



Globalisation of knowledge: Paradoxes of openness, unequal access and new horizons of scientific knowledge

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Abstract. The globalisation of scientific knowledge is one of the key processes shaping the transformation of contemporary science under conditions of digitalisation, the development of network infrastructures, and the implementation of open science policies. The study of knowledge globalisation is particularly relevant in the context of the rapid growth of digital technologies, the expansion of openness in scientific research, and the emergence of new forms of epistemic inequality that transform the contemporary scientific landscape. The purpose of this study was to analyse the paradoxical nature of knowledge globalisation and to identify the mechanisms through which epistemic inequality was formed in the context of digital and networked science. The methodological framework of the research was based on a complex of scientific analytical methods. The study employed phenomenological analysis, the historical and analytical method, the interpretative methodology of social epistemology, critical discourse analysis, and a structural and functional approach. The results included an analysis of the interaction between openness, digitalisation, and the global scientific infrastructure, and the identification of “shadow zones” – algorithmic, economic, and political mechanisms of unequal access to knowledge. It was shown that artificial intelligence has emerged as a new epistemic agent that simultaneously expanded research capabilities and deepened technological and infrastructural imbalances. It was generalised that open access, linguistic asymmetry, and algorithmic selection have formed new models of epistemic visibility and neo-colonial forms of knowledge production. The role of cultural diversity as a resource for inclusive global science was clarified, and the need for an ethics of transparency was emphasised. The practical significance of the study lay in the fact that its results can be used to shape open science policies, develop inclusive infrastructures, regulate digital platforms ethically, and enhance epistemic justice in the global scientific space

Keywords: Open Science; epistemic inequality; digital epistemology; intersubjectivity; communicative trust; cultural richness; ethics of transparency

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Introduction

The global scientific expanse reveals a great light artery along which knowledge is collapsing. Information flows across the borders, below flights, and international collaborations continue to grow, moving between the roots that unite different continents at the same time. Behind the apparent clarity of this space there is a complex structure of irregularities. Access to infrastructure, resources, publications, funding and resources, which are “allowed” to say in science, divisions are inconsistent.

In this respect, global science operates within what M. Castells (2021) describes as a network society, where informational networks’ structure power and visibility. The globalisation of knowledge is a phenomenon in abundance. There is an immediate risk of democratisation and new segregation, opening and closing, acceleration and intensification. On the one hand, advanced science, digital repositories, interdisciplinary platforms and AI tools provide unprecedented capabilities. Conversely, political constraints, financial asymmetries, the commercialisation of scholarly publishing models, and infrastructural disparities can reshape the global circulation of knowledge, producing a system in which certain forms of knowledge are actively generated and amplified, while others remain structurally marginalised or less accessible. This study explores the paradoxical nature of the globalisation of knowledge. It analyses not only trends of change, but also those “shadow zones” where new epistemic inequalities, neocolonial mechanisms and structural barriers are formed. To pay special attention to the role of piece intelligence as a new epistemic agent, the phenomenon of public science and the concept of Open Science become the architecture of the current scientific process.

In the 21st century, knowledge is the main strategic resource of civilisation, and the process of its globalisation is the primary driver of the development of science, technology, and socio-cultural systems. The globalisation of knowledge forms not only a network infrastructure for access

to information, but also a new epistemic map of the world, where the processes of transparency, interdependence and inequality come into play. On the one hand, digitalisation, international scientific cooperation, and the policy of secret science support the democratisation of knowledge. Otherwise, imbalances between the centres and peripherals of knowledge will increase, which will create global socio-economic asymmetries, as stated by C. Borgman (2023). The current state of the problem is that globalisation of knowledge has a paradoxical character. The process of internationalisation of science will follow with the overnight fragmentation of epistemic components. Global publishing platforms and digital archives are creating the potential for broader research results, but inequalities in access to infrastructure, funding, capital resources, and algorithmic systems plague the global scientific community exchange. This gives rise to the phenomenon of “epistemic instability” – a situation where the messages about power may have a significantly smaller influx into the development of secular scientific discourses.

