MACHINES FOR GOOD

Engaging teenagers through AI and Arts Recommendations on AI for participation

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Artificial intelligence's pervasive influence across social, technological, and economic systems has become increasingly evident, playing a pivotal role in shaping socio-technical system changes, and when the realms of **artificial intelligence and art converge, they hold the potential to redefine established political paradigms, creating opportunities for diverse forms of political participation**.

If much has been written about the impacts of artificial intelligence (AI) on society, **there is still a limited understanding of how AI-based technologies can empower civic engagement and participation**[1]. Crucially, there has been limited research on how adolescents (12-18-year-olds) express their voice in civic participation or navigate their evolving social environment, particularly in the rapidly changing landscape of interactions with and impacts of AI[2].

Investigating the distinctive dynamics of this demographic's interaction with AI can offer valuable insights into the convergence of technology, education, and the shaping of political perspectives. Nonetheless, AI-based technologies pose challenges for young individuals that necessitate attention from various stakeholders, including the active involvement of youth in the conversation. This collective effort is essential to protect and uphold the rights of young people, such as the right to privacy and the right to participation[3].

[1] Paulo Savaget, Tulio Chiarini and Steve Evans. Empowering political participation through artificial intelligence. 2019. 10.1093/scipol/scy064.
[2] Hasse, A., Cortesi, S., Lombana-Bermudez, A., & Gasser, U. (2019). Youth and artificial intelligence: Where we stand. Youth and Media, Berkman Klein Center for Internet & Society. Retrieved from https://cyber.harvard.edu/publication/2019/youth-andartificial-intelligence/where-we-stand
[3] UNICEF. Children and AI Framework. Retrieved from https://www.unicef.org/innovation/sites/unicef.org.innovation/files/2018-11/Children%20%2B%20AI%20Framework_%20Long%20Version.pdf

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Lastly, the youth population stands as a particularly vulnerable group[4], given the limited initiatives aimed at empowering them to critically engage with the discourse surrounding the next generation of technologies, which possess significant potential to shape their lives positively or negatively.

A notable instance is the **transformative impact of artificial intelligence on the labour market**[5], leading to substantial implications for career trajectories and the essential skills required for youth to thrive in this evolving occupational landscape. In this sense, it becomes imperative for young people to acquire a fundamental understanding of what AI entails and to grasp the ethical, societal, privacy, and safety implications associated with these technologies.

The **project "Machines for Good"** has constituted an attempt to address and give answers to the aforementioned gap: **how can AI-based technologies and art practices be used to increase public engagement?** The project has embarked on a transformative journey, seeking to answer pressing questions surrounding the fusion of AI-based technologies and art practices to enhance public engagement.

At its core, **this initiative aims to contribute to the unleashing of artificial intelligence's potential for civic purposes, particularly by leveraging the power of art to engage communities**, with a specific focus on teenagers. The overarching goal aligns seamlessly with the priority of e-democracy and exploring innovative tools for democracy.

[4] Amar Ashar, Sandra Cortesi. Why Inclusion Matters for the Future of Artificial Intelligence. Retrieved from https://medium.com/berkman-klein-center/why-inclusion-matters-for-the-future-of-artificial-intelligence-2cb9d3b1b92b

[5] James Manyika, Susan Lund, Michael Chui, Jacques Bughin, Jonathan Woetzel, Parul Batra, Ryan Ko, and Saurabh Sanghvi. Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages. Retrieved from https://www.mckinsey.com/featured-insights/future-of-work/jobs-lost-jobs-gained-what-the-future-of-work-will-mean-for-jobs-skills-and-wages

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The project's ambitious scope manifests in its dedication to **increasing community engagement and participation, fostering awareness of AI and its participatory potential, and capturing the attention of stakeholders and policymakers** regarding the symbiotic relationship between AI and the arts.

