KreativEU
Knowledge & Creativity
European University

Work Package 5

Creating a mutually reinforcing relationship between ethical/sustainable AI and Europe's cultural heritage

Contents

INTRODUCTION

This whitepaper serves as a working document that describes and explains the reference points for the research, education and innovation activities undertaken within Work Package 5 (WP5) of the KreativEU project. The aim of WP5 is to explore how artificial intelligence (AI), sustainability, and European cultural heritage can be meaningfully connected to shape a shared and responsible future. In doing so, it contributes to the broader mission of building a European network that integrates higher education's core functions, education, research, innovation, and service to society, into a cohesive knowledge-creation ecosystem.

Ethical-by-design and sustainable-by-design development and application of AI is envisioned not only as technically innovative or economically competitive, but also as culturally, ethically and sustainably aware and aligned with European values. This includes attention to Europe's historical and cultural diversity, as well as its social and environmental responsibilities. The activities in WP5, ranging from thematic schools and hackathons to the establishment of a think tank, are designed to both explore and test what such value-driven, culturally grounded AI systems, and the way we deploy them, might look like.

The purpose of this whitepaper is to create a shared conceptual foundation for the WP5 expert team and project stakeholders. It aims to define key terms, identify recurring themes, and map relevant challenges. In particular, it identifies preliminary questions that may guide the upcoming hackathons, thematic schools, and broader research and innovation agenda. Some sections are more developed than others, and in several places, questions remain open or perspectives are noted for further discussion. This is inevitable, and even desirable within the exploratory nature of the current phase of the project.

Rather than offering final conclusions, this whitepaper should be seen as an evolving collection of reference points and guiding principles. It purposely brings together reflections from multiple disciplines and invites the discussion. In doing so, it helps the team move toward a common language, both for its internal communication and its communication towards and with relevant stakeholders, while also making space for inherent complexity, required contextual nuance, and desired critical reflection.

The structure of the whitepaper follows the themes of WP5 as established in the original proposal for KreativEU. It starts with definitional work on AI, moves into ethical and sustainability agenda and challenges, then turns to European values and cultural heritage, and finally addresses the question of how (we could collaboratively shed light on how) development and application of AI can, and should, reflect the richness in cultural and value systems on the European continent, while simultaneously contributing to a sustainable future.

2 REFINING THE USAGE OF THE TERM “ARTIFICIAL INTELLIGENCE”

2.1 INTRODUCTION

The widespread adoption of artificial intelligence across sectors has created a fundamental challenge: the term “AI” itself has become so diluted that it risks losing practical meaning. Misclassification is not trivial: it muddies risk assessments, misguides regulation, and skews investment. A shared, analytically sound vocabulary is a necessary precondition for the responsible, evidence-based governance this whitepaper seeks to advance.

For our collaboration within the context of the KreativEU project, establishing clarity around AI terminology is essential for meaningful dialogue and progress toward ethical and sustainable (development and application of) AI systems. This section explores our proposed approach to defining AI in the context of WP5, acknowledging both the technical complexity and the social dimensions of this technology. Our definition attempts to be precise enough to guide research, education and innovation yet flexible enough to accommodate the European context’s emphasis on human values, cultural heritage, and sustainability.

2.2 THE PROLIFERATION OF "AI" TERMINOLOGY

Artificial Intelligence (AI) is a well-established and expansive field within computer science, encompassing numerous subfields and evolving definitions. Even within its own domain, defining AI and delineating its boundaries can be challenging. The diversity of AI systems illustrates the complexity and breadth of the field.

The term "AI" is often broadly applied to systems that rely on rule-based automation or statistical modelling, rather than exhibiting genuine cognitive capabilities. Many of these systems operate strictly on predefined instructions, without learning from data or adapting over time. Although capable of executing intricate decision trees, they lack reasoning abilities and simply follow pre-programmed logic.

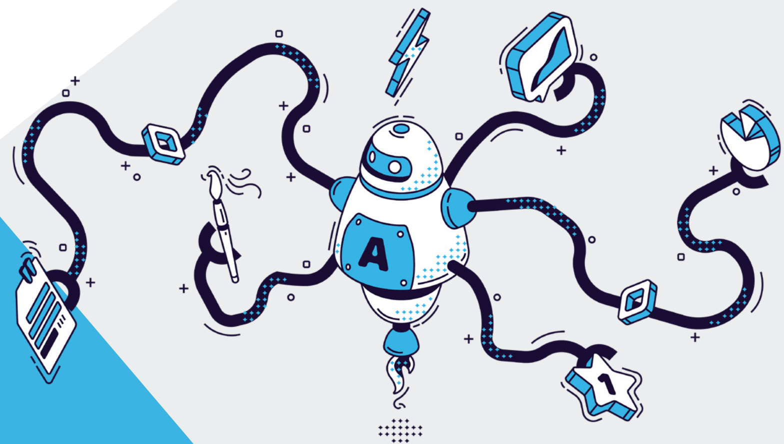
Advancing beyond rule-based systems is machine perception, which employs techniques such as pattern recognition and computer vision to convert raw data into structured, meaningful information. Common applications include chatbots and virtual assistants like Siri and Alexa, which rely heavily on natural language processing (NLP).

