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Andrea Simoncini & Mario Biggeri

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Agency and the Role of International Regulation: Reconciling AI Technologies and Human Development

Andrea Simoncini[a] and Mario Biggeri[b]

[a]Department of Law, University of Florence, Florence, Italy; [b]Department of Economics and Management, University of Florence, Florence, Italy

ABSTRACT

One decisive action towards reconciling Artificial Inteligence (AI) and Human Development (HD) worldwide concerns the reorientation of directionality and the establishment of a set of principles for supranational regulations and coordination among countries. The objective of the paper is to reflect on which principles may guide politicians, policymakers, and practitioners in promoting the use of AI to foster Sustainable Human Development (SHD) and individual and collective agency and capabilities. We briefly outline the current policies and regulations used in three different economic and political models: the USA, China and Europe. Secondly, we present the cardinal points of the compass, based on the HD paradigm and the CA, to generate the basis on which principles are aimed at reconciling AI and HD. Then, we propose the five principles that could guide the international regulatory system "AI4HD" pentalog. A final remarks and policy implications section concludes.

KEYWORDS

AI technologies; human development; agency; international regulation; capability approach; China

Introduction

The impact of new technologies on society and Human Development (HD) is a well-known phenomenon (see the editorial and Leroi-Gourhan 1943; Castells 2009). Digital technology, because of its diffusion, has become a key factor in economic, social, environmental and cultural activities (Simoncini and Longo 2021). Indeed, a global scenario is emerging in which digital technologies, software and algorithm structures are continuously redefining the interactions between agents, activities, and human beings on the basis of the endless information flows, which inevitably affects sustainable and inclusive wellbeing and therefore, capabilities and HD.

So far, technology has always been generally considered morally and legally neutral: the technical tool is neither good nor bad but its nature dependson how

CONTACT Mario Biggeri mario.biggeri@unifi.it Via delle Pandette 9, 50129 Firenze, Italy

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the subject uses it. This perspective has been widely adopted by international agencies and institutions. This is true for all "instrumental" technologies. AI technology, however, is unprecedented for two reasons. The first reason is the non-instrumental nature of AI technology. AI systems are not only used to execute what humans have decided, but to decide by themselves. It is a decision-making technology designed to influence, guide, and condition personal and collective decisions at micro and macro levels. Second, the development of digital technologies is linked to three indispensable external factors: data (Zuboff 2019), computing power and digital infrastructure (as platforms, 5G and beyond). For the first time in history, these factors are now all (practically and exclusively) concentrated in the hands of private (large and for-profit) companies.

As described in the editorial of this policy forum, on the one hand, these dynamics have certainly produced positive effects, from a Capability approach (CA) and HD perspective, in terms of information sharing, creating new opportunities and increasing labour productivity (in terms of value added per hour) among many others. On the other hand, however, AI has generated negative consequences since wealth is distributed in a highly asymmetrical way, creating economic, social and power inequalities and affecting individual and collective decision-making processes often at the expense of human agency (active participation and responsibility related to the commitment to our own wellbeing and the wellbeing of others; Sen 1999). Another main point here is that in practice, if AI is controlled by big for-profit companies, this can create a concentration of power with potentially very negative consequences for HD and the environment. The fact that many of the services offered by these digital platforms are free should not be misleading; the reality is that whoever subscribes to these platforms is granting the ability to exploit each person's data and preferences.

As stated by Amartya Sen (1990) the problem arises because human beings are the agents, beneficiaries and adjudicators of progress, but they also happen to be – directly or indirectly – the primary means of all production and consumption (we can add in the case of AI). This triple role of human beings provides a rich ground for a confusion of ends and means in planning and policymaking.

> Indeed, it can – and frequently does – take the form of focusing on production and prosperity as the essence of progress, treating people as the means through which that productive progress is brought about (rather than seeing the lives of people as the ultimate concern and treating production and prosperity merely as means to those lives). Sen (1990, 41)

The risk is that humans are treated as mere consumers, objects to be exploited by big for-profit companies (much like natural resources), rather than recognised as subjects deserving the opportunity to flourish.

We have clearly reached a tipping point. As stated in the editorial, we should ask ourselves three basic questions (AI for who? AI for what? AI how?) that should guide how to evaluate, regulate and coordinate this transformation.

One decisive action towards to reconcile AI and HD worldwide isthe reorientation of directionality and the establishment of a set of principles for supranational regulations and coordination among countries.