Operating **across four countries (Italy, Spain, Belgium, and the Netherlands)**, the project involved citizens with a predominant focus on teenagers. National events centred around critical community topics such as sustainability, technology, and disinformation, served as the crucible for engaging discussions.

What follows are the final observations addressed to stakeholders and policy makers, developed by policy analyst Luca Baraldi following discussion among project partners on how AI can be used to increase civic engagement.

1. Artificial Intelligence and policy making: A methodological reframing

1. Artificial Intelligence and policy making: A methodological reframing

The international social, cultural and political scene is facing the profound transformations introduced by artificial intelligence, which has rapidly modified the processes of production, management and valorisation of information. The acceleration of the datafication of reality, aimed at enabling a data-driven decision-making system, has highlighted the numerous possibilities for simplifying and making governance models more efficient. On the one hand, however, **artificial intelligence generates a significant improvement in the ability to interpret the complexity of socio-political ecosystems; on the other, it highlights numerous technological, strategic and cultural vulnerabilities**, which require an effort on the part of politics to define measures to reduce risks and enhance its positive enabling potential.

The phases traditionally considered in the public policy cycle, in the simplified version proposed by Jann and Wegrich (2006), must today be rethought, in light of the ability of artificial intelligence to influence many of the interpretative phases of the process. If until recently technology was used simply as a tool to simplify operations, today AI - in particular generative AI - can perform a function of enabling previously unthinkable operational potentialities. In a certain sense, the introduction of advanced digital systems opens up a range of new possibilities, but requires in-depth reflection on three fundamental aspects: the evolution of the methodologies used for policy making processes; the evolution of possible mechanisms of democratic dialogue; the evolution of information systems and transformation of the cognitive processes underlying the exercise of individual and collective freedom.

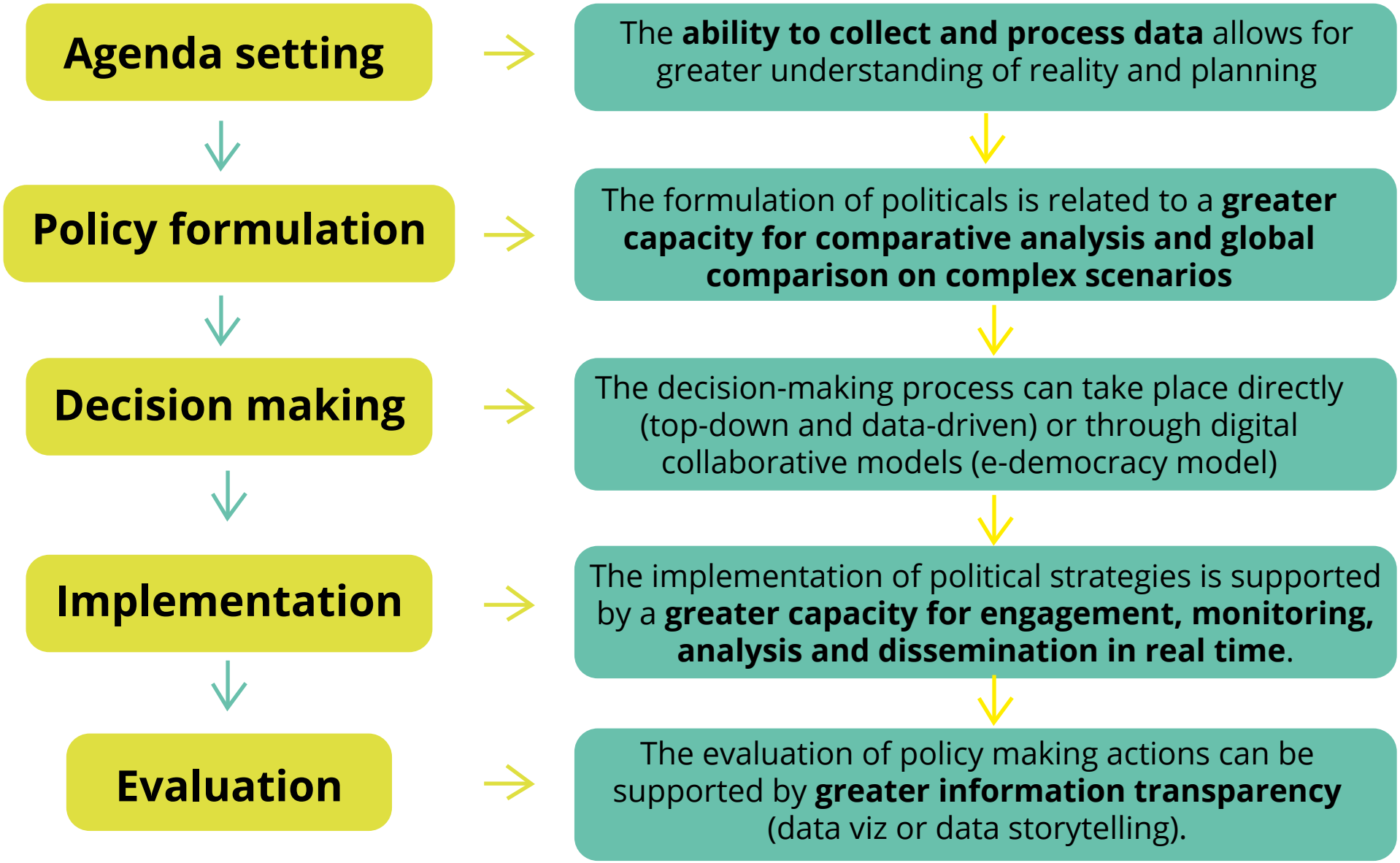
Evolution of the methodologies used for policy making processes