Another branch of AI is recommendation systems, designed to deliver personalized suggestions. By analysing user preferences, behaviour, and contextual data, these systems predict and propose content aligned with individual interests.

Recently, token-based generative systems, such as diffusion models and large language models (LLMs) have gained prominence. These models generate outputs like pixels, words, or chemical compounds based on probabilistic associations rather than true comprehension. Although they produce responses that appear to reflect human reasoning, they are based on latent representations of training data and do not possess genuine understanding.

Robotics represents the integration of AI with mechanical and electronic systems to perform tasks in the physical world. These combine sensors, actuators, and mechanical components, enabling machines to perceive their environment, make decisions, and act autonomously. From industrial automation to selfdriving vehicles, robotics merges cognitive computing with physical embodiment, supporting adaptability, interaction-driven learning, and precision task execution. This convergence is transforming industries by automating complex physical processes and enhancing human-machine collaboration.

While this overview touches on several prominent areas within artificial intelligence, it only scratches the surface of a broader and continuously evolving field. Much like the concept of culture, which encompasses an array of instantiated practices, and artifacts, AI can be seen as a constellation of instantiated technological variations. Each system embodies a particular approach to simulating intelligence, shaped by its context, design, and intended purpose.



2.3 THE IMPACT OF TERMINOLOGICAL CONFUSION

The expression artificial intelligence (AI) is routinely stretched to cover everything from simple rule based systems to futuristic autonomous androids. Marketing departments, in particular, have blurred the line by rebranding traditional data-processing tools as AI-powered to capitalise on public interest and investor enthusiasm. This practice of "AI-washing" can inflate expectations and create confusion for both policymakers and the public about AI's capabilities and limitations.

The misapplication of the term "AI" has significant implications, particularly in policy, regulation, and public perception. A clear and precise definition is necessary to establish a structured classification of AI systems. Without clear definitions, we risk misallocating resources and investments in initiatives that may not deliver the anticipated outcomes, potentially triggering bubbles.

Additionally, ineffective regulations may arise, as these regulations often fail to address the actual capabilities of the technology. This gap in understanding can lead to public mistrust, particularly when systems fail to meet unrealistic promises. Overstatement about AI fuels public anxiety about autonomy or job loss, while understatement conceals genuine hazards, such as statistical bias in medical triage tools.

Ultimately, this lack of clarity hampers our ability to engage in meaningful discussions about the role of artificial intelligence in society.

2.4 WHY PEOPLE UNDERSTAND "AI" DIFFERENTLY

Individual mental models of AI vary depending on personal experience, profession, age, and cultural context. Healthcare staff equate AI with diagnostic imaging; creatives think of generative art tools; financiers picture algorithmic trading bots. These background frames shape trust, expectations, and adoption.

Different terms can affect how people see the features of systems and their trust in them. The words we use to describe AI systems are important for how the public understands them. Saying a system is "AI" or "smart" instead of calling it an "algorithm" or "computer program" can make people think it is more capable.

Media representations compound these challenges, often portraying AI as either miraculous or catastrophic, leading to exaggerated fears or unrealistic expectations that hinder rational discourse about actual capabilities and limitations. Our definition needs to be clear and precise enough to avoid any misinterpretation or manipulation.

2.5 HISTORICAL CONTEXT AND EVOLUTION

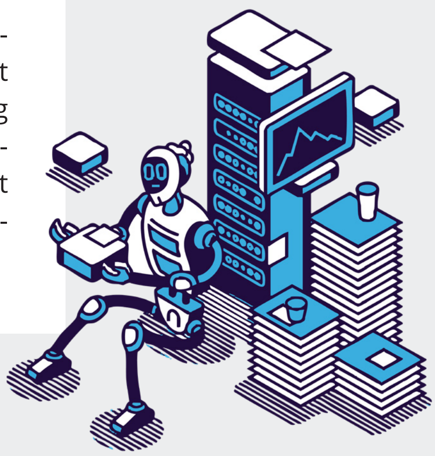
Artificial Intelligence (AI) traces its roots back to ancient history, where myths and automata envisioned artificial beings endowed with intelligence, however, the formal inception of AI as a field of study occurred in the mid-20th century. The term "Artificial Intelligence" was coined in 1956 at the Dartmouth Conference, organized by John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon. This marked the beginning of AI as an academic discipline.

The field experienced cycles of enthusiasm and disappointment. Limited computational capacity led to the "AI winter" of the 1970s-80s, followed by resurgence in the late 1990s driven by advances in computing power, big data, and machine learning. Milestones like Deep Blue defeating Kasparov (1997) and Watson winning Jeopardy (2011) marked genuine progress while also contributing to definitional confusion.

