

Agency for Sustainable Development

Shaping Our Future in a Transforming World

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Executive Summary

“Agency is perhaps what truly distinguishes what is alive from what is not”. – Philip Ball (2023)

Agency is an integral part of human development. It is the ability to hold values, make commitments and choices that may—or may not—advance the person’s wellbeing (UNDP, 2022, p. 114). While thus far the focus of development efforts has been on material wellbeing achievements such as the standard of living, agency remains an important yet relatively understudied aspect of human development. HDR 2021-22 notes a need to bridge this gap for two key reasons. At the individual level, a sense of personal agency has been identified as a key marker of healthy psychology (Conti, 2022) and hence focusing on material wellbeing alone implies leaving major aspects of life that matter to people outside the scope of policymaking. At the collective level, agency is necessary to navigate today’s uncertain times with a societal transformation (Folke et al., 2021; Otto et al., 2020). HDR 2021-22 notes, “Recognizing agency affirms people not only as the subject of wellbeing- or welfare-enhancing policies (though these are important) but also as active promoters and catalysts of social and economic change—beyond their own narrow self-interest.” (UNDP, 2022, p. 114).

In this report, we begin with a short review of the Capabilities Approach (CA) which defines human development as the expansion of real freedom that people may exercise and considers agency as a process aspect of freedom vis-à-vis capabilities that are an opportunity aspect of freedom. This distinction is further clarified by describing a dynamic between capabilities, affordances (e.g., resources and technological tools), and agency. While the CA emerged from more individual-centric approach, it has been extended to the collective level. We adopt an existing literature-informed definition of collective agency as a capacity of groups to define common goals and their actions in pursuit of chosen goals. The evolution of global collective agency is one of the prerequisites for navigating the Anthropocene.

With this CA-informed context, we investigate the ontology of agency as a temporal process. This takes us beyond defining agency as self-centric choices in the present. Choice-making without critical appraisal of underlying rationale restricts agency to its iterative element, solely driven by instinctual or societal influences. Choosing a reason for making choices involves projective and practical-evaluative elements i.e. our capacity to “think, assess, evaluate, resolve, inspire, agitate, and, through these means, reshape the world” (Sen, 2013). This constitutes a much more comprehensive framework for human agency. It includes our capacity for behavioural changes needed for sustainability transformation as identified by IPCC and other scientific assessments. Furthermore, this vision of humankind “not as patients whose interests have to be looked after, but as agents who can do effective things” (Sen, 2013) is also essential for navigating digital transformation and other technological disruptions.

With these foundations, we formulate a typology of human agency to encapsulate different dimensions:

- Primary agency: a process of pursuing basic needs for survival and nutritional sustenance.
- Economic agency: a process of pursuing material wants in addition to essential needs (primary agency).
- Socio-political agency: a process of affecting social-political circumstances, including self-determination of personal life choices and participation in societal decision-making.
- Sustainable agency: a process of influencing intentionally and positively, wellbeing of others (including future generations and non-human life forms), beyond self-centric wants.

We elaborate a dynamic among these different dimensions of agency connecting it also to affordances (material resources and technologies) and capabilities (e.g., education, physical health), emphasizing the ultimate dependence of human agency on the biophysical substrate (e.g., stable earth systems, clean air, mineral resources). This implies a need to voluntarily align our economic agency with sustainable agency while simultaneously safeguarding primary and socio-political agency. This typology is our original contribution.

Furthermore, we provide a review of existing indicators that aspire to measure the process aspect of freedom and make some tentative proposals for measuring dimensions of human agency vis-à-vis our typology. We note that while material agency, i.e., primary agency and economic agency, are much more tangible and hence easier to measure, the measurement of non-material agency, i.e., socio-economic agency and sustainable agency, is much more challenging. Rather than collapsing different dimensions into a single indicator, we recommend a visual illustration that combines quantitative outcomes with qualitative representation. We also propose possible states or clusters of agency: 1. Transformative agency; 2. Indigenous agency; 3. Malfunctional agency; and 4. Disenfranchised and impoverished agency. Substantial challenges and further research gaps remain, especially when it comes to measurement, but one message is clear: we need to enhance sustainable agency for the sustenance of human development.

Literature Review

Re-cap of Capabilities Approach

The capabilities approach, a framework developed by Nobel laureate Amartya Sen and further refined by Martha Nussbaum and others, forms a basis of development and welfare economics. Departing from traditional welfare economics that focuses solely on material resources, the capabilities approach broadens the scope by emphasizing people's substantive freedoms to lead lives they value. The capabilities approach has influenced international development agendas and policy frameworks. It provides a basis for evaluating the impact of social and economic policies. It emphasises the importance of valuing and enhancing human dignity as a matter of justice (Sen, 1985). Consequently, freedom is a central concern in Sen's conception of development. Sen describes human development as a process of expanding real freedom that people may exercise in accordance with their inclinations and values. (Sen, 2001). He makes a distinction between two fundamental pillars of human freedom: capabilities and agency (Figure 1). He formulates capabilities as an opportunity aspect of freedom and agency as a process aspect of freedom. Capabilities refer to the real opportunities that individuals have to lead a life they value. This includes education, social relations, and physical health. The capability set depends on the person's access to resources ("affordances") and "their conversion factors", defined below (Pelenc et al., 2015).

Agency refers to the process of making choices, decisions, and an ability to act on those choices. This framing emphasizes that human development should not be judged solely by their material wellbeing but also by their freedom and ability to pursue the life they desire. The Capabilities Approach contends that true empowerment lies not just in providing resources but in enhancing people's capabilities to shape their own lives. It perceives agency as the effective exercise of capabilities, emphasizing the freedom to pursue valuable functionings (Evans, 2002; Sen, 2001). The normative aim of human development in the CA framework can be encapsulated as enhancing individuals' capabilities by enabling them to exercise their agency (Pelenc et al., 2015).

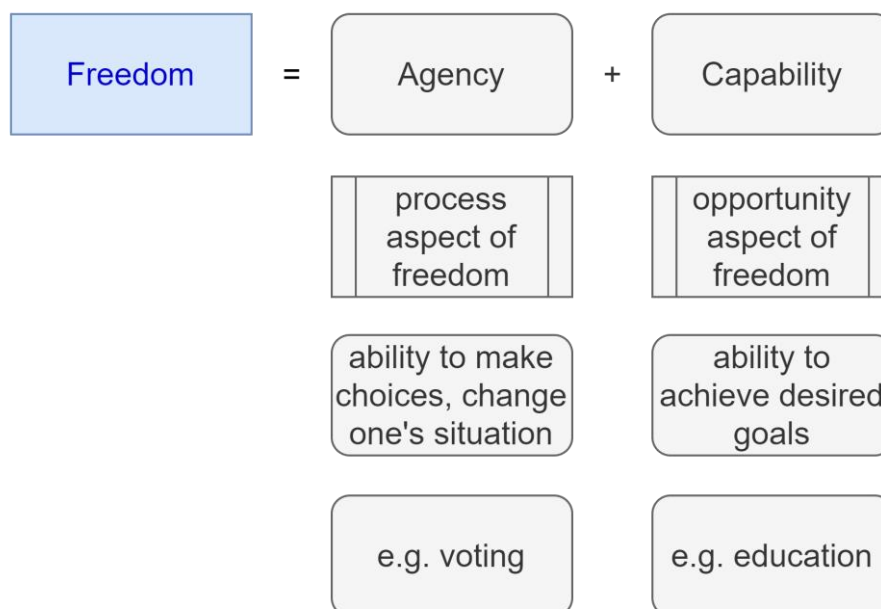


Figure 1: Review of Capabilities Approach (Source: Authors' elaborations).

Key Concepts

In this section, we outline some key concepts from the literature that we will use later in the report to further develop the agency framework.