The subjects involved, directly or indirectly, in policy making actions must today understand the implications and impact of technological transformation, in order to be able to cope, critically and proactively, with changes in the socio-political scenario. It is therefore essential to create the conditions for the evolution of the conceptual frameworks and operational methodologies themselves. This is certainly a topic of international interest, but the implementation might be differentiated for each different Country, which is characterized by specific institutional dynamics and cultural systems.

We need to fully understand the impact of the diffusion and pervasiveness of data culture in governance, the impact of the automation of decision-making processes (through recommendation systems and predictive models), **the impact of generative artificial intelligence as a system of dialectical activation** (in the production of content and in the simplification of creative processes). It is necessary to understand how technology radically changes the ways in which political processes mature, especially in a context based on the democratic model.

To do this, it is important to understand what the contributions are, at a methodological and operational level, of data-based technology in the different phases of the policy-making cycle, progressively acquiring awareness of the positive potentialities and critical risks.

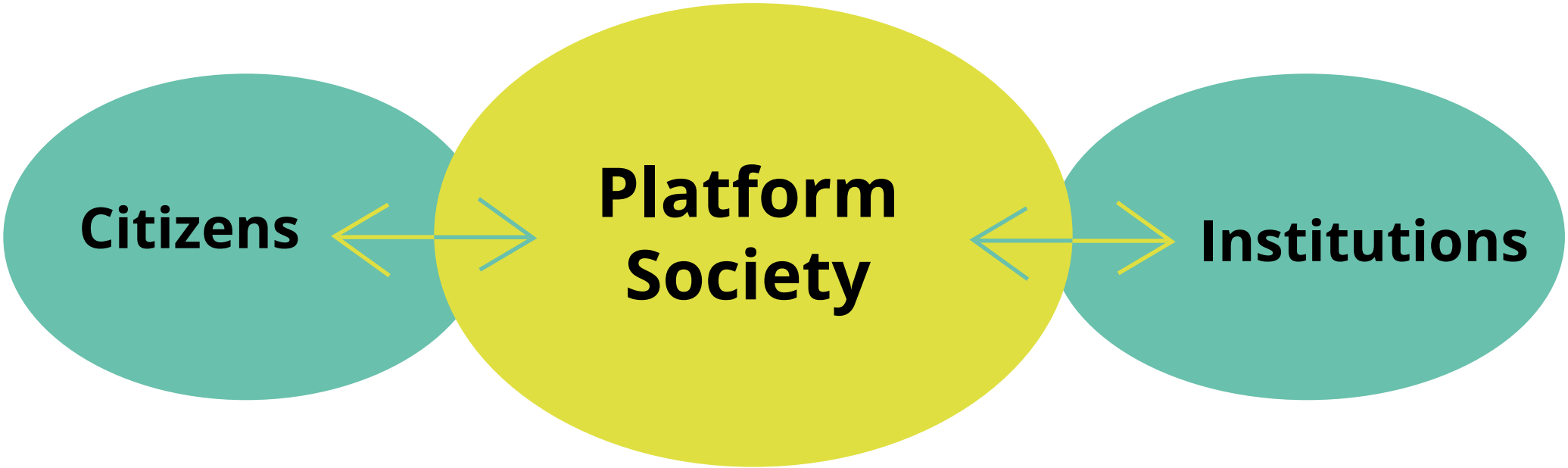
Evolution of the methodologies used for policy making processes