Early AI systems relied on hand-crafted rules and symbolic reasoning. With the rise of large datasets and parallel computing, supervised and unsupervised learning techniques began to extract patterns directly from data rather than encoding knowledge a-priori. This allowed the rise of a set of techniques that were able to use artificial neural networks at scale, with a large number of parameters, and an increasingly amount of data, leading to breakthroughs in image recognition (e.g., AlexNet, 2012), natural language processing (e.g., GPT and BERT models), and autonomous systems (e.g., self-driving cars). These tools and systems have propelled AI into mainstream applications.

In addition, and unlike conventional software, modern AI systems no longer remain static after deployment. Through adaptive learning mechanisms (e.g. continual fine-tuning, reinforcement learning loops, etc.), today's AI systems adjust internal parameters when exposed to fresh inputs and feedback, which is crucial for applications that operate in dynamic contexts.

These advances demonstrate impressive competence in perception, prediction and generation, still it is important to not confuse them with human-like general intelligence. Recognising domain-specific capabilities, rather than conflating them with human-level understanding, helps set realistic expectations for what AI can and cannot do, and guides proportional and practical regulations.



2.6 OUR PROPOSED DEFINITION

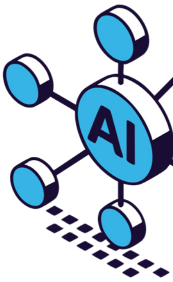
Reflecting the reference points discussed above, and using several sources including UNESCO's concise formulation, we propose the following definition:

> ***An Artificial Intelligence System is a digital tool that can perform tasks in a way that resembles (some) human cognitive abilities.***

This definition captures several crucial aspects:

Framing	Rationale
Digital tool	Stresses instrumentality and the need for human oversight. Maintaining AI's characterisation as a tool emphasises human agency and responsibility.
Resembles human cognitive abilities	This framing recognises AI's capabilities while maintaining the boundaries between artificial and human intelligence. It acknowledges that, due to the way AI has been designed, it can mimic certain aspects of human cognition, without claiming to have them.
Task focus	By emphasising what AI does (perform tasks) rather than what it is, we maintain practical clarity about capabilities and applications.
Implicit capability gap	By using the word "resembles" and the qualifier "some", our definition inherently acknowledges present-day AI limits (i.e. AI simulates, but does not possess genuine consciousness, sentience, emotions, or understanding).

2.7 IMPLICATIONS FOR EUROPEAN AI DEVELOPMENT



Adopting this definition has significant implications for our approach to AI within the European context. By specifying that AI systems learn and adapt, we distinguish genuine AI from simpler automated systems, allowing for more targeted regulation and support. By explicitly acknowledging AI's limitations in emotional and ethical dimensions, we underscore the ongoing need for human oversight, particularly in sensitive areas such as cultural heritage preservation and social services.

The emphasis on specific cognitive functions also helps us identify where AI can genuinely add value in relation to European priorities. Pattern recognition capabilities might enhance archaeological research or help preserve endangered languages. Predictive functions could support sustainable urban planning or climate adaptation. Language processing could make cultural archives more accessible across Europe's linguistic diversity.

However, the acknowledged absence of emotional intelligence and autonomous ethical reasoning means that AI cannot (and should not) replace human judgment in matters of cultural significance, moral decision-making, or sustainability (environmental and social) policy. This is particularly relevant in the European context, where diverse histories, values, and perspectives must be balanced and respected.

2.8 MOVING FORWARD WITH A SHARED UNDERSTANDING

With this definition as our foundation, we can address more complex questions about the role of AI in European society. How do we ensure that AI systems, despite lacking ethical reasoning, operate in ethically acceptable ways? How can we leverage AI's pattern recognition and predictive capabilities to preserve and celebrate cultural heritage while acknowledging that AI cannot understand and appreciate culture and, especially, cultural diversity the way humans do?

These questions become more tractable when we share a clear understanding of what AI is and isn't. Our definition provides the conceptual clarity needed for productive discussions about regulation, innovation, and social integration of AI technologies.

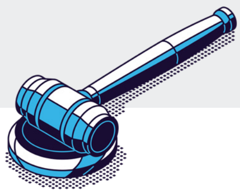
Defining AI is not merely a semantic exercise but a foundational step in shaping how this technology develops within Europe. Our definition emphasises both capabilities and limitations, reflecting a European approach that values human agency, acknowledges technological possibilities, and maintains realistic expectations.

WHAT DO WE WANT AI TO DO?
ETHICS IN WP5

3.1 INTRODUCTION: THE ROLE OF ETHICS IN WP5

The rapid pace of AI development holds promise and creates uncertainty. As AI systems become ever more powerful and deeply integrated into society, the ethical stakes are high, ever increasing and often unpredictable. For realising WP5's ambitions, it is not enough to simply ask, "what can AI do?" We must continuously reflect on what AI should do, and what role it ought to play in our shared future.