Empowerment refers to a process of consciously increasing human agency (Imbrahim & Alkire, 2007). This definition encompasses the institutional environment that offers people the opportunity to exercise their agency successfully. It is culturally grounded and applies at the different levels of aggregation (Samman & Santos, 2009). This concept is most often used in context of poverty alleviation and women's empowerment (Alkire, 2005). According to Pelenc et al. (2015), "people are durably empowered when they exercise enhanced decision-making and can influence strategic life-choices and overcome barriers to agency and well-being freedom". As a catalyst for social change, empowerment fuels the transformation of societies by recognizing and harnessing the untapped potential within each person.

Conversion Factors, the concept introduced by Sen, refers to personal, social, and environmental conditions that affect an individual's ability to convert resources into functionings and capabilities. These factors include social, political/institutional, cultural, economic contexts (public infrastructures, public policies, institutions, markets, social and religious norms and customs, discriminating practices, gender roles, societal hierarchies, power relationships, etc.), organizational skills (for collective actors), health and psychological conditions, personal skills, gender, disability, etc. (Pelenc et al., 2015; Sen, 1985). They play a pivotal role in translating resources into valuable functionings and capabilities. Conversion factors bridge the gap between resources and actual well-being, recognizing that the same resources may result in different outcomes for individuals based on personal circumstances, social structures, and environmental factors.

Affordances refers to the inherent possibilities for action that an environment or object offers to an individual, the concept introduced by James Gibson in the field of ecological psychology. This concept emphasizes the reciprocal relationship between an organism's abilities and the features of its surroundings. Affordances influence how individuals perceive and engage with their surroundings (Roli et al., 2022). Affordances are not limited to material attributes but extend to cognitive and social aspects of the environment. For instance, a chair affords sitting (material attribute), and a smartphone affords communication and information access (cognitive and social aspects of the environment). In the context of human development and human agency, we include physical resources, stable earth systems, and technologies in the category of affordances.

Dynamic among agency, capabilities, and affordances

Dynamic between the concepts of capabilities, agency, empowerment, and affordances, as distinct but interdependent pillars of human development is depicted in Figure 2.

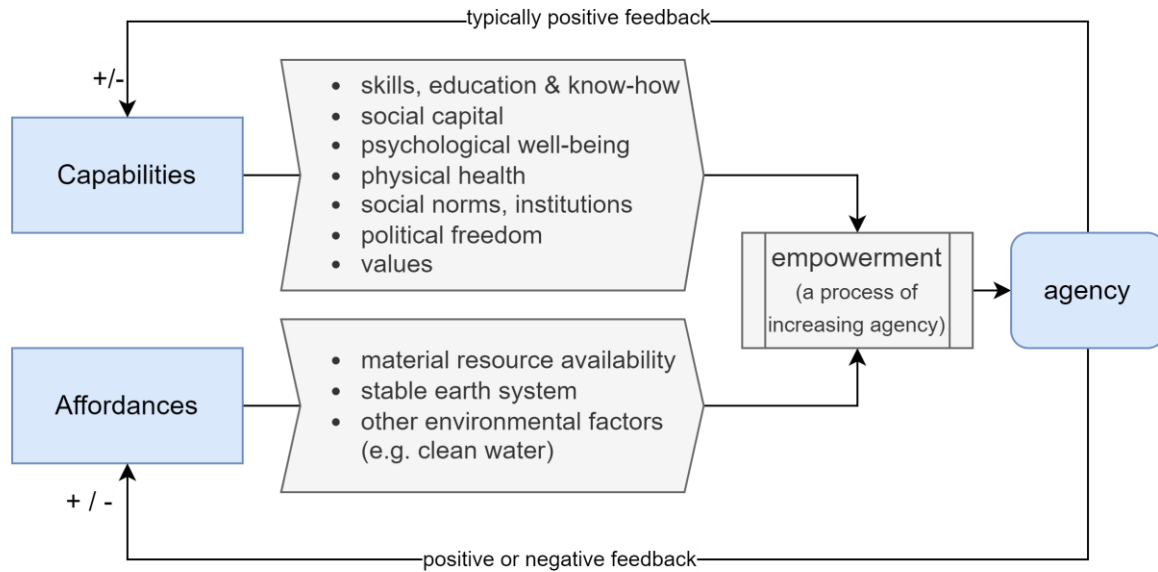


Figure 2: A dynamic feedback loop among agency, capabilities, empowerment, and affordances. Source: Authors' elaboration informed by inputs from (Pelenc et al. 2015).

Figure 2 illustrates that human agency emerges from a combination of capabilities and affordances through a process of empowerment. We have added examples of 'parameters' derived from Pelenc et. al (2015) that influence the agency of an individual or collective agent. These parameters include resources (All kinds of goods and services that are of interest to people, e.g., commodities, income, tools, manufactured and financial capital, loans and time), conversion factors (e.g., health and psychological conditions, personal skills, gender, disability, Social, political/institutional, cultural, economic contexts etc), values etc. and are categorised into capabilities and affordances. According to Alkire (2008), the normative goal of human development can be subsumed to the improvement of people's capabilities through the exercise of their agency. With an inclusion of affordances, we explicitly add the material resource dimension of human development, which is a prerequisite for both capabilities and agency.

Capabilities and affordances are in turn affected by the exercise of human agency. The increased agency has a typically positive effect on capabilities. We would like to also highlight a less studied aspect of the relationship between affordances and agency, even though it is acknowledged that "the core component of agency concerns how people can activate the resources that exist in their social and physical environment" (Cavazzoni et al., 2022, p. 1149). An increased agency may lead to resource depletion, pollution, or destabilisation in the earth system. This is particularly relevant for the Anthropocene context (Creutzig et al., 2022; Folke et al., 2021). Enhanced agency may also enhance affordances, for example, with an agency to care for an environment (as elaborated in the subsequent sections).

The notion of Collective Agency and its evolution in the literature

"Theorizing and research on human agency has been essentially confined to personal agency exercised individually" (Bandura, 2001, p. 13). The CA approach remains more concerned about individual freedoms but according to Sen, (individual) agency includes the ability to pursue goals beyond narrow self-concern (Pelenc et al., 2015; Sen, 2013). According to Pelenc et al. (2015, p. 227), the concept of agency does not simply refer to the capacity to act in order to achieve individualistic goals. It includes a process of achieving collective goals, such as the sustainable development of a community. They define collective agency as a capacity of groups to define common goals and their actions in pursuit of chosen goals. This is distinct from

collective action, which is restricted to acting in pursuit of common goals but does not include an ability to define common goals (Pelenc et al., 2015). Manifestations of collective agency are mainly determined by prevailing communal values and social structures. They do not follow by default from individual agencies (Evans, 2002). “Group attainments are the product not only of the shared intentions, knowledge, and skills of its members, but also of the interactive, coordinated, and synergistic dynamics of their transactions” (Bandura, 2001). Social interactions, public spaces, discussions, and leadership play an important role in this regard (Levin, 2010; Pelenc et al., 2015). Pelenc et al. (2015) define collective capabilities as the real opportunities available to a group of interacting people to achieve a set of functionings that are defined collectively as valuable. They illustrate interactions between the individual and collective levels of agency and capabilities in the following figure.