Evolution of possible mechanisms of democratic dialogue

The introduction of digital technologies has radically changed, in a relatively short period of time, the forms of individual and collective interaction, introducing expressive methods and cognitive mechanisms that were unimaginable until recently. The public institutions identified, with a few years of delay, the obvious impact of digitalisation, initially only at a functional level (systems with management purposes), and gradually understood its cognitive implications. Citizens have begun to inform themselves, to interact, to think differently. A new concept of democratic representation has taken shape, undermining the traditional characteristics of representative mechanisms, introducing new opportunities for disintermediation of governance and immediacy of interaction. The theme of transparency has progressively acquired an increasingly relevant and increasingly critical role, because it is connected to a (legitimate) claim to the immediacy of information. The platform economy, which has rapidly centralized, despite the plurality of possible platforms, the aggregation and real-time monitoring functions of the activities of a person or an institution, has posed new challenges, effectively assuming an increasingly central role in mediation of democratic dialogue. **If on the one hand politics and institutions can be considered as subjects that need access to the information of the platforms**, and which in turn contribute to producing other information, **on the other hand citizens produce and consume data in an often unaware way, fueling an oligarchic system of centralization of information in the hands of private entities**, even in democratic contexts. If we try to imagine an extreme dynamic like the one represented below, we must recognize the ever-increasing dependence, even on the part of institutions, on the information and management systems of the large platforms. The information interdependence between citizens and platforms, and between institutions and platforms, will progressively increase the distance of direct interaction between citizenship and politics, fueling mechanisms of possible manipulation and weakening the dynamics of the democratic process.

Evolution of possible mechanisms of democratic dialogue



The automation of the available sources will fuel a passive attitude in citizens, who will get used to a limited nature of information, necessarily redefined in a logic of polarization and activation of dialectical reactivity, to generate more traffic. **Today more than ever, the role of art (of the cultural and creative industries in general) will be to educate in simulation capacity, in the possibility of imagining alternative scenarios and possible futures different from those conveniently generated by data-driven systems**. Today more than ever, art becomes a necessary interface in enabling critical thinking and preserving cognitive autonomy. During the development of the project, the physical experience of sharing a space, as a context for sharing ideas, represented an essential driver for the activation of a disintermediated social interaction model.