This section explores our proposed approach to the ethics of AI within WP5, thereby laying the foundation for alignment and collaboratively tackling shared challenges. Our approach emphasizes that ethics is not a technical afterthought or a static checklist, but an ongoing societal conversation; an approach that is especially vital for the European context, with its emphasis on diversity, inclusion and justice.



3.2 DEFINING BOUNDARIES IN AI ETHICS

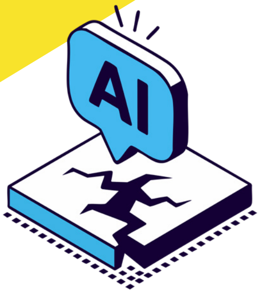
AI has already begun to shift the boundaries of what we consider morally acceptable. For example, technologies such as large language models (LLMs) are changing norms around authorship and assistance, blurring previously clear ethical lines. Should the student be the writer of an essay, for example, or are they mainly responsible for having critically evaluated AI's work? The challenge is that today's moral consensus may not suffice for tomorrow's advances. Uncertainty is a permanent feature of AI ethics: the very pace and unpredictability of AI development requires that our ethical foundations be both robust and adaptable.

Traditional approaches to AI ethics tend to be reactive, addressing harms after they appear. This is insufficient. To responsibly shape the impact of AI, ethical principles must be woven into the very design and development of these systems, not only added at the regulatory stage and addressing the deployment of AI systems. This proactive stance calls for an approach to ethics that is resilient to technological change and alert to the broader ways in which AI may alter society itself.

3.3 PERSPECTIVE ON AI

Drawing on philosopher Martin Heidegger, we can distinguish between traditional technology, which 'brings forth' new realities through human skill, and modern technology, which tends to reduce the world to a set of resources for control and optimization. AI, as a modern technology, risks narrowing our view, treating people, culture, and nature primarily as data or resources for computation. The central ethical question, then, is: **Will we allow AI to limit our horizons, or can we guide its development to broaden human possibility and enrich our social fabric?**

3.4 ETHICAL ISSUES FOR EUROPEAN AI



I Bias and Fairness

AI systems risk perpetuating or amplifying social inequalities, particularly if they embed existing biases from historical data. Fairness is a contested, context-dependent value: what is considered fair in one community may not be in another. European approaches must be attentive to the continent's diverse cultural, legal, and social histories, especially regarding protection for marginalized groups. Technical solutions alone are insufficient; fairness in AI demands ongoing political and societal engagement.

II Opacity and Explainability

Many advanced AI systems operate as "black boxes," making decisions in ways that even their developers struggle to explain. This lack of transparency undermines public trust, legal accountability, and individual rights, especially when automated systems are used in high-stakes areas like healthcare or criminal justice. Explainable AI (XAI) is ethically essential, but achieving meaningful explainability—both technically and normatively—remains a work in progress.

III Responsibility and Accountability

As AI gains autonomy, questions arise about who is responsible when things go wrong, a phenomenon known as the "responsibility gap". Traditional frameworks of blame and liability do not always fit the distributed, often opaque nature of AI systems. A forward-looking ethics requires shared, distributed responsibility among designers, deployers, regulators, and users, with clear mechanisms for oversight and redress.

IV Privacy and Surveillance

AI's reliance on vast amounts of personal data raises urgent questions about privacy and autonomy. Even with legal safeguards like the GDPR, power imbalances and the normalization of surveillance challenge individual and collective rights. Ethics must extend beyond legal compliance to deeper reflection on how much surveillance society is willing to accept for the sake of technological convenience or efficiency.

V Autonomy and Manipulation

AI-powered systems increasingly shape and even manipulate user choices, sometimes in ways that are subtle and difficult to detect. From recommender systems to personalized nudges, the risk is that individuals may be influenced without meaningful awareness or consent. Protecting autonomy and critical agency, especially in democratic and public spheres, is a central ethical imperative.

3.5 ETHICAL FRAMEWORKS

While the ethical challenges of AI in Europe are significant and complex, we are not starting from scratch. Over the past decade, a number of influential frameworks have been developed to guide the responsible development and use of AI. These frameworks, despite their different backgrounds and emphases, consistently revolve around a shared set of core values:

- Respect for human autonomy and dignity
- Prevention of harm
- Fairness and non-discrimination
- Transparency and explicability
- Accountability and oversight
- Sustainability and societal well-being

The European Commission's High-Level Expert Group on AI, IEEE, OECD, and UNESCO each highlight these principles in their own ways. UNESCO, for instance, places special emphasis on cultural diversity and environmental sustainability, bringing a truly global dimension to the discussion.

However, the precise meaning and practical application of these values are still widely debated. What fairness or transparency means in practice can differ greatly depending on the context, especially within diverse European societies. For this reason, our work package will focus first on establishing common understandings of these key principles in a European context. From there, our challenge will be moving from principle to practice.