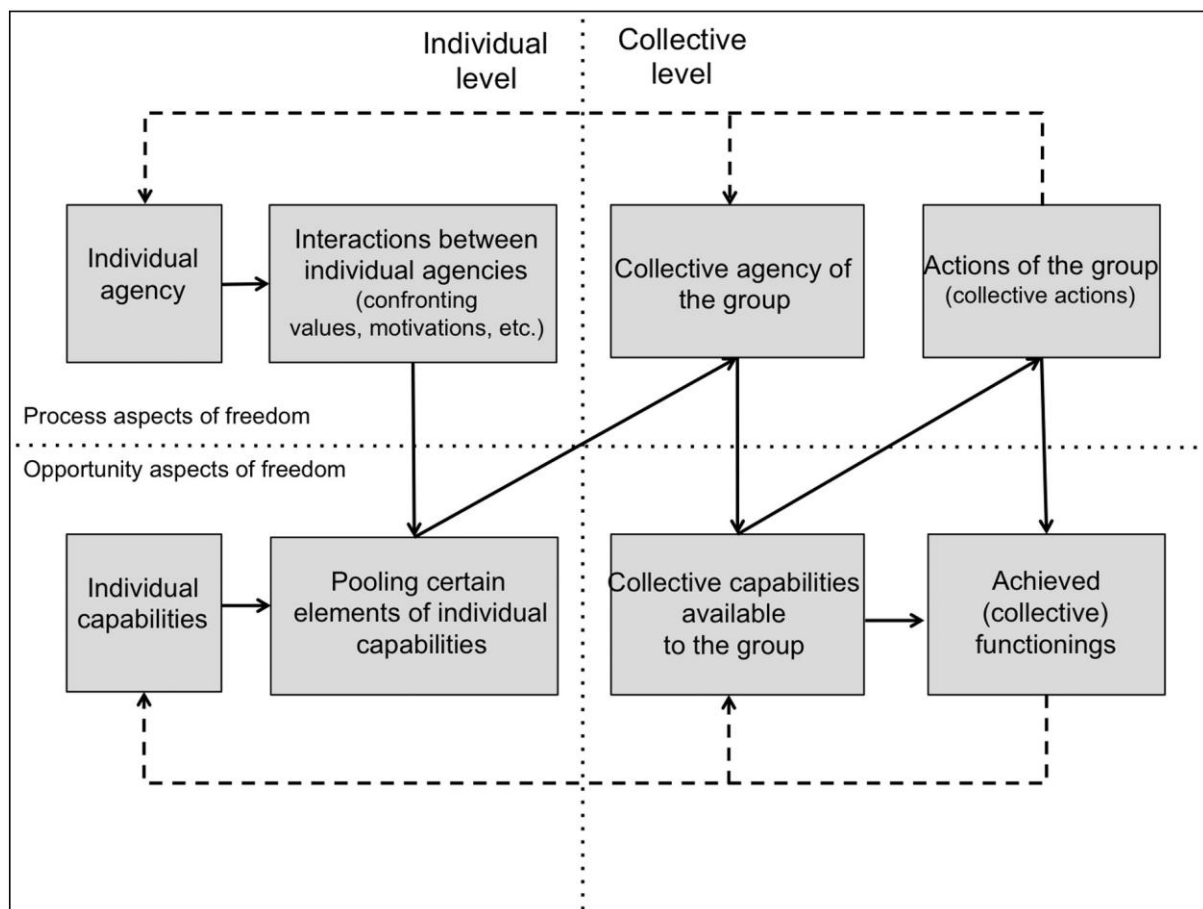


Figure 3: A diagram conceptualizing interactions between the individual and collective levels in the CA approach. Source: Pelenc et al. (2015)

The evolution of collective agency and capacities involves both tangible material and intangible basis. The ‘intangible’ part emerges from interactions among individual agencies, leading to shared goals and representations. The group then combines individual resources and skills, forming the tangible material basis for collective agency and capabilities. Through collective action, the group achieves these capabilities, resulting in specific functionings. Feedback loops between collective action and agency indicate that success or failure in collective actions can impact both collective and individual agency (Pelenc et al., 2015). This dynamic framework underscores the interconnected nature of agency, capabilities, and outcomes: improvements in individual and collective agency can mutually reinforce each other. Exercise of agency is thus intrinsically linked to the broader context of social structures.

In some cases, collective agency may restrict individual agency and vice versa. Collective agency requires alignment and cooperation within a group whereas individual agency may be associated with competition. An analogy can be drawn from nature where “Two conflicting tendencies can be seen throughout the biological world: individuality and collective behaviour. Natural selection operates on differences among individuals, rewarding those who perform better. Nonetheless, even within this milieu, cooperation arises, and the repeated emergence of multicellularity is the most striking example. The same tendencies are played out at higher levels, as individuals cooperate in groups, which compete with other such groups. Many of our environmental and other global problems can be traced to such conflicts, and to the unwillingness of individual agents to take account of the greater good. One of the great challenges in achieving sustainability will be in understanding the basis of cooperation, and in taking multicellularity to yet a higher level, finding the pathways to the level of cooperation that is the only hope for the preservation of the planet” (Levin, 2010, p. 13). Using game theory, Martin Nowak identifies five mechanisms underlying the evolution of cooperation and collective agency in humans and other species: kin selection, direct reciprocity, indirect reciprocity, network reciprocity, and group selection (Nowak, 2006). Application of these mechanisms and insights toward harnessing a global collective agency for navigating the Anthropocene remains one of the key challenges of our era.

Ontology of agency: a temporal choice-making process

At its core, human agency reflects the power of individuals and societies to exert influence over their lives, fostering a sense of empowerment and autonomy. The exploration of human agency delves into the profound question of what it means to be an agent navigating complexities of the world we dwell in. Emirbayer and Mische (1998, p. 962) note that agency is a process that is:

- informed by the past (in its habitual aspect)
- but also oriented toward the future (as a “projective” capacity to imagine alternative possibilities) and
- toward the present (as a “practical-evaluative” capacity to contextualize past habits and future projects within the contingencies of the moment).

With an integration of this temporal aspect, agency cannot be reduced to the ability to fulfil narrow self-interests and rational choices in the present. Instead, the *sine qua non* of our agency as a temporal process, renders it as a part of an infinite regress of reasons and decisions, whereby we never arrive at any real point of the ultimate freedom (Williams et al., 2021). Furthermore, for a decision to qualify as a choice, there must be compelling reasons that outweigh alternative considerations. However, as the reasons for a particular choice become increasingly compelling, the concept of a truly autonomous and free choice diminishes. Thus, we are forced to move beyond the notion of rational self, its ability to choose for itself, and impose its will on the world, as the foundation of our agency (Williams et al., 2021). A more holistic conception of agency must be based at the level of choosing a reason rather than choices based on a reason. In the classical Greek conception, agency is associated with the active power of self-direction, “centred on the acquisition and incorporation of truth and virtue in pursuit of the improvement or even perfection” (Williams et al., 2021). In this sense, agency has even been described as an effort, the force that achieves a Kantian categorical imperative (Emirbayer & Mische, 1998, p. 965) with three distinct elements:

1. “*The iterative element*: the selective reactivation by actors of the past patterns of thought and action, as routinely incorporated in practical activity, thereby giving stability and order to social universes and helping to sustain identities, interactions, and institutions over time.

2. *The projective element*: the imaginative generation by actors of possible future trajectories of action, in which received structures of thought and action may be creatively reconfigured in relation to actors' hopes, fears, and desires for the future.
3. *The practical-evaluative element*: the capacity of actors to make practical and normative judgments among alternative possible trajectories of action, in response to the emerging demands, dilemmas, and ambiguities of presently evolving situations".

All three of these indispensable dimensions of human agency are present, in varying degrees, within any concrete action (Emirbayer & Mische, 1998, p. 971).

Agency is crucially an ability to define and not just act upon some exogenous goals. The human mind is generative, creative, proactive, and reflective, not just reactive. Intentionality, forethought, self-regulation by self-reactive influence, and self-reflectiveness" are the core features of human agency (Bandura, 2001). Humans possess a capacity for reflection and engage in rational deliberation to determine their preferences and outcomes, rather than being solely driven by instinctual or societal influences (Sen, 2013).

Agency for human development in the Anthropocene

Relevance and implications for the Anthropocene polycrisis

A more holistic understanding of agency to include an ability to critically reflect on one's choices as opposed to being limited to pursuing short-term material wellbeing, as outlined in the ontology section is not just a philosophical ideal but an essential pre-requisite to navigate the Anthropocene polycrisis, in particular challenges of sustainability and digitalisation as outlined below.

"Whether humanity has the collective wisdom to navigate the Anthropocene to sustain a liveable biosphere for people and civilizations, as well as for the rest of life with which we share the planet, is the most formidable challenge facing humanity" (Folke et al., 2021, p. 834). Despite numerous scientific warnings, , decades of insufficient action to curtail human impacts on the resilience of ecosystems have increased the likelihood of irreversible tipping points in the Earth systems (Lenton et al., 2019; Patil et al., 2022; Ripple et al., 2023). "Decades of choosing to fail on mitigation have shifted the climate challenge from a technocratic adjustment to business as usual to requiring a rapid, system-level change within both industrialized and industrializing societies" (Stoddard et al., 2021). A more expansive view of human agency that captures individual's ability to contribute to transformations both by changing behaviour and by influencing structures and systems is essential (O'Brien, 2015). In this sense, we need a transformative agency rather than business-as-usual assumptions about human agency.