Evolution of information systems and transformation of cognitive processes

The rapid transformation in the methods of production and use of information is literally overturning the traditional dynamics of mass communication. Overcoming the unidirectionality of information flows, with a clear distinction between sender and recipient, has opened up new unthinkable scenarios, generating new opportunities and new risks. Among the many possible facets, we can focus on three main characteristics, which can have a direct impact on policy making mechanisms in a democratic context:

- quality of data and traceability of sources: the dematerialisation of information systems has introduced, among the many weakness possibilities of the world of mass communication, the *difficulty of verifying the correctness of sources and contents*. If on the one hand the non-verifiability of sources is aggravated by the progressive reduction in information consumption times, on the other the automation of the interpretation systems of complex information systems further distances direct control over the data used to produce information;

- cognitive interdependence: overcoming the traditionally individual (or micro-community) nature of access to information, as we have seen, has transformed the passive reader into a potential interlocutor, or content co-creator. The possibility of sharing contents, commenting on them, and making reactions contributes strongly to the modification of the overall information spaces, determining, for example within a social platform, which contents my connections will see, and in what way. *Each of my reactions, regardless of complexity, can determine different ways of collective enjoyment of a content*;

- click economy: in a global information system effectively centralized in the hands of a few private entities, *the activation of economic mechanisms starting from the use of information potentially becomes the new engine of democratic dialogue*, establishing, on the basis of weight of visibility and the ability to generate reactions, the importance of content.

Evolution of information systems and transformation of cognitive processes

As is evident, even starting from a selection of a few of the many implications deriving from the use of AI in the world of information, our way of knowing the world is rapidly changing. In the same way, our way of formulating ideas, developing opinions and expressing judgments is rapidly changing. **When ideas, opinions and judgments are potentially influenced, passively or actively, by technological automatisms that generate cognitive automatisms, we are called to ask ourselves what the new risks for society are.**
Starting from this context, after the experience gained with the thematic paths promoted by the partners of the Machines for Good project, we tried to identify some methodological and operational priorities, and then propose some recommendations, aimed at policy makers, on the adaptation of the context institutional to the new cultural challenges induced by AI.

2. Epistemological remarks

Politics education

The pervasiveness of artificial intelligence, in transforming the life of societies globally, has introduced a radical transformation of the mechanisms of democratic dialogue. **Politics has the responsibility to understand the implications and consequences of AI, both at the level of evolution of the functioning of institutions and at the level of evolution of participatory models**. To this end, it is important to support an accompanying process, for the definition of basic notions on the most relevant aspects:

- AI literacy: it is essential to learn and understand the basic concepts that underlie the artificial intelligence revolution and its impact, including at a political level. Before analyzing global macrosystems and technological geopolitics, *it is important to acquire basic notions on the logic of algorithms and the basic mechanisms used by data science*, in order to enable politics to critically understand the possible evolutions of technological acceleration

- e-democracy: the historically characteristic dynamics of democratic dialogue and traditional mechanisms of representation have been profoundly modified by the introduction of platforms and the progressive acceleration in content processing. *It is considered necessary and a priority to educate politicians to understand the logic underlying digital participation models*

- platform economy: the dividing line between politics and economics is increasingly thin, and the same information used by parties to analyze society's behavior is often managed by private platforms. *It is considered essential to educate politicians to understand the basic mechanisms of platforms* and the possible impact of automated information management systems

- AI ethics: *politics has the responsibility to question not only the limitation of the risks of negative impact of AI systems, but also to promote broader ethical reflection, which allows not only to avoid possible*

negative effects, but also to imagine positive effects not foreseen to date. The conception of possible negative effects is often treated in a simplistic manner, flattening the complexity of possible impacts to a simplification that trivializes a critical issue: on the one hand we see rigid categories of risk, on the other large spaces of ambiguity (both at the level of lexical inadequacy of institutional reflection, both at the level of strategic vision). The linear rigidity of legal evaluations, as well as the cultural trivialization of AI impact assessment, generates an attitude of social passivism, with respect to a technopolitical challenge that would require critical thinking skills. In a global data-driven scenario (guided by datafiable contingency) politics must assume responsibility for decision-making processes based on the desire for improvement, also recognizing the possible validity of divergent scenarios.