3.6 TOWARD A EUROPEAN APPROACH

Responding to these challenges requires more than technical guidelines or compliance checklists. It demands a shared, multidisciplinary effort—one that is sensitive to the values, histories, and pluralities of European societies.

We must continually ask: Does this technology serve the future we want? Does it reflect who we are, and who we aspire to become, as a European community? In this way, ethical AI becomes an ongoing, collective project: not only preventing harm, but actively shaping the role of technology in our shared social and cultural heritage.

3.7 CONCLUSION

Ethics in AI encompasses more than the mitigation of risks or the remediation of harms after they occur. It involves co-creating a future where technology is aligned with our deepest values, and where human flourishing (both individually and collectively) remains the central aim. As we move forward, we should be proactive, inclusive, and reflective, ensuring that the AI we build and deploy strengthens, rather than diminishes, the foundations of our democratic, European society.

4

SUSTAINABILITY OF AI

4.1 INTRODUCTION

As artificial intelligence becomes an integral part of our societies and economies, the question of sustainability, in every sense of the word, grows ever more urgent. While AI holds promise for solving complex problems and supporting progress toward a more just and prosperous world, it also brings with it new environmental and social risks. To ensure that AI development and deployment benefits the broader interests of people and the planet, we must look critically at both the direct and indirect impacts of these technologies and take action to shape AI as a force for sustainable transformation.

To define sustainability in a way that truly reflects the goals of KreativEU, we ground our approach in the Brundtland definition - meeting the needs of the present without compromising the ability of future generations to meet their own needs, the UN Sustainable Development Goals (SDGs), while further enriching those reference points with the Pact for the Future, adopted at the UN Summit of the Future in September 2024. Particularly relevant to WP5, this Pact introduces a Global Digital Compact, which places AI governance within a broader sustainability mandate, linking digital technology to intergenerational justice, equity, and planetary well-being. It does so specifically, by committing to 'closing digital divides,' promoting human rights online, and using technology in service of the SDGs. The Pact's emphasis on equity, long-term fairness, and global cooperation offers both moral and political legitimacy to our European-focused sustainability framework. Furthermore, the Pact also calls for development of alternatives to Gross Domestic Product (GDP) as a measure of progress, thereby raising urgent questions about sustainability of the Triple Bottom Line as a guiding principle for sustainable development.

With that, the Pact for the Future reinforces our view on sustainable AI: sustainable AI must meet present needs while protecting the well-being of people, the natural environment, and future generations. It requires us to weigh immediate gains against broader, long-term, systemic impacts. In other words, we should continuously ask ourselves how AI can best support the goals of climate action, equity, strong institutions, and all remaining SDGs without letting ourselves be constrained by an outdated interpretation of SDG8 (economic growth).

4.2 DIRECT SUSTAINABILITY IMPACTS OF AI

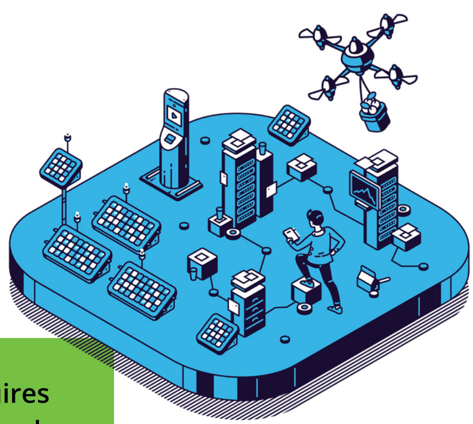
I Direct environmental impacts

One of the most pressing sustainability challenges related to AI is the environmental footprint of AI systems, especially those relying on large-scale machine learning models. Training advanced neural networks requires massive amounts of computational power, resulting in substantial energy use and greenhouse gas emissions. It is challenging to determine the precise environmental impact of training advanced AI systems, as companies rarely disclose complete and transparent data on their energy use and carbon emissions. However, available research suggests that training a single state-of-the-art AI model can require a significant amount of energy. Data-centres are estimated to have used 1,5% of the total energy use of 2024.

While the exact figures on many sustainability aspects of AI are still up for debate, it is clear that the environmental footprint of large-scale AI is a growing concern that calls for greater transparency and attention in both research and industry.

The environmental impact of AI, moreover, does not end with energy consumption. The hardware underpinning AI (servers, data centres, and networking equipment) depends on finite resources such as rare earth elements. Extracting and processing these materials can result in environmental degradation and social harm, particularly in vulnerable regions. Furthermore, as AI innovation accelerates, rapid hardware turnover leads to increasing volumes of electronic waste, much of which ends up in landfills or is improperly recycled.

Water use is another emerging concern. Many AI data centres rely on water-intensive cooling systems, which can exacerbate water scarcity in affected regions. Whereas closed loop cooling systems hold promise when it comes to reducing the scope 1 water consumption of AI deployment, widespread adoption of advanced technologies to reduce water requires continued scrutiny – both in terms of uptake across the sector and geographically. Moreover, reducing scope 2 and 3 water consumption of AI – the water consumption involved in the production of AI system components and all other embodied water consumption in the full AI supply chain – remains a challenge.