Modern technologies, while often heralded for enabling human agency, can paradoxically restrict it in various ways (e.g., car dependence in some neighbourhoods, social media addiction). As technology becomes increasingly more influential, it is crucial to balance its benefits with safeguarding human autonomy. According to Haff (2014), the Technosphere represents a new stage in the geologic evolution of the Earth. It "includes the world's large-scale energy and resource extraction systems, power generation and transmission systems, communication, transportation, financial and other networks, governments and bureaucracies, cities, factories, farms and myriad other 'built' systems, as well as all the parts of these systems, including computers, windows, tractors, office memos and humans" (Haff, 2014, p. 2). This emergent 'Technosphere' operates according to a quasi-autonomous dynamic that limits key aspects of human agency. "Emphasis shifts from focusing only on the human side of the

equation to a consideration of the demands of the Technosphere itself” (Haff, 2014, p. 2). This echoes Martin Heidegger’s prescient warning that modern technologies are seductively effective as an instrument but they render everything, including “human resources” as a standing reserve for exploitation (Heidegger, 1954). Current trajectories suggest a contribution of digitalization to further planetary destabilization (Creutzig et al., 2022).

Philosopher of science Jürgen Renn asks, “what assessment of the role of humanity within the Earth system would do justice to this insight into the fragility of our existence and that of the technological shell we have constructed for ourselves?” (Renn, 2020, p. 378) In response, he introduces the concept of “Ergosphere”. “While the Technosphere concept stresses that most humans lack the potential to influence the behaviour of large technological systems, the Ergosphere concept makes this possibility dependent on the existence of appropriate social and political structures and knowledge systems, and also on the individual perspectives of human actors” (Renn, 2020, pp. 378–379). AI safety researcher, Mustafa Suleyman and technology ethicist Tristan Harris note, “in the history of our species so far, progress has been a function of what we do. Progress has never been a function of what we say no to. And now the strange reality is that we actually need to learn when and how to say no, collectively” (CHT, 2023). Amartya Sen, in his Keynote Address at the International Conference on ‘Transition to Sustainability’, noted, “We need a vision of [hu]mankind not as patients whose interests have to be looked after, but as agents who can do effective things—both individually and jointly [...] we also have to go beyond the role of human beings specifically as ‘consumers’ or as ‘people with needs’, and consider, more broadly, their general role as agents of change who can—given the opportunity—think, assess, evaluate, resolve, inspire, agitate, and, through these means, reshape the world” (Sen, 2013, p. 7).

With these foundations, we proceed in the subsequent sections to synthesize concrete proposals for categorizing and possibly measuring human agency.

Synthesis: Different Types of Agency

Building up on the insights from the previous sections, we identify the following types of agency:

Primary agency: a process of pursuing basic needs for survival and nutritional sustenance. It is an essential pre-requisite for further empowerment and exercising other types of agency. Under the conditions of famine, hunger, extreme poverty, forced displacement, wars, natural disasters etc. this agency is severely depleted. The primary agency focuses on the process of achieving materialistic ends. It is individualistic, i.e., centred on catering to one’s own and direct dependents’ survival needs (including security); and satiable, i.e., limited in the quantity of resources utilised.

Economic agency: a process of pursuing material wants in addition to essential needs (primary agency). Examples include mobility, getting access to consumer goods and services, etc. Again, the economic agency is materialistic and depends directly on affordances; individualistic, i.e., centred on catering to one’s own and direct dependents’ needs; and insatiable, i.e., potentially unlimited in the quantity of resources utilised. Economic agency is very unevenly distributed.

Socio-political agency: an agency to affect social-political circumstances. This includes self-determination of one’s life course (e.g., career choice), participation in societal decision-making, pursuing social status, ease of doing business etc. The socio-political agency is not intrinsically materialistic in its ends: it depends on natural resources as means but does not

imply a direct proportionality between affordances utilised and the socio-political agency exercised. Its expression tends to be embedded in the social context i.e., in relation with others.

Type	Definition	Feature	Example
Primary agency	Agency to pursue essential needs for survival and nutritional sustenance	Material ends, self-centric security-oriented, and satiable (limited)	basic provisioning (food, water, shelter) and safety
Economic agency	Agency to pursue material wants	Material ends, self-centric, and insatiable (unlimited)	e.g., consumption of energy and resources
Socio-political agency	Agency to affect social-political circumstances	Non-material ends and socially embedded	e.g., self-determination, participatory democracy, ease of doing business, social status & influence
Sustainable agency	Agency to influence intentionally and positively, the wellbeing of others (including future generations and non-human life forms), beyond self-centric wants	Non-material ends and socially embedded	e.g., voluntary limits on consumption with low-carbon lifestyles

Table 1: Types of agency. Source: Authors' elaborations.

Sustainable agency: an agency to influence intentionally and positively, the wellbeing of others (including future generations and non-human life forms), beyond self-centric wants. This includes consideration for future generations, human and non-human life forms. Sustainable agency is not intrinsically materialistic in its ends: it depends on affordances (e.g., natural resources) as means but does not imply a direct proportionality with resource utilisation. To the contrary, it may be typically associated with voluntary self-constraints on the exploitation of resources. In this sense, it may be considered post-material or non-material in its ends. Its expression tends to be embedded in the social context.

Primary agency may be considered a subset of economic agency and sustainable agency may be considered a subset of socio-political agency as depicted in Figure 4 below.

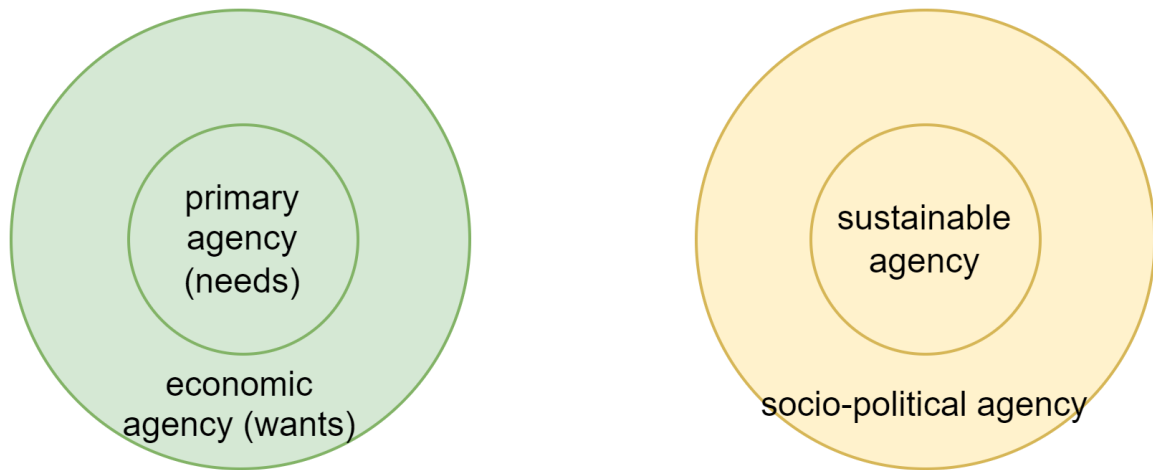


Figure 4: Subordinate relation between agency types. Source: Authors' elaborations.

While the primary agency is a foundational pre-requisite (ex-ante) of economic agency, the sustainable agency is better understood as a possible offshoot (ex-post) of socio-political agency. Human agency is ultimately a function of affordances, but primary and economic agency are causally linked to affordances with direct material basis and material ends (e.g., consumer goods, food). In this sense, the primary and economic agency can be grouped as a material agency. Socio-political agency and its subset, sustainable agency require material affordances as means but not as an end in itself. For example, socio-political agency may imply control over resources as a means to gain political power as an end goal. Socio-political agency thus gained, may be translated into economic agency, in this sense they are linked and interdependent yet distinct in terms of their ends. These relations are depicted in the Figure 5 below.