Education of public administration and public services

The public administration plays a central role as an interface with citizens, in an increasingly hybrid dimension, between physical space and digital services. **It is essential to support the evolution of the Public Administration in the acquisition of skills and the transformation of the mindset, to better understand the potential of data science and AI**. In this regard, the development of design tools (toolkits and canvases) is considered useful to support, in a guided and facilitated path, the redefinition of services and the needs for interaction with citizens. In particular, three priority axes are suggested:

- citizenship education: in a world in which technological evolution is inextricably linked to information policies (platformization of society) and the governance of the internet (and widespread digital assets), *it is necessary to define new practices of education and information assistance*
- data science and territorial governance: *the public administration must be able to access, in a facilitated manner, advanced information management systems* (data-driven and AI-based) to monitor, interpret and direct territorial governance, in real time and accurately
- participation and co-responsibility: territorial governance models show the need to accurately integrate structured information (infrastructural data and formal records) and unstructured information directly for institutional use (civic data, participation models, social information). *It is important that citizens understand the central role and responsibility in creating the information systems* necessary to effectively create a data-based governance model.

Lexicon and conceptual accessibility

The main challenge in the era of AI-induced acceleration lies in the need to transform the socio-cultural patterns that underlie collective information. The change in the tools that are used to detect, to aggregate, to interpret, to produce information induces a change in the way in which the end user - individual or collective - receives information. The change in technologies and in the type of interaction with technologies, increasingly hybrid, generates an increasingly radical change, at least on three levels, which require new strategic approaches and new educational responsibilities:

- anthropological change: the use of a tool that can be activated via a digital interface, as well as overcoming the physicality of the experience of accessing information, changes the user's habits, expectations and possibilities of use. *It is necessary to educate about the impact of interaction with a technology*, especially if guided by the agency of an AI system, highlighting potential and risks in a clear manner

- cognitive change: the dematerialisation of sources and the virtualisation of existential experience make the verifiability of events increasingly irrelevant, thinning the boundary between reality and its representation. Advanced behavioral analysis technologies increasingly expose citizens to the risk of manipulation, through the improvement of recommendation systems. *It is necessary to educate to understand the mechanisms underlying AI-based assistance systems*, to protect people's decision-making autonomy

- conceptual change: anthropological change and cognitive change are the consequence of a radical technological change, which in the space of just over thirty years has profoundly changed individual and social behavior. *It is necessary to promote greater conceptual accessibility to the new technology and its impacts, starting from an extensive lexical integration campaign*, to provide people with the basic

Lexicon and conceptual accessibility

tools to manage the new complexity, starting with a new language. Inserting new entries into the dictionaries of national languages is a sterile act, if at the same time a literacy activity is not carried out to support the acquisition of new conceptual categories.

3. Policy recommendations

3. Policy recommendations

These policy recommendations aim to define a methodological and operational framework based on the cultural transformation of society and the consequent strategic transformation of nations. The rapid transformation of the processes of democratic dialogue and diplomatic visibility highlight, in the recommendations, the **priority need for an interaction between institutions and citizens, based on thematic awareness and recognition of the essential character of artificial intelligence as a new agent of automated intermediation**. The role of culture represents, in the present reflection, not only an accessory function, with respect to technological acceleration, but a fundamental premise in the acquisition of a new social and political awareness, with respect to social autonomy and individual freedom.

1 Education

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Education is the foundation of every conscious transformation of democratic society. **It is necessary to educate all institutional subjects, to guide change in a responsible way and to protect civil society**, in its various expressions, from the possible risks of the abuse or misuse of technology.

1.1 Political education. The education of the political class ensures the implementation of an institutional system capable of understanding the complexity of global scenarios and of implementing measures capable of protecting democratic models and enhancing social generativity and economic resourcefulness.

1.2 Public Administration Education. Public Administration education guarantees the implementation of digital services capable of facilitating democratic dialogue and citizen participation, reducing the risks of division and supporting localized social transformation strategies.

