Artificial Intelligence for Europe” – a 2018 communication from the European Commission – highlights that preparing the population for socioeconomic changes caused by AI includes helping everyone develop basic ICT skills – as well as “complementary” competencies, such as “critical thinking, creativity or management”

(<https://ec.europa.eu/transparency/regdoc/rep/1/2018/EN/COM-2018-237-F1-EN-MAIN-PART-1.PDF>).

<sup>49</sup> Recommendations to foster general public’s understanding of the potential societal impacts of AI are included, for example, in draft “Ethics Guidelines for Trustworthy AI”, prepared by the AI HLEG set up by the European Commission (<https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai>). Similarly, the IEEE Position Statement on AI includes a recommendation to foster public understanding of potential benefits and risks of AI (<https://globalpolicy.ieee.org/wp-content/uploads/2019/06/IEEE18029.pdf>); and Council of Europe’s recommendations in “Unboxing Artificial Intelligence” also highlight the importance of such measures.

<sup>50</sup> E.g. as mentioned in “Discrimination, Artificial Intelligence and Algorithmic Decision-making” - <https://rm.coe.int/discrimination-artificial-intelligence-and-algorithmic-decision-making/1680925d73>

understanding how such principles as transparency, explainability and fairness apply in the context of AI, and why they are important.<sup>51</sup>

Third, the general public could benefit from education on **personal data management**. This includes both awareness and literacy in relation to privacy matters,<sup>52</sup> as well as understanding of how personal data can be used in AI decision-making processes.<sup>53</sup>

Finally, the growing embeddedness of AI in society makes **Media and Information literacy (MIL)** an increasingly important competency for the general public. AI can have a significant impact on how people access information – from personalised search results and content curation, to content generated by (or with the help of) AI, to AI-enabled content moderation.<sup>54</sup> Media and Information literacy can help ensure that people are able to navigate and critically reflect on the information field mediated by AI – and, more broadly, understand their engagement with AI at large.<sup>55</sup>

This competency is referenced in several other frameworks, even if they make use of different terminology. For example, the COMEST preliminary study describes AI literacy in education and knowledge contexts as a skill which enables critical reflection on the role that intelligent computer systems play in “the recognition of information needs, selection, interpretation, storage and representation of data” [information].<sup>56</sup> Similarly, a working paper on AI in education by UNESCO identifies information and data literacy as important digital competencies that learners may need to acquire to be ‘AI-ready’. The two competencies entail “browsing, searching, filtering, [...] evaluating, [and] managing data, information and digital content”.<sup>57</sup>

**In short, AI literacy can be conceptualised as entailing the following elements:**

- A basic understanding of how AI and ML work, their underlying logic and their limitations;
- Understanding the potential societal impacts of AI, especially in the area of human rights;
- Personal data management skills;
- Media and Information literacy.

Why is it important for the general public to be AI-literate? To begin with, AI literacy and awareness are crucial to foster informed public participation in policy dialogue and decision-making regarding AI.<sup>58</sup> Second, it can encourage transparency, create demand for accountability, and critical engagement with AI decisions – including the ability to challenge them when necessary.<sup>59</sup> Finally, some documents emphasise the competencies and re-skilling needed to help prepare workers for the possible transitions in the labour market.<sup>60</sup> As an area of likely growth in future, developing a level of AI literacy may be a stepping stone towards jobs for some at least.

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<sup>51</sup> See, for example, the “Policy and Investment Recommendations for Trustworthy AI” by the AI HLEG set up by the European Commission - <https://ec.europa.eu/digital-single-market/en/news/policy-and-investment-recommendations-trustworthy-artificial-intelligence>

<sup>52</sup> See, for example, Hu et al “Steering AI and advanced ICTs for knowledge societies: a Rights, Openness, Access, and Multi-stakeholder Perspective” (UNESCO) - <https://unesdoc.unesco.org/ark:/48223/pf0000372132>

<sup>53</sup> “Policy and Investment Recommendations for Trustworthy AI”, AI HLEG

<sup>54</sup> Hu et al, “Steering AI and Advanced ICTs”.

<sup>55</sup> Ibid.

<sup>56</sup> <https://unesdoc.unesco.org/ark:/48223/pf0000367823>

<sup>57</sup> <https://unesdoc.unesco.org/ark:/48223/pf0000366994>

<sup>58</sup> E.g. as highlighted in the IEEE Position Statement, the “Ethics Guidelines for Trustworthy AI”, or “Discrimination, Artificial Intelligence and algorithmic decision-making”

<sup>59</sup> As explained, for example, in “A governance framework for algorithmic accountability and transparency” by the European Parliamentary Research Service - [http://www.europarl.europa.eu/RegData/etudes/STUD/2019/624262/EPRS\\_STU\(2019\)624262\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2019/624262/EPRS_STU(2019)624262_EN.pdf).

<sup>60</sup> E.g. as emphasised in the discussion of AI literacy enabling people to work with and alongside AI in “Artificial intelligence: a game changer for the world of work”, a Brief by the European Trade Union Institute (<https://www.etui.org/Publications2/Foresight-briefs/Artificial-intelligence-a-game-changer-for-the-world-of-work>).

Fostering AI literacy among the general population calls for concerted training and awareness-raising efforts, and several policy documents point out the role of formal education institutions and programs. However, as emphasised in “Policy and Investment Recommendations for Trustworthy AI”, it is crucial that AI literacy initiatives are accessible to all. Digital divides or other possible barriers like age, skills or income should not prevent the more vulnerable or less advantaged groups from benefitting from such initiatives.

Libraries have extensive experience in providing informal and non-formal learning opportunities. From ICT skills to STEM to literacy, they have demonstrated a training delivery model that can reach the more vulnerable, disadvantaged or marginalised groups. They can extend this model to offer capacity-building opportunities for the key elements of AI literacy outlined above.

A recent study by Project Information Literacy, for example, examined how college students navigated and assessed their algorithm-driven information landscapes, particularly from the angle of information and algorithmic literacy. The study suggests a series of recommendation for libraries, among other key stakeholders, on how to promote awareness and literacy and build on existing information literacy efforts. These include, for example, making use of peer-to-peer learning approaches, forming campus faculty interest communities and expert groups, helping integrate algorithmic literacy into existing courses and curricula, and others.<sup>61</sup>

Some libraries are already beginning to explore this role and offer AI learning opportunities, as further detailed in Annexure iii. Building on these examples and more, libraries can play an important role in making sure that AI literacy initiatives are fundamentally inclusive and available to all.

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<sup>61</sup> <https://www.projectinfolit.org/uploads/2/7/5/4/27541717/algoreport.pdf>