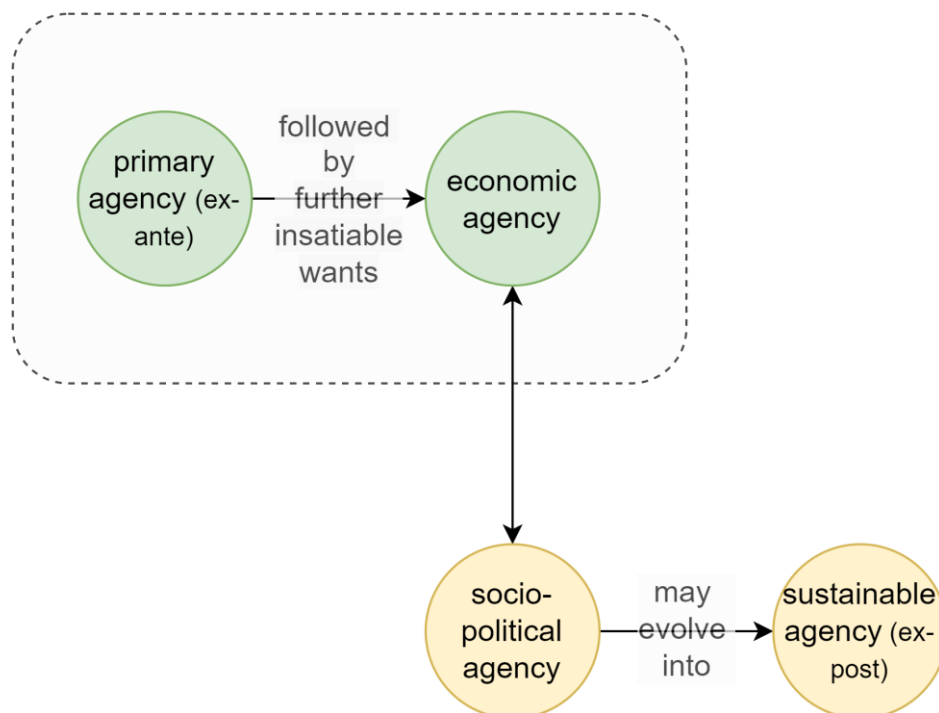


Figure 5: interactions among different types of agency. Source: Authors' elaborations.

As an extension of Figure 5, we highlight the crucial role of affordances in the enhanced Figure 6. We depict the dependence of material agency on affordances and draw a link depicting the presence of feedback from economic agency toward affordances. This feedback includes resource depletion and change in the Earth systems manifested in the triple planetary crisis of pollution, loss of biodiversity, and climate change (Folke et al., 2021; Ripple et al., 2023). In contrast, technological innovation unleashed by economic agency may be a positive influence (e.g., new tools and an ability to extract new resources and thus generate novel affordances). We also depict how sustainable agency implies alignment with a realistic assessment of affordances and voluntary constraints on economic agency as appropriate (e.g., demand-side solutions for climate mitigation identified by IPCC and other scientific assessments).

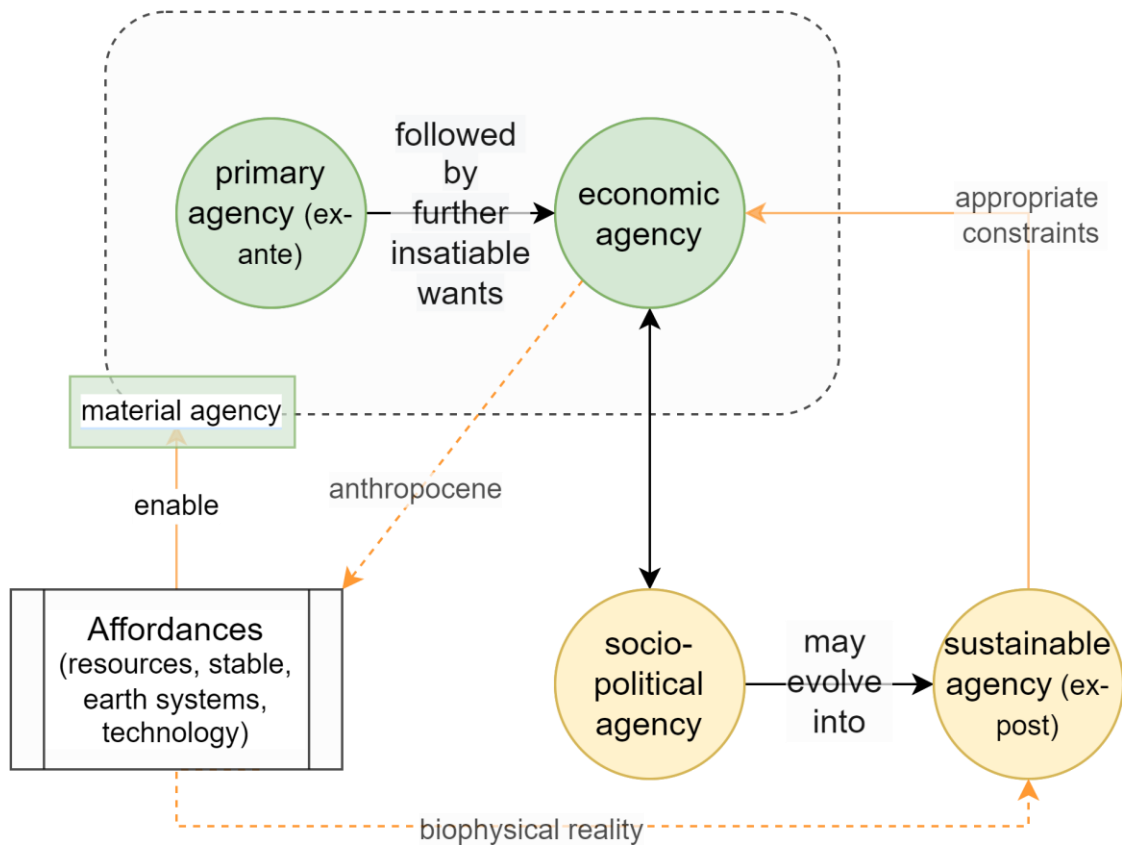


Figure 6: Evolution of agency and affordances. Source: Authors' elaborations.

Following the Capabilities Approach, we have conceptualised agency as a process aspect of human development. Sustainable Development goals are globally agreed benchmarks and represent an international consensus on aspiring inclusive development. We therefore find it pertinent to link our typology of agency and the SDGs. In Table 2, we relate specific types of agency with specific sustainable development goals. We find that all SDGs are covered in our typology. SDG 7 (affordable and clean energy) is covered twice by primary as well as economic agency, while SDG 4 (Quality Education), 11 (Sustainable cities and communities), and 16 (Peace, Justice and strong institutions) are covered by socio-political agency as well as sustainable agency.

Type	Definition	Correspondence with SDGs
Primary agency	Agency to pursue essential needs for survival	1. No poverty 2. Zero Hunger 3. Good health and well-being 6. Clean water and sanitation 7. Affordable and clean energy
Economic agency	Agency to pursue material wants (insatiable)	7. Affordable and clean energy 8. Decent work and economic growth 9. Industry, Innovation and Infrastructure
Socio-political agency	Agency to affect social-political circumstances	4. Quality Education 5. Gender Equality 10. Reduced Inequalities 11. Sustainable cities and communities 16. Peace, Justice and strong institutions
Sustainable agency	Agency to influence intentionally and positively, the wellbeing of others (including future generations and non-human life forms); beyond self-centric wants	4. Quality Education 11. Sustainable cities and communities 12. Responsible consumption and production 13. Climate Action 14. Life below water 15. Life on land 16. Peace, Justice and strong institutions 17. Partnerships for goals

Table 2: Typology of human agency and relation with the SDGs. Source: Authors' elaborations.