1.3 Society education. The education of society allows, on different levels, to spread a critical culture regarding the use of technologies, encouraging the promotion of an active citizenship role (at an individual and collective level) and protecting individual freedom in the face of the pervasiveness of technology.

2 Enablement

It is necessary to promote differentiated measures, at an educational, legal and economic level, to guarantee society's ability to understand and proactively use artificial intelligence tools. **The valorisation of society's information potential is a fundamental prerequisite for data-driven participatory governance**, in a context of digital awareness and protection of old and new rights.

2.1 New vocabulary. A prerequisite for the implementation of a widespread enabling strategy is the creation, adaptation and dissemination of a shared lexicon. It is important to define a common vocabulary, to allow the actors involved (institutional and social, formal and informal) to address the issues starting from the same conceptual background. What is meant by AI? What is the practical definition of an algorithm? What is the difference between ethical AI and responsible AI? Semantic approximation, as well as the lack of definitional clarity, creates spaces of ambiguity that expose society to the risk of manipulation or cognitive vulnerability, which are difficult to prevent with legal measures.

2.2 New methodologies. The active capacity of artificial intelligence makes it necessary to design and implement new teaching and social engagement methodologies. Art, the experimental dimension, cross-disciplinarity become the cornerstones of a strategy for enabling new conceptual and cognitive schemes.

2.3 New laws. The radical transformation of society and the institutional scenario induced by the extensive use of artificial intelligence modifies the reference perimeter of legal reflection, posing challenges that cannot be traced back to existing regulatory schemes and categories of law. Once a new, conventionally shared lexicon has been defined, it is necessary to promote new legislative reflection, to adapt existing systems and integrate them, where necessary.

3 Inclusion

The acceleration of the use of artificial intelligence technologies risks creating imbalances in the distribution of the impact of the transformation. **It is necessary to define political measures that allow the risks of social exclusion to be reduced and that guarantee a homogeneous evolution of social ecosystems** (local, urban, regional, supra-regional), in the face of possible conditions of exclusion: diversity of cultural systems, diversity of levels of education, age variety, heterogeneity in the configuration of infrastructures (physical and digital), heterogeneity in the economic capacity for adaptation, heterogeneity of territorial public systems and local policies to support innovation.

3.1 Risks of discrimination. The use of artificial intelligence systems depends, for the effectiveness and relevance of the result, on the quality of the data used both to train the model and to extrapolate results and interpretative patterns. It is necessary to define political measures capable of guaranteeing full compliance with the needs - social and technological - of diversity and pluralism. Partial or biased data leads to an incorrect or misleading result.

3.2 Risks of manipulation. The use of AI systems allows the activation of strategies - massive or targeted - for manipulating information, with consequent consequences from the opinion making point of view. Recommendation systems, as well as prediction systems, can influence a person's decision-making capacity by acting on cognitive and decision-making automatisms. Generative AI systems can create false, plausible and coherent multimedia content that is difficult to distinguish from reality. It is necessary to promote, at all levels, technological security measures and education programs for critical thinking and the conscious use of technologies.

3.3 Risks of (un)sustainability. We need to promote a culture of awareness of the close interdependence between technological acceleration, sustainability policies and the geopolitics of resources. If on

the one hand artificial intelligence makes it possible to easily activate projects of citizen participation and active democratic involvement on sustainability issues, on the other hand it significantly modifies the indirect implications at an environmental level. Among the many topics, we can think of: the consumption of energy or water for the activity and cooling of data center and computer center systems; the impact deriving from the procurement of the raw materials necessary for the creation of physical and technological infrastructures; to the life cycle of the materials used and technologies, in a logic of accelerated obsolescence. It is necessary to promote education on the issues of digital sustainability and environmental geopolitics, thus guaranteeing, in the medium and long term, a conscious and responsible attitude of programmers, users and businesses.