The objective of this paper is to stimulate reflection on the principles required to guide politicians, policymakers, and practitioners for the use of AI to foster sustainable HD and, thus, individual and collective agency and capabilities.

Building on these considerations, the remainder of the paper first outlines the current policies and regulations used in three different economic and political models: the USA, China and Europe. Secondly, we present the cardinal points of the compass, based on the HD paradigm and the CA, to lay the foundation for principles aimed at reconciling AI and HD. Then, we propose the principles that could guide the international regulatory system. A final remark section concludes.

What is Emerging at the International Level in This Field?

Today there is no universal regulation of technology. It depends mainly on the political, economic and cultural context. In that regard, the global scenario can be simplified as having three main regulatory actors engaged in the AI development "race": the United States, China, and Europe. Two clarifications. First, this "three-players-game" is, obviously, a simplification, because, in reality, other players are emerging (among which India, South Korea and Singapore), but at this stage, they can still be considered second-tier players. Second, we will consider mainly "international regulation" considered as the set of formal acts – more or less binding, hard or soft law – that aim to regulate the production, marketing, and dissemination of AI systems. We will not consider the very large number of interventions – by individual states or international organisations – that today support, encourage or finance projects – individual or collective – aimed at promoting access to, or training or production of AI – especially focused on low-income countries.

The US approach, until the new Trump administration, has been fundamentally inspired by a free-market orientation (in particular under Lina Kahn's actions as FCC Chair) (Khan 2016); it has been originally committed to adapting classical antitrust theory and practices to the unprecedented nature of digital platforms (actors that are both market players and gatekeepers) (Petit 2020). With the advent of the Trump administration, the perspective seems to have dramatically changed. AI is seen mainly as a strategic asset to achieve American superiority in the global market. The doctrine of so-called "digital sovereignty", according to which the production and development of AI (mainly for military purposes) must essentially remain a domestic asset, is being strongly enforced (The White House 2025). However, the two periods have one thing in common, which is typical of the US approach to the issue

of (AI) regulation: avoiding as much as possible any international regulation – the current WTO discipline included - if the Trump Administration tariff policies will be confirmed as long-term options.

On the other side, we have the Chinese scenario. Artificial intelligence has been an important part of the expansive development of the Chinese economy over the past decade. Here, however, the growth of the tech industry takes place in the context of a highly centralised state with a very strong tendency toward surveillance. This means that, first and foremost, China has promoted "its own" national digital platforms (WeChat, Baidu, Tencent, TikTok, DeepSeek, …) following a strict "digital sovereignty" doctrine (Wu 2011). In many cases, it has blocked access to US-based platforms (e.g. Google, Facebook, Instagram, X …). From the perspective of our study's interest, the implementation of AI systems is heavily regulated by the Chinese Communist Party's system of political oversight (Yan 2024), which in many areas is a substitute for the state regulation. In the global scenario, paradoxically, the Chinese position is totally aligned with the American position, i.e. against any substantial forms of international regulation.

The third actor is Europe. The European Union and the Council of Europe – as international and supranational organisations – are today undoubtedly the world leaders in the field of international regulation of AI. On the one hand, we have the recent Council of Europe *Framework Convention on Artificial Intelligence and human rights, democracy and the rule of law*, the first-ever international legally binding treaty in this field. Opened for signature on 5 September 2024, it aims to ensure that activities within the lifecycle of artificial intelligence systems are fully consistent with human rights, democracy and the rule of law, while being conducive to technological progress and innovation. On the other side, we have the European Union and its regulatory activity inspired by the so-called "twin objectives" of fostering technological development and economic growth, on the one hand, and maintaining a high level of protection of fundamental rights, on the other. Following those objectives, the European Union has unleashed a true regulatory "tsunami", launching a significant number of new regulations that are critical for the technology sector: from the AI Act, which regulates all products that incorporate AI, to the Digital Services Act and the Digital Market Act, which regulate digital platforms; from the Data Act to the Data Governance Act, which establishes a public discipline for open data, to cybersecurity regulations.