Since progress on SDGs is measured annually and nationally (GSDR 2023), they may also be used as initial proxies for measuring human agency. In the following section, we turn to some more possibilities for the measurement of human agency, that integrate some other existing indicators.

Measuring agency

The Human Development Indicator (HDI) was explicitly defined as a measure of wellbeing in terms of capabilities (Prados de la Escosura, 2022, p. 13) but a corresponding indicator for

human agency is missing. Measuring human agency poses a multifaceted challenge due to its ever-evolving and context-dependent nature that encompasses several philosophical, psychological, social-structural aspects. We have reviewed several existing indices (see Agency Related Indicators Overview.xls) that include specific aspects of agency (in most cases, without using this term), and concluded that none of the existing indicators fulfil comprehensive criteria for an agency indicator, that can cover all aspects/types of agency as outlined in the previous section. Moreover, many indicators, while intending to measure the process aspect of freedom (agency), tend to measure the outcomes of those processes (capabilities or affordances).

Following is a list of indicators that align most closely with a measure of agency:

- Human Freedom Index, co-published by the Cato Institute, the Fraser Institute, and the Liberales Institute
- World Press Freedom Index (WPFI), published by Reporters Without Borders
- Freedom's House Freedom in the World, published by Freedom House
- Economic Freedom of the World Index, published by The Fraser Institute
- Index of Economic Freedom, published by The Heritage Foundation and The Wall Street Journal
- Democracy Index, Compiled by the Economist Intelligence Unit of the Economist Group
- Democracy Indices by V-Dem (Varieties of Democracy), published by V-Dem Institute.
- Bertelsmann Transformation Index (BTI), published by the Bertelsmann Stiftung
- Social Progress Index, published by the Social Progress Imperative
- Global Entrepreneurship Index, published by Global Entrepreneurship Development Institute
- World Happiness Indicator, published by Sustainable Development Solutions Network, powered by the Gallup World Poll data.
- OECD Better Life Index, published by OECD
- Inclusive Development Index (IDI), published by World Economic Forum
- Gender Equality Index, published by European Institute for Gender Equality
- Multidimensional Poverty Index (MPI), published by the United Nations Development Programme (UNDP)

For more detailed analysis regarding the dimensions included in these indicators e.g., data collection method, and measurement scale, please refer to the attached excel supplement (Agency Related Indicators Overview.xls).

According to a recent literature review, there is no current consensus or standardized methodology to assess agency (Cavazzoni et al., 2022). Psychologically, surveys and psychometric tools attempt to gauge perceived control and self-efficacy, yet these often fall short in capturing the nuanced essence of agency. Sociologically, observing how individuals navigate societal structures provides valuable insights, but the dynamic and subjective nature of agency complicates standardized assessments. Many studies and indicators related to human agency focus on specific groups such as women, children, minority groups, or refugee populations. For example, 'Assessment Tools for Perceived Agency' (Lautamo et al., 2021) subjectively evaluates dimensions of competence, resilience, and balance in young adults. As pointed out above, the focus on the process is blurred and what is measured turns out to be closer to capabilities rather than agency as it was defined above. Cavazzoni et al. (2022, p.

1149) literature review notes that despite ambiguities in various measurement attempts, there are some “shared directions” regarding the development of new research including the following:

- Any discussion of human agency must consider cultural, social, and environmental resources aspects (affordances according to our definition);
- Consideration of gender differences should be enhanced;
- More quantitative and longitudinal studies are needed.

Our recommendations in this report align with these directions and recommendations.

Furthermore, according to Alkire (2008), attempts to specifically measure agency may be classified into four conceptual categories: in the first category, agency is measured as a proxy of capabilities; in the second category, emphasis is on the exercise of effective power; in the third category, advancing welling of the self or others is a central concern; while in the fourth category, the focus is on people’s ability to choose what they value.

We incorporate these insights, existing indicators, and the typology of agency in Table 3, to propose some measurement possibilities. We would like to highlight that they represent a combination of objective quantitative and subjective qualitative indicators with alignment vis-à-vis our typology of agency from Table 2. These are tentative proposals, necessitating additional investigation and refinements.

Type	Definition	Proposal for measurement	Key Reference
Primary agency	Agency to pursue essential needs for survival	‘Basic Human Needs’ dimension of the Social Progress Index	(Stern et al., 2022, pp. 21–22)
Economic agency	Agency to pursue material wants (insatiable)	GDP at the collective level Net income (at the individual level) Employment percentages at the societal level and self-employment at the individual level	World Bank datasets (databank*)
Socio-political agency	Agency to affect social-political circumstances	A combination of: 1. Global Entrepreneurship Index, 2. ‘Having a sense of freedom to make key	1. GEI Webpage [†] 2. (Helliwell et al., 2023) 3. (Lindberg et al., 2014, p. 160)

* <http://databank.worldbank.org/data/home.aspx>

† <http://thegedi.org/global-entrepreneurship-and-development-index/>

		life decisions' dimension of the World Happiness Report 3. Participatory Democracy component of V- Dem 4. Socio-political control scale 5. Gender Inequality Index	4. (Zimmerman & Zahniser, 1991) 5. UNDP (HDR) [‡]
Sustainable agency	Agency to influence intentionally and positively, the wellbeing of others (including future generations and non- human life forms) beyond self-centric wants	No existing indicators. As a very rough proxy: the inverse function of the carbon intensity of GDP multiplied by total GDP $(\text{carbon intensity of GDP} \times \text{GDP})^{-1}$	No existing indicators

Table 3: Proposals for agency measurement. Source: Authors' elaborations.

Material agency, that is primary agency and economic agency is relatively easier to measure while a measurement of socio-political agency and sustainable agency is more challenging. In our assessment:

- The basic human needs dimension of the social progress index is the best fit for measuring primary agency. It includes access to clean water, sufficient nutrition, basic shelter, and personal safety components, each of which includes many sub-components (Stern et al., 2022, pp. 21–22). These indicators gauge the extent to which individuals can pursue their basic survival needs. As we consider agency in terms of a process, we may need to further refine this to ensure it remains separate from the measurement of capabilities.
- GDP (Gross Domestic Product) at the collective level and income plus wealth at the individual level may be considered good indicators of economic agency as they reflect the exercise of overall economic activities of societies and individuals. GDP measure is a very rough proxy. We also propose adding self-employment as another useful proxy for the individual economic agency and employment percentage of population as a proxy for societal level. In case of unemployed adult individuals, unemployment benefits may also count positively toward economic agency. Another possible measure could be embodied energy consumption i.e., a consumption of total energy including energy embodied in the resources consumed. However, we found no good indicator to comprehensively assess this.

[‡] <https://hdr.undp.org/data-center/thematic-composite-indices/gender-inequality-index#/indicies/GII>

- We could not find any single existing indicator that may encapsulate socio-political agency. Agency to affect social and political circumstances includes both personal life choices and influence on societal choices. We suggest combining several indicators, such as
 1. The Global Entrepreneurship Index (GEI) is a comprehensive assessment of the entrepreneurial ecosystem in a given country, evaluating various factors that influence entrepreneurship, such as access to funding, business environment, innovation, and cultural attitudes towards entrepreneurship.
 2. “Having a sense of freedom to make key life decisions” dimension in the World Happiness Report is measured as “the national average of binary responses to the GWP question “Are you satisfied or dissatisfied with your freedom to choose what you do with your life?” (Helliwell et al., 2023, p. 39).
 3. The participatory democracy component of the Varieties of Democracies Index (Lindberg et al., 2014, p. 160) “embodies the values of direct rule and active participation by citizens in all political processes; it emphasizes nonelectoral forms of political participation such as through civil society organizations and mechanisms of direct democracy”.
 4. Socio-political control scale measures beliefs about one’s capabilities and efficacy in social and political systems. Examples of sociopolitical control include beliefs that one can influence policy decisions, lead a group of people, or organize one’s neighbours (Zimmerman & Zahniser, 1991, p. 189).
 5. UNDP’s Gender Inequality Index reflects gender-based disadvantage in three dimensions of reproductive health, empowerment and the labour market that hampers human agency. We propose an inverse GII as another component of socio-political agency.