In continuation of the remaining five years, international literature is actively discussing new aspects of this problem. Thus, H. Nowotny (2021) analyses the insignificance of knowledge in the minds of global transformation and digital transparency; L. Floridi (2021) further explores the ethical and political aspects of artificial intelligence as a new agent of epistemic power; S. Jasanoff & H. Simmet (2021) view the exclusion of the global energy transition as an example of uneven access to future knowledge. Evidence from UNESCO (2021) reinforces that the policy of Open Science is not just about technology, but about institutional justice. B. Latour (2021) focuses on the post-anthropocentric reservoir of science in the marginal world, while C. Borgman (2023) traces the infrastructural inequality in access to data. M. Biagioli (2022) analyses the interconnections between digital platforms and academic capital, and

F. Mastrokola & E. Cernoiu (2023) propose a model of “post-academic science”, where knowledge becomes a product of institutional management and public interaction.

Main research objectives: to analyse current concepts of globalisation of knowledge in the context of philosophy of science and social epistemology; to reveal the interconnections between transparency, accessibility and epistemic justice in global science; to highlight the role of digital technologies, piece intelligence and algorithmic systems in the redesigned scientific communication. The scientific originality of the study lies in integration of approaches of social epistemology, digital philosophy, and philosophy of science for the analysis of globalisation of knowledge; introduction of the concept of epistemic infrastructure as a key official of contemporary science revealed the roles of piece intelligence as a new type of epistemic agent; grounded theses about the need for an “ethics of transparency” in the global scientific process. The purpose of the study was to provide a philosophical and epistemological interpretation of the processes of globalisation of scientific knowledge under conditions of the digital transformation of science, with a focus on the role of epistemic infrastructures, digital technologies, and algorithmic systems in shaping transparency, accessibility, and epistemic justice within the global scientific space.

Materials and Methods

The time frame of the present study covered the period from the early 2010s to the mid-2020s, which corresponds to the intensive digitalisation of science, the institutionalisation of Open Science policies, and the expansion of global networked knowledge infrastructures. These temporal limits allowed tracing the transition from classical models of scientific activity to post-academic and networked forms of science, and identifying the dynamics of epistemic inequality in the global scientific space. Research materials included current philosophical, sociological, and interdisciplinary works on the problems of the globalisation

of knowledge, Open Science, epistemic inequality, digital epistemology, and contemporary scientific infrastructure. These papers included contributions by H. Nowotny (2021), L. Floridi (2021), and the UNESCO (2021).

The methodological basis of the study included a combination of classical philosophical approaches and contemporary critical and digital methodologies: phenomenological analysis that was used to identify the semantic structures and lived experience of scientific knowledge in conditions of global interconnectedness. This method enabled the reconstruction of how scientists perceive digital infrastructures, AI systems, and the dynamics of epistemic visibility. Historical and analytical methods were applied to trace the evolution of scientific institutions, the establishment of Open Science practices, and the development of global knowledge infrastructures, including the emergence of algorithmic and data-driven epistemologies. Interpretative methodology of social epistemology based on A. Goldman (2021) and contemporary contributors examined how knowledge was produced collectively, how credibility was distributed within global scientific networks, and how digital systems reshaped practices of verification and trust.

Critical discourse analysis used to uncover discursive structures of power that shape access to knowledge, scientific visibility, and epistemic authority. This method allowed the identification of mechanisms whereby digital platforms, publishing conglomerates, and global infrastructures produced new inequalities. The next structural and functional approach allowed describing the relationship between technological infrastructures (repositories, AI systems, indexing platforms), scientific communication, and global regimes of knowledge distribution. A dedicated ethical analysis (AI ethics, data ethics) evaluated digital infrastructures, data practices, and algorithmic tools through the principles of transparency, fairness, accountability, and inclusivity. This included: assessment of algorithmic bias and epistemic visibility; evaluation of fairness

in global scientific authorship, data sharing, and infrastructural access; analysis of transparency in AI-assisted research processes; consideration of how digital infrastructures support or obstruct epistemic justice. This component provided a normative justification for the interpretation of the transformations of global science.