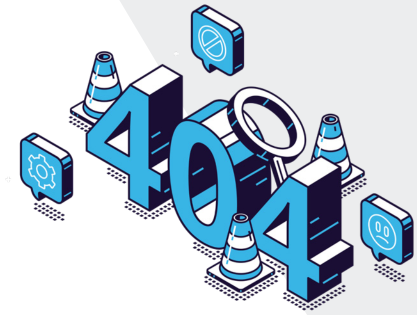
Addressing these challenges requires investment in renewable energy, hardware recycling, sustainable sourcing, and new cooling technologies that minimize resource use.

II Direct social impacts

Beyond the environment, AI can, and already does, create significant social sustainability issues. One notable example is the global network of "click-workers": millions of individuals who perform low-paid, often precarious digital labor such as labeling data or providing feedback on AI system outputs. While this work is vital to the functioning of AI, it is frequently invisible, undervalued, and unequally distributed.

The broader deployment of AI can also disrupt labor markets, automating jobs and shifting employment patterns in ways that risk increasing inequality. While AI can support innovation and create new opportunities, it may also concentrate power and benefits in the hands of a few, both within and between countries. To ensure a fair transition, proactive policies are needed such as workforce reskilling, inclusive AI access, and fair distribution of AI's social and economic benefits.

Access and control over AI technologies are likewise central to social sustainability. If AI remains the domain of a handful of major corporations or technologically advanced countries, global inequalities may widen. Ensuring that AI is developed, deployed and governed in an open, transparent, and collaborative way is essential for an equitable future.



4.3 INDIRECT SUSTAINABILITY IMPACTS OF AI

In addition to its direct impacts, AI also helps shape our perspectives and priorities when it comes to achieving sustainability goals. When well-designed, AI has the potential to be a powerful force for sustainability. It can contribute to environmental protection, reduce social inequality and create new economic opportunities. For example, AI can help policymakers predict climate risks, enable more sustainable business practices, and promote broader access to education and cultural resources.

However, there is also a risk that AI systems, if trained on conventional, already existing and sometimes outdated data, simply reproduce and optimize for the status quo. Many sustainability solutions generated by AI focus on short-term efficiency gains or traditional economic paradigms, such as the Triple Bottom Line and green growth, rather than encouraging the systemic transformation needed for genuine progress. Furthermore, AI may inadvertently promote a narrow or homogenized view of sustainability, overlooking the importance of equity, diversity, and local context, values that are especially significant within Europe.

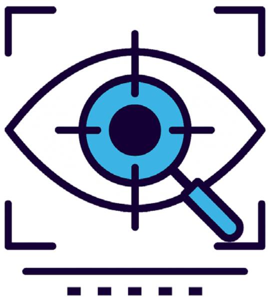
It is therefore crucial to critically examine the assumptions embedded in AI systems: How do they define and measure sustainability? Whose interests are prioritized? Are the solutions proposed genuinely transformative, or do they reinforce existing patterns and inequities? Only by asking these questions can we ensure that AI supports a dynamic, inclusive, and forward-looking vision of sustainability.

4.4 PRIORITIES FOR A SUSTAINABLE-BY-DESIGN APPROACH

To realize the full promise of sustainable AI, we must embed sustainability principles at every stage of the technology's life cycle, from initial design to deployment and eventual retirement. This means:

Reducing the resource footprint of AI by prioritizing energy efficiency, using renewable energy, sourcing materials responsibly, and applying circular economy practices to hardware.

Addressing social impacts proactively, with a focus on reskilling workers, supporting those affected by automation, and ensuring that the benefits and opportunities of AI are shared broadly across regions and communities.



Proactively reflecting and acting on AI's influence on sustainability narratives and goals, ensuring that AI-driven solutions do not reinforce outdated, unsustainable, paradigms but instead drive genuine, systemic change.

A sustainable-by-design approach recognizes that technology and society are deeply interconnected, and that the true test of AI's value is not only what it can do, but how it reshapes our collective pursuit of well-being and justice.

4.5 CONCLUSION

Achieving sustainable AI will require sustained collaboration across research and education institutions, industry, governments, and civil society. Within the European context, this means developing a common understanding of sustainability that is rooted in shared values but also open to diversity and change.

The sustainability of AI is not a side concern, but a central challenge that shapes the future of both technology and society. By embedding sustainability in every phase of AI development, deployment and governance, we can help ensure that AI not only avoids harm, but actively contributes to a more just, resilient, and sustainable world.