All of these regulations, to be clear, do not have as their direct objective the protection of fundamental rights, but rather the facilitation of the creation of a single market while defending high standards of the rule of law and rights' protection. Much of this legislation follows the so-called "risk-based" approach (De Gregorio and Dunn 2022), where regulation aims to create a product-quality certification system that allows only certified technology to be marketed. European AI regulation has been deeply inspired by a set of principles highlighted in

2019 by an expert commission that approved a document called "*Ethics Guidelines for Trustworthy AI*" (European Commission 2019), officially presented by the European Commission in a Communication entitled "*Building Trust on Human-centric Artificial Intelligence*" on April 2019 [Brussels, 8.4.2019 COM(2019) 168 final]. The guidelines include a number of fundamental principles: Human agency and oversight, Technical Robustness and safety, Privacy and data governance, Transparency, Diversity, non-discrimination and fairness, Societal and environmental well-being and Accountability. The first one is "Human agency and oversight", providing that is *AI systems should empower human beings, allowing them to make informed decisions and fostering their fundamental rights.*

Today, of course, these models cannot be considered separate, "watertight" worlds, despite their very different attitudes toward international regulation and competition. There are a lot of "spillover" impacts of regulations. Consider the well-known "Brussels effect" (Bradford 2015) of European regulations or, more recently, the new "Washington effect" resulting from the Trump administration's new policies and, finally, think of the "Silk Road" project of the Chinese administration. This direct or indirect hard-law or soft-law interchange increases the need to identify general, global principles that should reconcile AI with HD and will guide the future development of these international actors' regulatory policies.

AI Technologies, Agency and HD

Nowadays, although with different models and intensity, we are somehow running after technological progress without fully understanding the meaning and the impact of these changes on our lives, on the life of the planet, and on our agency. We are just looking at increasing profits, economic-efficiency and economic productivity rather than Sustainable HD (Biggeri et al. 2023).

The distinction between goals and means is one of the most important messages of the CA and of the HD paradigm and, thus, the departing point of our reasoning.

The CA, linked to Aristotelian's vision of human flourishing, reveals that AI is an instrument and not a goal and brings into the debate the role of agency. In synthesis, we must reconcile the means – AI technological innovation – with the outcomes – HD for sustainable and just transitions. Therefore, how can we reverse the actual trends towards AI progress for HD?

In this paper, we argue that the compass for designing the principles to guide the regulatory systems (at different levels: international, national and local) can be inspired from the SPES framework (Biggeri et al. 2023) which combines into a"Sustainable" HD paradigm the five Ps or areas of action of the Agenda 2030 (People, Planet, Prosperity, Partnership and Peace) and five HD pillars, as well

the CA concept of agency.. According to the five pillars of the Human Development (HD) paradigm, the advancement and use of AI should: be equally accessible and generate benefits for all – (equity pillar, encompassing AI literacy, entitlement, and affordability); enhance and promote meaningful participation (participation pillar); support a quality environment (sustainability pillar); improve the efficient use of human and material resources to foster productivity, without conflicting with the other pillars (productivity pillar); and strengthen empowerment and solidarity (human security pillar) (UNDP 2022; Biggeri et al. 2023). Moreover, according to the CA, it is central to focus on human agency in the decision-making in development processes (Sen 1999). Individual agency and collective agency are central: they are linked to opportunity and process freedoms and competencies, as well as to critical and care thinking(Biggeri and Santi 2012). This "super" capability is central to driving human relations and progress (Crocker 2008) and, thus, to master technological innovation and AI in the development processes. More than any technological progress in the past, AI requires humans as capable agents in our society as well as capable communities (i.e. those who are not the sum of individual agents). According to the SPES framework, as in the Quintuple Helix Model, the agency progress for social innovation regards all five different actors/stakeholders (institutions/government, civil society, business, research/academia and nature).

Strengthening human agency in a human–machine ecosystem means enabling individuals and communities to play an active and meaningful role in shaping decisions: not as passive recipients, but as agents of change. It means empowering people – not machines (loyalty) – to make relevant decisions (affordability and inclusivity), aligned with their own values (fairness), and their reasons to value (explicability), in line with Sen's capability approach.

Therefore, given these cardinal points established above, the next step concerns identifying the principles that can induce the reorientation of international regulation to reconcile AI enhancement with Sustainable HD progress.

Five Principles for an AI Fostering HD: "AI4HD Penta log"

First of all, we believe that today there is an urgent global need for international regulation of AI. The only existing exception – the already mentioned Framework Convention of the Council of Europe on AI – is a quite weak international treaty, not fully binding in terms of legal force. Globally, international organisations have only developed general documents containing guidelines and recommendations for states, policymakers, and AI producers. These documents are not legally enforceable. One example is the 2019 OECD, *Recommendation of the Council on Artificial Intelligence* (OECD 2019). According to our knowledge, most of the guidelines and philosophical/ethical studies (including for

instance, Seth Lazar, Stuart Russell) emphasise, as do the OECD AI Principles (endorsed by the G7), three principles in AI deployment: transparency, accountability, and human rights protection (i.e. called privacy in some cases).