This reflected a decolonial turn in data and technology research, where data extraction and digital infrastructures reproduced global inequalities (Couldry & Mejias, 2023). Critical theory and postcolonial studies approaches helped to reveal: structural asymmetries between knowledge “centres” and “peripheries”; epistemic hierarchies shaped by language dominance and infrastructural access; mechanisms of epistemic extraction of local data; forms of epistemic neocolonialism in digital scientific systems. To understand how global knowledge flows were shaped by inequalities, the study integrated methodological tools from critical theory by J. Habermas (2022) and postcolonial epistemology by W. Anderson (2020), L. Smith (2021). This perspective enabled the study to move beyond merely descriptive analysis toward a critique of global power relations in science.

Digital hermeneutics (data hermeneutics) studied how digital platforms structure scientific visibility, how algorithms filter and rank knowledge, how AI models classify and generate research, and how data infrastructures shape meaning-making. Digital hermeneutics enabled interpretation of algorithmic mediation, platform dependencies, and the epistemological effects of automation. Overall, the combined use of these approaches created a robust multi-layered methodology that accounted for the social and cultural embeddedness of scientific knowledge; historical dynamics of global scientific systems; structures of power and inequality; ethical imperatives of transparency and fairness; digital mediation of epistemic processes. Such integrative methodology allowed investigating the paradoxes of knowledge globalisation in a comprehensive and epistemically sensitive manner.

Results and Discussion

The focus should concentrate on the relationship between theoretical pluralism and interdisciplinarity in globalised space. Scientific knowledge is greater, functions as a polyphonic ecosystem in which different epistemological models, methods, and styles of theorising emerge. Theoretical pluralism ceases to be a culprit and becomes a working standard, and the complexity of the subjects of investigation – from climate systems to social measures – cannot be fully explained by one universal approach. Pluralism has not only a descriptive, but also a heuristic function: a plurality of perspectives reveals new trajectories of nutrition, the development of hypotheses and the construction of explanatory models (Fig. 1).

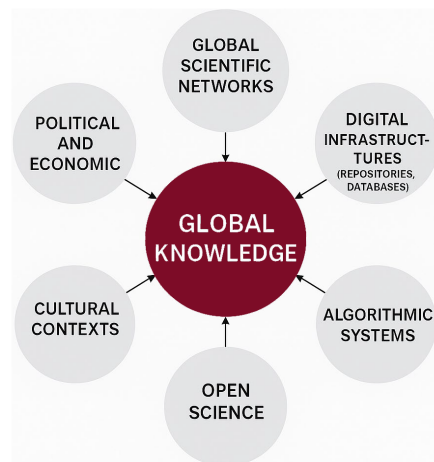


Figure 1. Global knowledge as a multi-factor structure

Source: author's elaboration based on UNESCO (2021), C. Borgman (2023)

Interdisciplinarity in this context acts as a practical mechanism for implementing pluralism. Are not talking about mechanical tools, but about methodological synthesis, within which different descriptions are possible – phenomenological, statistical, causal and mechanistic, calculative, normative. Successful interdisciplinary fields – cognitive sciences, bioinformatics, digital humanities, social epidemiology – demonstrate that

across a cross-section of disciplines a new body of knowledge is emerging that is not reduced to a single discipline. However, this pluralism comes with internal tensions. The first risk is of fragmentation if the number of approaches increases until the criteria of validity and loss of strength are met. Another is the problem of transfer between disciplines: different competences operate with alternative terms, different standards of evidence and different standards of replication. To handle these keywords, “meta” is required – use of data ontology, metadata standards, and creation protocols to ensure consistency of results and clarity of procedures. This corresponds to notion of trading zones by P. Galison & W. Newman (2021), where heterogeneous communities coordinate through shared standards.