5

EUROPEAN VALUES, CULTURAL HERITAGE & AI

5.1 INTRODUCTION

Europe's identity is deeply rooted in a rich tapestry of cultural heritage, spanning languages, traditions, arts, crafts, architecture, and ways of life. These tangible and intangible cultural heritages are inseparable from a shared foundation of European values. As AI becomes ever more embedded in society, the question arises: how can we ensure that AI serves to protect and enrich this heritage, rather than diminish or homogenize it? For WP5, this is not a technical or regulatory issue, but a fundamental cultural and ethical challenge.

5.2 EUROPEAN VALUES AS HERITAGE

The starting point of our thinking about European values is that they should not – at least at this point in our project - definitively be defined. We do not consider European values to be a fixed set of rules, but a living heritage that shapes and is shaped by the cultures that encompass the European continent. The European values are transmitted through cultural vehicles, among generations. For this heritage to keep having its place in Europe in the digital age, we must allow it to be able to keep continually adapting while reinforcing social cohesion and respect for diversity. UNESCO and the European Union's "Digital Rights and Principles" emphasize the centrality of these values, underscoring that everyone in Europe should benefit from digital transformation while having their cultural rights, identities, and freedoms protected.

Rather than prescribing a rigid definition of European values, we advocate for an ongoing, inclusive dialogue: How can our attempts for an open dialogue and room for cultural continuity guide the ethical and sustainable use of AI? How might they influence our approach to cultural preservation? Embedding these questions within our project ensures that Europe's future remains closely tied to its unique and pluralistic heritage.

5.3 AI AND TANGIBLE CULTURAL HERITAGE

AI opens up new horizons for protecting and revitalizing Europe's tangible cultural heritage. Examples are its monuments, artifacts, buildings, and crafts. Advanced tools such as machine learning, computer vision, and data analytics enable the digitization, restoration, and monitoring of historical sites and objects. Projects like the EU-funded HYPERION use AI-driven analysis of satellite and drone imagery to detect environmental threats to ancient sites, guiding restoration efforts and helping experts make informed decisions to prevent material degradation. Similar technologies are applied to 3D scanning and reconstruction of damaged structures, predictive maintenance of heritage buildings, and digital archiving of crafts and art forms.

AI-enabled digitization also opens up cultural assets to wider public engagement and appreciation. Virtual museum tours, interactive archives, and augmented reality experiences allow wider audiences to engage with Europe's tangible history, supporting education, tourism, and cross-cultural understanding. In this way, AI can be a partner to cultural professionals and communities, helping to keep traditions alive and fostering pride in local and national identities.

5.4 AI AND INTANGIBLE CULTURAL HERITAGE

Tangible cultural heritage refers to the physical manifestations of culture—such as monuments, buildings, works of art, historic sites, and traditional crafts. These concrete objects and structures can be seen, touched, and preserved, often serving as enduring symbols of a community's history and identity.

Alongside this, there is also intangible cultural heritage. This encompasses non-physical expressions of culture, including languages, oral traditions, music, dance, culinary customs, rituals, and social practices. Unlike tangible artifacts, these living traditions and practices are actively passed down through generations, shaping the ways people communicate, celebrate, and connect with one another. In the digital era, it is often this intangible heritage that is most deeply impacted by emerging technologies, as new tools influence how and if intangible culture is recorded, shared, noted and appreciated.

There are opportunities for ethically and sustainably connecting AI and intangible cultural heritage. AIbased language tools can document endangered dialects or translate folk songs, while generative AI supports new forms of artistic expression and storytelling. Educational platforms powered by AI can provide resource-rich material for teaching history, values, and cultural practices, democratizing access to knowledge. And AI can enhance and promote regional and cultural particularities, if properly designed.

However, these opportunities are accompanied by significant risks. One of the most pressing is cultural homogenization. Large language models (LLMs) and other generative AI systems are often trained on vast datasets dominated by mainstream, globalized content, primarily from North American or Englishlanguage sources. As a result, AI outputs can inadvertently flatten cultural diversity, prioritizing certain worldviews and diminishing the nuances that differentiate local traditions. Studies have shown that AI writing suggestions can nudge users toward Western styles, and generative models may rephrase regional expressions into more generic or "global" forms.

Bias and underrepresentation are persistent challenges. AI systems may overlook or misrepresent minority cultures, reinforce stereotypes, or fail to capture the richness of intangible heritage such as idioms, humor, or folklore. Speech recognition and translation tools often perform poorly for lesserspoken languages, threatening to erase specific cultural identities. Meanwhile, recommender systems and search algorithms risk narrowing cultural exposure, amplifying popular or mainstream content while sidelining local and minority voices.

Copyright and authenticity also become contentious issues in the era of generative AI. Artists and cultural creators express concern about their work being used for model training without consent or compensation, and about the proliferation of AI-generated content that may mimic traditional styles or voices without acknowledging their origins. Such developments risk diluting the provenance and authenticity of cultural expressions, undermining the livelihoods of creators and the communities they represent.