So the key question is: can international regulation reconcile AI enhancement with HD goals such as inclusiveness, public health and environmental protection?

As we have already seen, two out of three major global players today have economic and cultural approaches strongly opposing the very idea of international regulation. Some argue that AI regulation stifles innovation because it assumes risks that are currently unmeasurable and unclear. However, the precautionary principle must be applied to new emerging technologies in the field of environmental protection. According to Principle 15 of the Rio Declaration, "*lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation*". Therefore, the field of technology regulation, like that of environmental protection, should be governed by a precautionary approach. We believe that an international regulation directed at states, organisations, politicians, policy makers and practitioners for the use of AI to foster HD should be guided by the following five global principles.

Digital loyalty (or transparency). The first principle expresses the right to know whether we are interacting with a machine or a human. This issue is key in the future of deep and increasing daily interaction between machines and humans. Consider also the evolution of deep faking, which involves sensory reproduction and manipulation. We might increasingly interact with chatbots in job interviews or medical exams, believing them to be human due to their "anthropomorphic" interface. This is the first principle because it's a prerequisite for all others: we can only decide whether and how to relate to an AI system if we know it is an AI system. Only when we know that a decision is automated, we can apply the legal principles and rules that the system provides for this type of action. Here, the policy recommendation should aim to contrast AI-generated disinformation and misinformation, and to promote the adoption of watermarking or fingerprinting systems to guarantee the traceability and provenance of AI-generated content. For instance, the transparency principle (see also later the explicability point) could be translated into mandates for labelling AI-generated content and disclosing system origins (i.e. content provenance).

Inclusivity (or human-in-the-loop). The second principle is the "human minimum standard" in decision-making. It provides for the right not to be subjected to decisions made *exclusively* by AI systems. When an AI system produces effects that significantly affect a person, that person has the right to a decision that is not solely automated. In other words, a human must always be able to check, validate, or refute the automated decision. This is also known as the HITL (human-in-the-loop) principle, according to which it is

necessary for the machine to interact with the humans in order to produce its result. A last point should be added. A real "HD fostering AI", that truly respects the human inclusivity principle, should reject the so-called Artificial General Intelligence (AGI). We refer to the perspective (currently hypothetical but believed to be very close) of AGI – also known as "strong AI". This step in the evolution of AI would foresee a machine that can perform any intellectual task that a human can perform. This perspective should be firmly rejected – even on a legal basis – because the explicit goal of this technological system is to develop its own agency, depriving human users of it. There is a direct contrast between an idea of HD based on capabilities and agency, and one based on the disabling of these qualities (see also UNDP 2025, Chapter 6). From a policy perspective, this means contrasting AI substitution to human agency and promoting collaborative AI and HITL. It should also be noticed that, while AGI remains today hypothetical, industrial R&D should positively focus on AI developments that can improve human capabilities through human inclusion and augmentation (e.g. small language models – SLMs – that can operate more efficiently in developing contexts where access to internet is limited) (UNDP 2025).

Explicability (or understandability). If an AI system significantly affects a person, that person has the right to understand the reasons behind its decisions. Today, AI systems often behave like black box systems. They don't follow logical connection principles on a deterministic basis, but rather rely on statistical correlation. This makes impossible to understand the results of their processing and makes all these decisions not only incomprehensible, but also unjustifiable. AI systems that want to promote Sustainable HD must only use algorithms that are explicable in socially relevant decisions. The policy implications in this case are linked to contrasting black box algorithmic systems and promote XAI (explainable AI) with solutions that enhance the traditional labelling (as mentioned before).

Fairness (or non-discrimination). The right not to be subjected to decisions made by AI systems trained on incomplete, biased, or discriminatory data. Today, the most powerful and widely used algorithms are produced by so-called "machine learning" systems. These methods rely on data given to machines as examples to infer processing and evaluation. Data sets often incorporate bias from their economic, social, and cultural contexts. These biases can replicate inequalities, discrimination, and asymmetries that alter and distort results, in addition to causing environmental damage via energy consumption. The point here is to contrast discriminatory and biased algorithmic decision-making and promote AI based on proportional and "fair" datasets.