The globalisation of knowledge enhances both the possibilities and the risks of pluralism. On the one hand, transcontinental consortiums, open repositories, and integrated digital infrastructures establish mutual disciplines in everyday practice. On the other hand, asymmetries of resources (financing, access to laboratories, labour costs) give rise to unevenness of voices in global dialogue, and therefore a structural impact on the cost of knowledge centres. This suggests a statistically ethical policy of cooperation: honest mechanisms of authorship, data sharing and crediting of investors, and support for peripheral splits. Presumably, theoretical pluralism and interdisciplinarity are shaping a new type of pre-investigative sensitivity, focusing on openness, fluidity and procedural insight. They do not replace disciplinary expertise, but rather introduce a broader regime of collective rationality, which means not a monologue of a paradigm, but a dialogue of approaches, tools, and strengths. In its turn, open access as an ideal and as a mechanism of inequality is related to the future. Open Access (OA) is positioned as the key to scientific integrity: the argument is that if the statistics are open to everyone, then the knowledge becomes accessible behind the scenes. In practice, the model functions differently. Cost-free access for readers means that

anyone can pay for the publication. Prestigious magazines can cost hundreds or thousands of dollars. For rich universities in the regions of the global world, and for the institutions of Common Europe, such sums are a serious barrier. There is a paradox: formally knowledge is being democratised, but in fact, paid entry to the “knowledge acquisition club” eliminates this effect. Few talented researchers experience a situation of “epistemic disability” if the financial structure of the OA does not allow them to be full-fledged authors and participants in the global scientific world. As a result, the open access model is transformed into its own filter: everyone can read, but not everyone can write. This indicates that there is a growing concern about the problem of objectivity and intersubjectivity in the minds of modern digital and global science. On the right, the classically reasonable objectivity of “looking from nowhere” is being transformed by the influx of cultural richness and technological media of contemporary science. In the global scientific space, objectivity is no longer seen as the absolute and universal authority of truth. Its authority is the result of procedural clarity, institutional independence, and collective verification. Knowledge becomes not so much a characteristic of an individual researcher, but rather a product of the interaction of skills, methods, and technical tools.

Intersubjectivity in this context is not a compromise, but a fundamental mechanism of scientific communication. It means the improvement of the criteria of truth between participants in the scientific community, regardless of their cultural values and national traditions. Instead of the search for “pure” objectivity, contemporary science is evolving standards that allow mutual understanding: replicability of experiments, convenient data formats, open verification protocols, independence reviews and FAIR standards. This understanding corresponds to S. Fuller (2018) social epistemology, according to which objectivity emerges from institutionalised communicative practices rather than isolated cognition. Technological objectivity is more dependent on digital

tools. Algorithms clean data, generate models, perform classification and prediction. This changes the very mode of scientific thinking: from interpretation to calculation. These algorithmic systems operate based on historical data as a means of anticipation. Thus, technologies can create implicit social and cultural asymmetries, captured in selective samples. This is how the illusion of “algorithmic objectivity” emerges, which really requires a critical audit.

The problem of visibility in digital science is coming to the fore. In areas with high risks (medicine, ecology, safety), the lack of insight into individual intelligence creates insecurity in policy decisions. Therefore, the importance of explainability increases – the specificity of algorithms being explained and understandable. Without it, it is impossible to ensure the continuity of scientific excellence to digital results. In general, objectivity in the global context is not absolute, but a process of gradual clarification and revision. It comes down to the intensive activity of people, institutions and technologies. Intersubjectivity becomes a tool for maintaining the uniformity of the scientific space, allowing for the existence of comprehensive criteria of truth along cultural, methodological and technological dimensions. Moreover, a special place here is occupied by the asymmetry and dominance of English. Current science functions more importantly than English science, which harmonises with global interaction, which has a side effect. Local scientific traditions, terminological systems, research contexts and methodologies often do not fit into dominant Anglophone formats. This brings up to two risks: epistemic uniformity. The diversity of science is condensed: the voices that speak in other languages sound quieter; invisibility of local content. Research that is not translated into English will be lost in the song “local archive”, not included in the global literary language. This reflects G. Bhambra’s (2021) analysis of postcolonial knowledge hierarchies, where theory is centralised and data is extracted. This asymmetry shapes the cultural hierarchy of knowledge, where the

Anglo-American centres become the “main stage”, and all others become the “balcony”, from which light they watch out. What in its name is further indicated on technological inequality and infrastructural asymmetry.