This list is preliminary and not meant to be exhaustive.
- The most challenging aspect of agency to measure from our typology is sustainable agency. We did not find any existing indicators that capture this “agency to influence intentionally and positively, well- of others (including future generations and non-human life forms) beyond self-centric wants”. Our tentative proposal is to measure it as an inverse function of the carbon intensity of GDP multiplied by GDP ($1 / (\text{Carbon intensity of GDP} \times \text{GDP})$).

One major challenge for a comprehensive indicator of human agency would be aggregating qualitatively different indicators into a single quantity. Figure 7 depicts a visual representation, in which without collapsing everything into a single indicator, we may effectively combine qualitative and quantitative aspects. We elaborate on this with four preliminary states or clusters: 1. *transformative agency* (high sustainable, socio-political, and primary agency but constrained economic agency); 2. *indigenous agency* (high primary agency but low economic agency); 3. *Malfunctional agency* (high economic but low sustainable agency); and finally, 4- *disenfranchised and impoverished agency* (low primary agency and even lower economic, socio-political, and sustainable agency).. Similar to how the world cultural map is derived from the world values survey (Inglehart, 2006) this clusterization helps to discern how different combinations of agency types (from Table 2) may lead to different human development outcomes. It also helps to form a clearer link between the concept of human agency and different social realities.

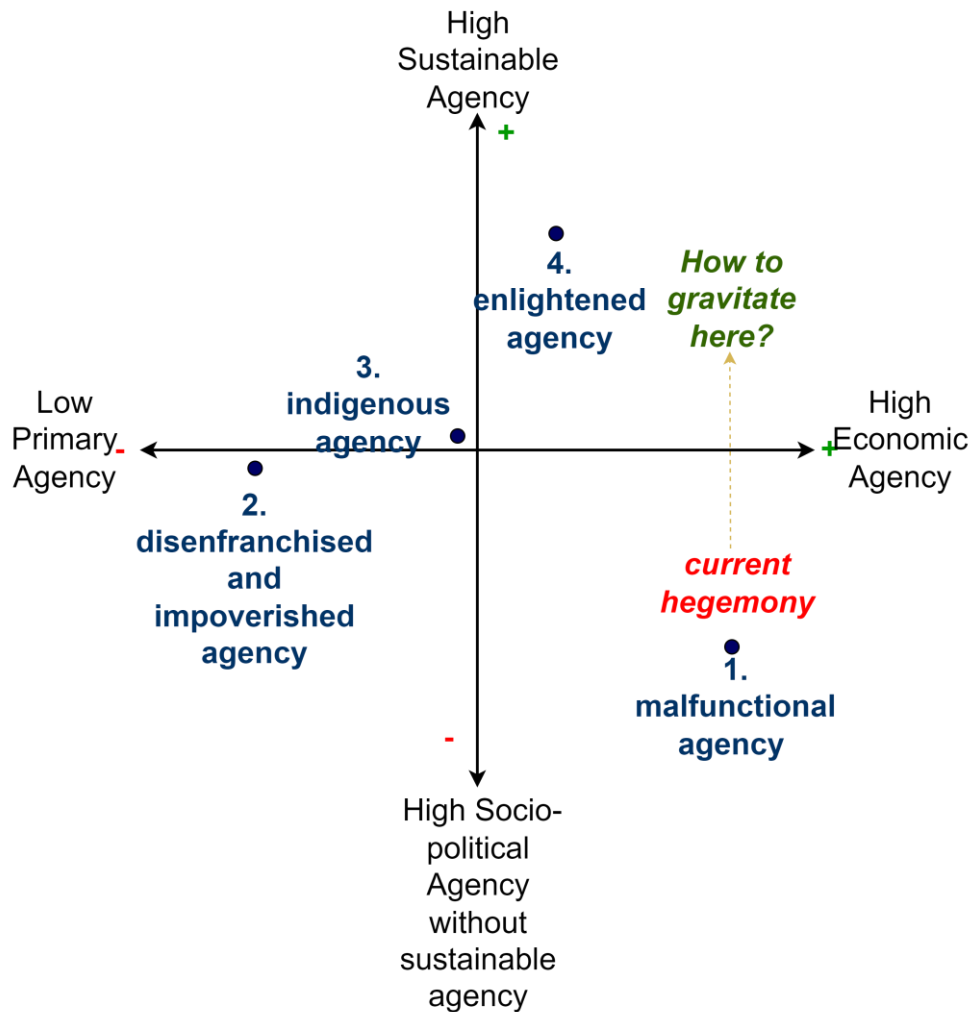


Figure 7: Toward agency measurement. Source: Authors' elaborations.

The dominant agency in current societal trajectories may be described as a malfunctional agency. It is characterised by high economic agency and low sustainable agency, leading to the overshoot of planetary boundaries, exacerbation of a triple planetary crisis (biodiversity loss, climate change, and pollution), and increasing geopolitical competition. We conclude this is the dominant form of agency, dictating societal trajectories, even though it is exercised by a minority of the global population. For example, the wealthiest individuals contribute disproportionately to climate change (Gössling & Humpe, 2023) directly through their consumption and indirectly through their financial and social resources (Nielsen et al., 2021). Malfunctional agency may be described as an ‘overconsumption trap’ in relation to the exercise of agency, as despite mounting scientific evidence and repeated warnings (Ripple et al., 2023), our political economies are constrained by the GDP growth imperative (Patil et al., 2022; Stoddard et al., 2021). ‘What it means to have agency’ is reduced to the ability to consume material goods and services (this ability is realized for the large sections of the population in high-income societies and serves as an aspiration for low-income societies). While societal trajectories are shaped by this malfunctional agency, millions are unable to pursue their basic needs: they may be described as ‘disenfranchised and impoverished’, caught in the ‘poverty trap’ in relation to the exercise of agency. This agency is characterised by low primary and low socio-political agency.

Indigenous communities with nutrition and shelter, sufficient for their needs, are characterised by high primary agency. Their socio-political agency may be limited but not characterised by extreme inequalities and disenfranchisement present in modern societies. Their economic agency is very low while their sustainable agency can be significant, as these traditional communities have sustained themselves for millennia in their environments. They typically exhibit animist beliefs that respect all life forms and their lived environments, as sacred (Harvey, 2005). We finally turn to a transformative agency. It is characterised by post-materialistic value orientations (Inglehart, 1995) which translate into high sustainable agency with voluntary constraints on economic agency in response to concerns about environmental degradation and sustainability. We hypothesize that high socio-political agency and high primary agency are the prerequisites for transformative agency. Transformative agency is best suited to navigate the Anthropocene polycrisis described in the previous section (see, 'Relevance and implications for the Anthropocene polycrisis').

In Figure 8, we make a tentative depiction of these agency states in the spider diagram format. One advantage is that we can use an area encapsulated by respective agency groups to translate qualitative and quantitative considerations into a single indicator. But this needs more careful consideration and research-informed substantiation. We would like to emphasise that the figure 8 is a highly speculative assessment. For example, the difference in the socio-political agency scale for transformative vs malfunctional agency is an assumption. Furthermore, different indigenous communities may exhibit different levels of socio-political agency.