Entitlement (or Affordability). This principle upholds the right to be conscious and self-determined users of these new technologies. AI systems are designed to support and, in many cases, replace human activities. If these systems are to promote agency and "capabilities", they must be directed by

human agents; otherwise, humans will be passive and disempowered. We need to be aware that the key feature of these new technologies is their *persuasive* power. As Acemoglu and Johnson (2023) have correctly pointed out:

> One might think that power ultimately depends exclusively on coercion. It is not entirely accurate (…) modern society revolves around the power of *persuasion* (…) those who ask the questions, those who set the priorities, those who include or exclude certain options, have a formidable power to shape public debate and to persuade other people. Humans have an impressive ability to use collective knowledge, which is why technology is so important to society.

Finally, a useful indicator and measure of the principle of entitlement is *participation* (intended as the exercise of individual and collective agency). This also means to contrasting AGI and promoting digital capability building and agency.

Although today we see different models of regulation competing with each other and inspired by different philosophies and cultures (as described above) we are convinced that a global consensus can and should be basedon these five principles. These values are broad and general, which means that they can be applied and adapted in ways consistent with each model. They also facilitate dialogue and collaboration between cultures, rather than just competitive clashes.

Final Remarks and Policy Implications

Although we are aware that the next steps remain difficult to sketch and implement given the uncertainty and challenging scenario in front of us, reconciling AI technological innovation with sustainable and just transitions is nowadays a must.

It is often claimed that technology and globalisation are something "given" that we, as human beings, cannot influence: technology is exogenous/neutral and, hence, technological innovation shapes the economy and society independently from our willingness and aspirations. This is a false narrative, and it is not the CA and HD agency-oriented perspective. We, as humans, have a role to play today and for the future of the people and the planet.

Clearly, AI can enhance our capabilities but there can be huge risks given the power relations in place. The main risk is AI without regulation mainly serving for profit companies and military purposes with a potential progressive marginalisation of entire social groups. This may result in a concentration of power and wealth at the top and the exclusion of millions of people from the possibility of changing their situation, leading to deep socio-economic imbalances.

Therefore, to devise a common path, a global agenda for multilevel regulation systems (including countries and local systems levels) must be rapidly set and implemented. The five principles presented in this paper may represent the starting point of this agenda, having the potential to give direction for "AI4HD" Penta log, expanding individual and collective capabilities and agency.

However, given the ongoing international discussions[1] and in order to provide a practical anchor for the five proposed principles, a possibility is given by the creation of a Global AI Governance Compact or a Multilateral Forum on AI and Human Development. Moreover, given the different systems at the national level and the internationaltensions, Top-down and Bottom-up processes need to be implemented in acombined manner in order to be more effective. In other words, the application of these principles cannot depend solely on reaching a consensus on a global regulatory framework. Indeed, at the same time it is relevant to consider international regulation as an evolving combination of national and cross-national norms. The proposed principles can be meaningfully discussed and implemented in a variety of contexts.

Indeed, regardless of the underlying regulatory orientation, whether biased toward markets (US), rights (EU), or the state (China), there is room for improvement through the application of these five principles rooted in the CA and HD.

Note

1. Such as the United Nations Global Digital Compact and the latest 2025 Human Development Report's main premises (i.e., building a complementarity economy, innovation with intent and human capabilities that count) (UNDP 2025).

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No potential conflict of interest was reported by the author(s).

Notes on contributors

Andrea Simoncini is full professor at the Law Department of the Florence University where he teaches Constitutional Law and Constitutional Law of Technology. He served as Director of the Department of Legal Sciences, clerked at the Italian Constitution Court and is currently adjunct professor at the Notre Dame Law School. He is currently PI of Cyberights a National Research centre on Rights Protection in the Cyberspace. Simoncini's main research interests are currently focused on Italian and global constitutional law, law and technology, the regulation of artificial intelligence and cybersecurity. andrea.simonciniunifi.it.

Mario Biggeri is Full Professor of Applied Economics at the Department of Economics and Management (University of Florence) and Scientific Director of ARCO (Action Research for CO-development). He is Fellow of the Human Development and Capability Association and Editor of the Policy Forum of this Journal. In particular, he has worked on the wellbeing and agency of children and persons with disabilities and a Centred-Care approach based on the Project of Life. He is scientific coordinator of the EU project SPES – Sustainability Evidence, Performance and Scenarios – . He is the author and/or co-author of more than twenty books and has published numerous articles in prestigious international academic journals. mario.biggeriunifi.it.

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