Global science is a high-tech process. Access to computational efforts, paid databases, flexible hardware services, current laboratory installations and platforms AI are becoming the ultimate productivity maker. Powers that establish weak finances are blamed on the periphery through the failure of such infrastructure. This creates a new infrastructural imbalance. The successors may be no less talented, but without the tools of their ability to exchange. There appears to be a “technological disintegration” of science, which obviously and unknowingly creates a counter-economic picture of the world (Fig. 2).

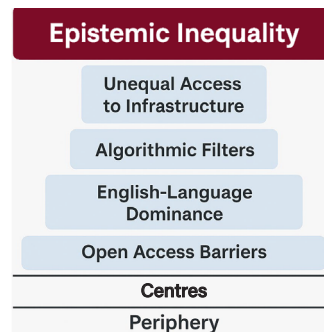


Figure 2. Dimensions of epistemic inequality in global science

Source: author’s elaboration based on M. Biagioli (2022), C. Borgman (2023)

Thus, the globalisation of knowledge not only opens doors, but also creates new barriers – less visible, but not less real. Such, for example, as algorithmic filters as new gates to access to knowledge. Algorithms of search engines, scientific platforms, and digital libraries constitute the role of “invisible editors”. This indicates how research can improve science, shape the priorities of respect and actually create a new structure of scientific visibility. Moreover, the algorithms, developed on uneven data, reinforce the already

obvious centres in the flow, making visible the work of great universities and marginalising smaller ones and peripheral institutions. This is the origin of the “digital mother” effect: are mostly those who have already learned many times before. The value of the new “gate of entry”, which means not the deprivation of access to knowledge, but the formation of the scientific canon. As G. Bowker (2018) and K. Crawford (2021) showed, infrastructures and classification are never neutral but embed power relations big-data systems reproduce institutional and social bias.

And another important thing is nutrition in context – globalisation and cultural richness as an epistemic resource and influence. The globalisation of knowledge brings together processes of transparency and simultaneously creates structures of inequality that affect the accessibility and visibility of scientific results. On the one hand, the global scientific expanse creates opportunities for transcultural exchange – a flow of ideas, methods, recent approaches, and valuable perspectives between different academic departments. On the other hand, new epistemic hierarchies are being formed, in which centres of knowledge, infrastructure, funding, and access to global publications play a leading role. Cultural richness in this context is a significant epistemic resource. Local forms of knowledge – including ethnomedical practices, traditional environmental practices, cultural classification systems, and humanities traditions – contribute to the richness of global scientific discourse. In many cases, *stink* suggests alternative ways of understanding the world, sensitive to local environmental, social and cultural minds. Insofar as such knowledge provides clues for emerging problems that exist between the standardised “windows” of the scientific paradigm.

Globalisation can transform cultural diversity into a resource that is exploited unevenly. This is manifested in the phenomenon of epistemic neocolonialism: if the data collected in local collections are drawn from the great international research, but the collection itself does not deny any

author’s attribution, no access to results, no financial support. In such situations, the “centre” generates theory, and the “periphery” supplies empirical material. This leads to the systematic invisibility of local followers from the global scientific field. A significant role is played by political asymmetry. English language has become the lingua franca of contemporary science, but it creates barriers for scientists who practice other languages. Investigations published by people from smaller global investigations are often lost in light databases of citations and academic discussions. As a result, method ideas that are important for specific regions may be undervalued or completely overlooked on a global scale. These clicks will require systemic solutions, large-scale publishing platforms, initiatives for inclusive open-source science, support for regional journals, and partnership models that transfer equal ownership of authorship resources. The development of ethical protocols for comparison with local splints is another key tool that provides unethical knowledge and data.