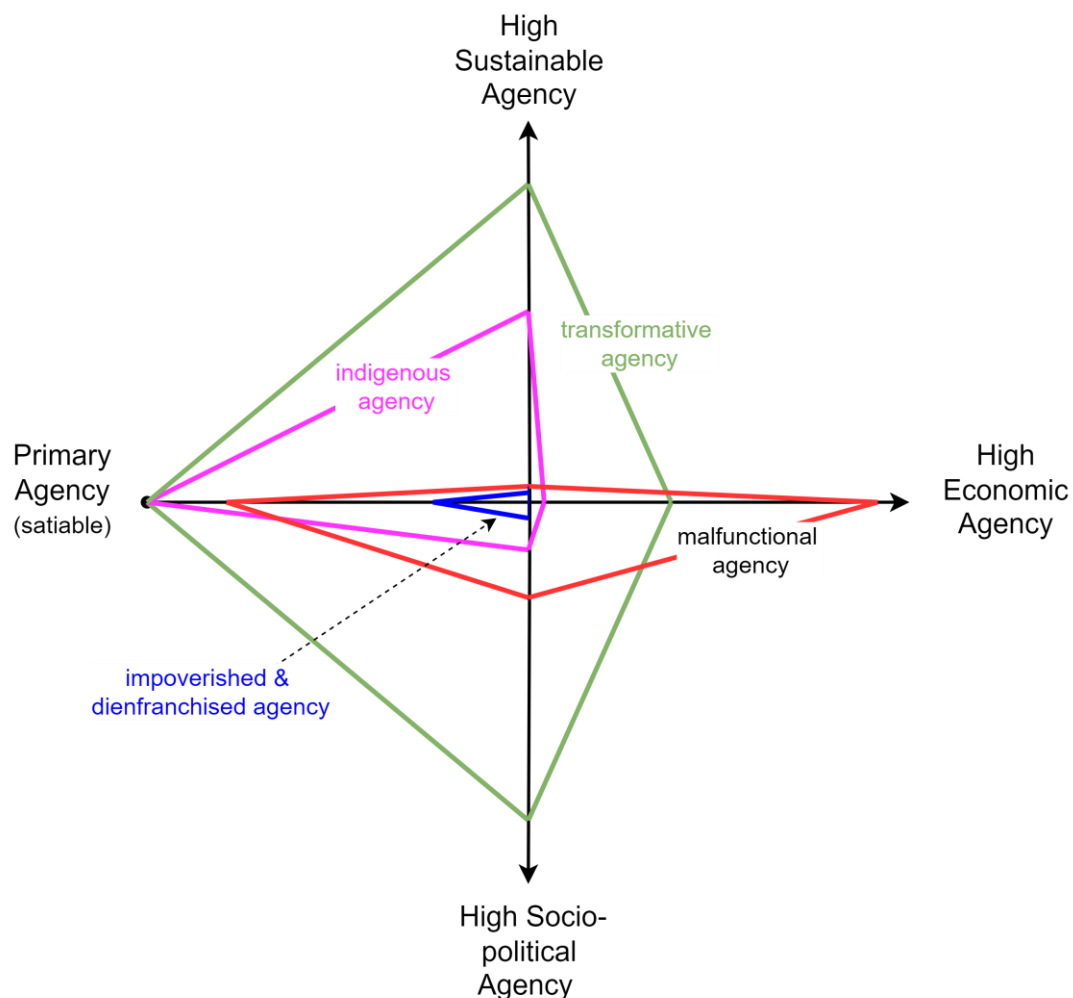


Figure 8: Agency clusters (Authors' elaboration)

In conclusion, measuring human agency requires a nuanced and interdisciplinary approach that navigates the complexities of agentic behaviours and the world we dwell in. By combining quantitative metrics with qualitative insights, we have made some promising proposals that require further research. One may frame a challenge of sustainable development in the Anthropocene, as an evolution of our collective agency from a current dominance of malfunctional agency (and a simultaneous persistence of disenfranchised and impoverished agency) toward transformative agency for all, which integrates respect for nature and all lifeforms, present in indigenous cultures.

Conclusions and challenges for further research

Until now, human agency has been a relatively under-studied aspect of human development. The enhancement of human agency as an essential component of human development is an end in itself but also a means to navigate the challenges of sustainable development in the 21st century. Building up from the Capabilities Approach, we have framed agency as a process aspect of human freedom. This enables us to reconceptualise agency as a complex temporal dynamic (Williams et al., 2021), with a “practical-evaluative” dimension (Emirbayer & Mische, 1998). We have ventured beyond purely rational individualistic accounts of agency as a pursuit of self-centric desires. Exercise of agency may or may not be correlated with improvements in material wellbeing in a narrow sense (UNDP, 2022). This leads us to a more holistic and enriched scope of human agency that includes “choosing a reason rather than [agency being restricted to] choices based on a reason” (Williams et al., 2021). This understanding of agency implies individuals and societies may pursue self-development, adaptation, and self-renewal with changing times (Bandura, 2001). Agency cannot be reduced to control over circumstances (“the imposition of a choice by the will onto the world”, but it must somewhat paradoxically include an ability to respond to changing context (“a sort of yielding [over to biophysical realities]”) (Williams et al., 2021). Furthermore, the dialectical relationship between agency and structure invites us to consider how individuals both shape and are shaped by the world around them.

Consequently, based on this holistic assessment, we were able to present a broad typology of agency. Primary agency: to pursue essential survival needs; Economic agency to pursue material wants (insatiable); Socio-political agency to affect social-political circumstances; and Sustainable agency to influence intentionally and positively, wellbeing of others (including future generations and non-human life forms) beyond self-centric wants. We have utilised the concept of affordances from biological sciences to emphasise the biophysical material resource basis of human agency. This is particularly relevant for the Anthropocene context, as unconstrained economic agency implies unsustainable extraction of resources. Fostering sustainable agency with intelligence of biophysical realities to appropriately constrain economic agency is an essential precondition for survival in the Anthropocene.

We also reviewed and proposed possible indicators for measuring agency. Measuring human agency is a very challenging endeavour which defies simplistic quantification, requiring a nuanced approach that embraces both qualitative considerations and quantitative judgments. While HDI is a measure of human development in terms of capabilities, there is no corresponding and comprehensive indicator for measuring agency (Cavazzoni et al., 2022; Samman & Santos, 2009). Consequently, we analysed which of the existing indicators may be used to measure agency in relation to a typology we identified. We note that the measurement of material agency e.g., primary agency and economic agency is more tangible vis-à-vis non-material agency i.e., socio-political and sustainable agency. We can use a modified version of

the basic needs dimension of the social progress indicator to measure primary agency. GDP or income is a good proxy for measuring economic agency. The socio-political agency is more difficult to measure but several existing indicators can be used to make a composite indicator for this: Global Entrepreneurship Index (GEI), the 'Having a sense of freedom to make key life decisions' dimension of the World Happiness Report, Participatory Democracy component of V-Dem, socio-political control scale, and lastly, Gender Inequality Index. We did not find any relevant measure for sustainable agency. The best proxy could be the inverse of the carbon intensity of the GDP multiplied by GDP. An even more challenging task for any further research work for developing an indicator for an agency would be to combine these different quantitative and qualitative indicators into a single measure. We also introduce possible states of agency as an extension of typology: *transformative agency* (high sustainable, socio-political, and primary agency but constrained economic agency); *indigenous agency* (high primary agency but low economic agency); *malfunctional agency* (high economic but low sustainable agency); and finally, *disenfranchised and impoverished agency* (low primary agency and even lower economic, socio-political, and sustainable agency). We recommend not collapsing everything into a single measure but instead aspire for engaging visual representations as depicted in Figure 7 and Figure 8. Furthermore, different considerations and measures apply for measurements of individual or collective agency. The dynamic nature of human agency (as a process) further complicates measurement efforts, as it evolves in response to changing value orientations, social norms, affordances, and capabilities. Since we embrace a framing from the capabilities approach which holds that capabilities are the opportunity aspects of freedom and agency is the process aspect of freedom, the temporal relation between the HDI (measurements of capabilities) and agency indicator would be an interesting dynamic to observe.

In the context of complex societies, it would be of interest to observe the role of social complexity and hyper-specialisation, which may lead to a concentration of individuals' agency in one domain (e.g., effect on the primary agency when societies and individuals rely on industrial agriculture; inability to participate in societal decision-making due to complexity of decisions involved). Although we have captured the role of technologies as affordances, their increasing influence in amplifying our economic agency in the short term but debasing the biophysical substrate and restricting socio-political agency on a longer time horizon needs more elaboration, as identified by Creutzig et. al (2022). Rather than resigning to a form of technological determinism which restricts human agency (Haff, 2014), there is a need to foster a more mature relationship with evolving technologies underpinned by the evolution of our sustainable agency.

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