4 Participation

The implementation of artificial intelligence systems and the multilevel introduction of information management automation systems changes the mechanisms of democratic dialogue and social participation. **It is necessary to promote political strategies to activate collective interest and participation, to encourage the completeness of needs in the phase of redefinition and reconfiguration of priorities of social interest**. To do this, it is necessary to redefine tools and methodologies to support the transformation of society in interaction with the global digital ecosystem.

4.1 Evolution of education. It is necessary to rethink the priorities of educational strategies, both in a logic of updating technical skills and in a logic of evolution of the cultural systems of reference. Cognitive autonomy - and the cultural competitiveness of a country - depend on the ability to activate autonomous and critical collective thinking, starting from cross-disciplinary education.

4.2 Evolution of participation. It is necessary to rethink the mechanisms for analyzing and valorising civic data and information produced by citizens, creating models and processes capable of involving citizens as necessary proactive actors. Both the production of information and the management of data and their information potential are processes influenced by the fundamentally autonomous role (although directed by technological automatisms) of users. Educating for a new form of hybrid participation must be a strategic priority, both at a local and broader level.

4.3 Evolution of responsibility. The primary function of individual education, within a society, is to enable a constructive and responsible attitude towards the collective interest. The dematerialization of the democratic experience requires that politics activate new models of accountability, encouraging participation, transparency and verifiability of information and decision-making processes. We need to create a new concept of collective responsibility, based on the individual's understanding of the interconnection and interdependence of the global information heritage.

4. TIPS: how can AI empower policy makers and stakeholders in increasing public engagement?

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Starting from the **experience and data collected in the course of the "Machines for Good" project, we have identified the key concepts of an engagement methodology for young people**, to stimulate reflections and suggestions on the topic and to facilitate the emergence and implementation of **similar experiences by policy makers and stakeholders** like cultural organisations, training institutions, and scientific research centres.

The approach to increasing the civic engagement through artificial intelligence (AI) and artistic practices, as gleaned from the "Machines for Good" project, is characterised by an emphasis on active collaboration and a fluid, adaptive methodology, whose **fundamental principles are**:

- **Active participation and co-creation**: Teenagers and participants are co-creators, engaging in a dynamic learning environment that transcends traditional boundaries. The workshops emphasised that participants are not passive recipients but active contributors to the civic engagement process. Through the integration of AI and artistic practices, participants actively co-created narratives, visualisations, and dialogues, fostering a sense of agency and empowerment.

- **Community engagement and collaboration**: The workshops engaged diverse communities, ensuring a balanced representation of gender and targeting different demographics. AI facilitated collaboration among participants with various backgrounds, including AI implementers, teachers, social designers, arts and ICT professionals, and local community members.

- **Interdisciplinary learning**: Acting as a bridge between technology and

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art, the methodology utilises creative language and storytelling to enhance participants' understanding of AI concepts and applications. The intersection of AI and creativity is seamlessly woven into workshop methodologies, fostering immersive and interactive learning experiences. Tangible outputs, such as sauces, city or neighbourhood's designs, newspaper articles, or short films, serve as expressive representations of participants' reflections, grounding the learning process in a tangible and meaningful context.

- **Responsible and ethical engagement**: Ethical considerations regarding AI technologies play a major role in the workshop methodology. The approach places a strong emphasis on responsible engagement, guiding discussions on the ethical implications of AI. Participants are encouraged to think critically about the societal impacts of AI, inspiring them to question and reflect on the ethical dimensions of emerging technologies. The workshops create a space for dialogue that explores diverse perspectives, ensuring that participants gain a nuanced understanding of the ethical considerations associated with AI. This focus on responsibility and ethics contributes to the growth of informed and conscientious civic engagement among teenagers.

- **Accessible and inclusive design**: The methodology prioritised accessibility and inclusivity, ensuring that the fusion of AI and artistic practices catered to diverse audiences. This inclusive design aimed to break down barriers to engagement, making the workshops welcoming and relevant to teenagers with varied interests and backgrounds. The awareness of diversity ensures inclusivity, accommodating varying levels of AI experience among participants.