Cultural richness is not only a reason for the stable development of global science, but also a catalyst for the emergence of new pre-modern paradigms. These savings and encouragement are necessary changes to ensure that globalisation does not become a process of unification, but is based on the mutual enrichment of traditions, methods, and scientific cultures. Apparently, science does not operate in a vacuum. Political decisions can affect them no less than the economy and culture. Countries restrict access to external resources, censorship, blocking of digital platforms, attempts to create a “sovereign Internet” – all this undermines the global integrity of the scientific space. Politics shapes epistemological sovereignty if it tries to control the flow of data, information and scientific results. On the one hand, this can protect national interests. Otherwise, new “epistemic borders” are created, which change the possibilities of international interaction. The fostering of justice and intellectual power is no less relevant here than in technical and commercial concerns. The conversation gets

especially heated when about it comes to the role of artificial intelligence in the evolution of scientific knowledge. It is noteworthy that AI is not just speeding up the analysis of data – it is changing the methodology of science. Building algorithms: analyse gigantic amounts of information; there will be predictive models; recognise patterns; generate hypotheses that humans could not formulate on their own.

New AI products are also available: the right to be a co-author, and a new paradigm of science – post-interpretation. AI creates a new epistemic agent that works with people. This also creates a new uncertainty: only countries and laboratories with great computational capabilities can analyse modern models. Piece intelligence is becoming not only the engine of the scientific revolution, but also the new agent of epistemic segregation. In this regard, the issue of fostering communicative trust and, in general, the legitimacy of the science of information turbulence is increasingly acute. The legitimacy of science in the 21st century will depend more on how effectively it communicates its enormous results. The information space is characterised by an excess of data, the fluidity of its circulation, and the growing role of unqualified commentators. Scientific knowledge is driven by competition in the minds of emotional knowledge, pseudoscientific assertions, and politicised interpretations. This creates a need for science not only to produce the truth, but also to ensure reasonable and reliable communication. Communicative trust is formed on three key pillars. The first is professional competence, which conveys a clear demonstration of methodological rigour, insight into previous procedures, and the importance of formulating principles. The other is institutional independence: scientific establishments may be protected from political pressure, commercial influxes and conflicts of interests. The third is the openness and reasonableness of communication: science is guilty of speaking with confidence in an unsophisticated manner, but it is accessible by clarifying the essence of the methods and between possible interpretations (Fig. 3).

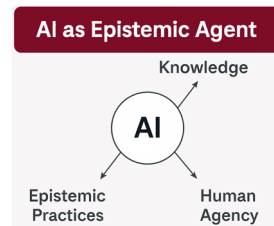


Figure 3. Artificial intelligence as an epistemic agent

Source: author's elaboration based on L. Floridi (2021)

New communication tools are becoming increasingly important in the world: open data, pre-prints, open reviews, public science, lighting platforms. They are in line with the transition from the "trust through status" model to the "trust through insight" model. The immensity takes away the ability to complete the process of generating knowledge, and not without depriving it. This changes the distance between experts and the community, creates a culture of critical thinking, and increases resistance to manipulation. The communication of insignificance plays a special role. In the time of crisis – pandemics, technological accidents, environmental threats – scientific information changes as new data appears in the world. Since it is impossible to explain the logic of these changes, the omission can be perceived as supernatural phenomenon or a pardon. Therefore, it is important to speak openly about inter-knowledge, possible alternative models, statistical errors, and the nature of scientific forecasts.

Thus, communicative trust is not just an additional aspect of the activity of science, but it is a fundamental principle in the global information environment. Communicative trust sets that scientific knowledge will be infused in future decisions, and that it will leak into the political process and that science will lose an authoritative source of truth in the era of information turbulence. Science increasingly goes beyond the boundaries of academic offices. It becomes a public institution, which is responsible not only for producing knowledge, but also for explaining its partnership. After the truth, the situation becomes more

complicated. Trust the crisis factor: sensationalisation of results. Mass media straightens folding frames to “hot” headings; pseudoscience, and manipulative assertions themselves are expanding more and more, under scientific data; politicisation, when scientific arguments are often used to support political positions; replacing experts with communicators. Popularity does not equal competence. Public science is all about dialogue and diversity. Scientists become not only followers, but communicators who form a culture of critical thinking. They remain in the context of analysis – nutrition about Open Science as characteristics of daily scientific knowledge. Open Science is celebrating: open data; open methods; open tools; unlock light resources; open the review.