5.5 CULTURAL INCLUSIVITY

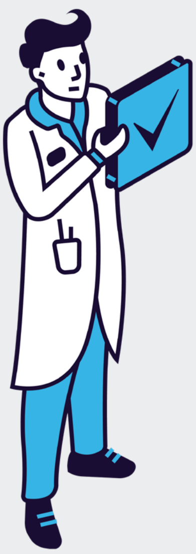
Ensuring that AI not only supports but is also informed by Europe's cultural diversity requires intentional design and inclusive governance. Policy recommendations from UNESCO and European bodies emphasize the importance of human-centered, ethical AI that actively safeguards cultural plurality. This means more than avoiding bias or stereotypes, it requires proactive steps to ensure that diverse and representative stories, languages, and images are part of and help shape the digital landscape.

Practical actions include investing in digital literacy and training for cultural professionals, supporting local organizations in adopting AI, and funding community-driven projects to document and share traditions. Initiatives such as a common European Data Space for Cultural Heritage aim to pool digital archives, enabling institutions across the continent to preserve and share cultural resources while respecting rights and sensitivities. Regular audits of AI tools for diversity outcomes and transparency measures - such as labeling AI-generated content - are important safeguards.

European values also demand the protection of creators' rights, fair remuneration, and informed consent in the use of cultural data. Policy frameworks such as the UNESCO Convention on the Diversity of Cultural Expressions and the proposed EU AI Act provide a basis for these protections, encouraging cross-border collaboration and aligning global standards with European principles.

The ongoing dialogue about European values and diversity is also reflected in the New European Bauhaus. Launched by the European Commission, the New European Bauhaus seeks to bridge the worlds of art, culture, science, and technology in order to create sustainable and inclusive living spaces. This initiative highlights how cultural heritage and creativity can inform and inspire Europe's transition toward a greener and more equitable future. Integrating digital innovation and participatory design, the New European Bauhaus demonstrates the potential for AI and related technologies to contribute to a cultural ecosystem where diversity, sustainability, and community well-being are actively promoted.

Above all, the future governance of AI in cultural heritage must be participatory and adaptive. Multistakeholder dialogue, bringing together museums, libraries, educators, minority groups, and communities, is essential for shaping how AI is used and ensuring that all voices are heard. Such collaboration helps embed the values of inclusion, diversity, and equity into both the technology and its applications.



5.6 OUR AGENDA

AI's growing influence on cultural heritage and European values is both an opportunity and a responsibility. If developed thoughtfully and inclusively, AI can help to document, protect, and revitalize Europe's rich and varied traditions, enhancing identity, belonging, and mutual understanding across the continent. But without vigilance and deliberate action, there is a real risk of homogenization, loss of nuance, and erosion of intangible heritage.

As we move forward, we suggest that our task is the following: to ensure that AI becomes a force for cultural enrichment, diversity, and resilience, rooted in Europe's shared yet evolving values, and open to the full spectrum of voices and traditions that define our continent.

6 CONCLUSION

As outlined in the introduction, the aim of this whitepaper is to establish a shared conceptual foundation for the WP5 expert team and project stakeholders through clarifying key terms, identifying recurring themes, and mapping out the relevant challenges. To that end, we have explored the central concepts and concerns of this work package.

Bringing the insights together, one thing becomes clear: progress in this work package depends first on a shared understanding of what we mean by AI. All too often, the term is used loosely, leading to confusion and inflated expectations. In this whitepaper, we propose to use a specific definition of AI.

Just as crucial is the broader, more fundamental question: what do we want AI to be? This issue extends beyond technical considerations or the mere optimization of systems for specific tasks. At its core, it raises normative and societal questions regarding the role that AI should occupy within our communities.

What kind of future do we envision with AI, and which futures do we wish to avoid? In this whitepaper, we have outlined key topics that help navigate these questions: the opacity of AI systems, the distribution of responsibility, and the boundaries of autonomy.

The question of what we want AI to be is also central when addressing the sustainability of AI within the context of WP5. Sustainability is important, not just in terms of reducing water and energy use or minimizing dependence on human data labor, but also in a more foundational way. How can we build a future where AI supports environmental and social sustainability? One where both the planet and its inhabitants can thrive?

All of those questions also involve Europe's place in the global AI landscape. What does it mean to approach the foundational questions regarding AI with European values in mind? What heritage is at stake, and how can AI reflect the commitment we have to the cultural diversity of Europe? What are relevant institutions, such as the European Union, already doing, and what more can be done?

We are witnesses of an important moment in history, where we (whether deliberately or undeliberately) are shaping AI systems and our future with them. The pace of AI development is accelerating, and it is easy to be swept away by each new breakthrough. But as a guiding principle for WP5, we propose something else: a pause, a step back. To not merely be a witness, but to proactively co-shape our future. We will do this through establishing a think tank. Not of developers, but of critical thinkers. People capable of assessing proposals, technologies, or legislation and asking: Is this in line with who we are as Europeans? Does this move us toward the future we actually want? A think tank that helps ensure that as we get to see more AI, we do not lose sight of ourselves—and each other.

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