From a comparative perspective, the obtained results correlate with a wide range of

contemporary studies on the globalisation of knowledge. The emphasis on the polyphonic, infrastructurally embedded character of science resonates with I. Chatterjee *et al.* (2019) and H. Nowotny’s (2021) reflections on knowledge production under conditions of uncertainty and temporal acceleration, where openness and unpredictability coexist as structural features of late-modern science. The analysis of distributed epistemic cultures and plural regimes of objectivity develops the line outlined by S. Leonelli (2020) and B. Latour (2021) who showed that scientific facts are inseparable from socio-technical assemblages, laboratories, instruments, and institutional settings. In this respect, the present study confirms that globalised science should be understood not as a homogeneous rational order, but as a dynamic, multi-layered epistemic ecology (Fig. 4).

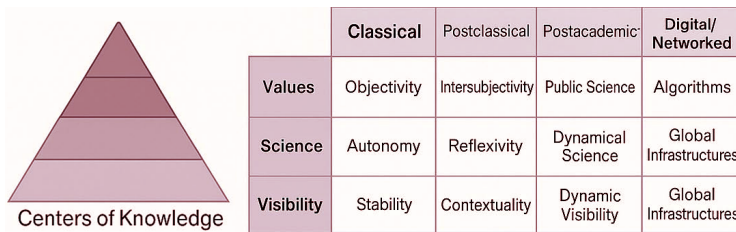


Figure 4. Comparative models of contemporary science

Source: author’s elaboration based on H. Nowotny (2021), B. Latour (2021)

The findings also align with discussions by S. Jasanoff & H. Simmet (2021) on the ethical and political dimensions of artificial intelligence and digital infrastructures. The identification of algorithmic filters as “invisible editors” of scientific visibility supports thesis by L. Floridi (2023) that information technologies become new loci of governance and epistemic power, while the description of epistemic exclusion and unequal access to future-oriented knowledge converges with S. Jasanoff & H. Simmet (2021) analysis of globally uneven imaginaries of the future. However, the present research moves beyond these frameworks by systematically linking AI-driven asymmetries with broader patterns of infrastructural inequality, linguistic dominance and

open-access economics, thus showing how multiple layers of inequality are mutually reinforcing within the global knowledge system.

In relation to the literature on Open Science, the results both confirm and refine the critical insights formulated in the recommendations of UNESCO (2021) and in papers by M. Bigioli (2022) and C. Borgman (2023). The study supports C. Borgman’s (2023) argument that data infrastructures are never neutral carriers of information but always embed institutional priorities, funding logics and technological constraints. In this sense, the present study clarifies that Open Science policies must be evaluated not only in terms of formal accessibility, but also in terms of their real effects on authorship, visibility, and

participation. Open-source organisational models can decentralise research infrastructures and mitigate traditional inequalities in knowledge production (Turek, 2025). With respect to discussions of post-academic and public science, the obtained results are in substantive dialogue with C. Dent (2025) diagnoses in risk-laden, mediated knowledge society. The central role ascribed here to communicative trust, public engagement and transparency echoes view of science as a socio-political practice, but additionally stresses that digital platforms and AI tools transform both the conditions and audiences of this practice. While many authors underline the crisis of expertise in a fragmented information environment, this research complements those arguments by highlighting the constructive potential of participatory formats, open peer review, and culturally sensitive communication as instruments for rebuilding trust.

Overall, the comparative analysis shows that the present study integrates and deepens several influential lines of inquiry in the philosophy and sociology of science. It confirms the central thesis that globalisation of knowledge is simultaneously a driver of epistemic democratisation and a generator of new inequalities, but specifies the mechanisms through which infrastructural, linguistic, algorithmic, and political factors intersect. In doing so, it contributes to the ongoing debate on how global science can combine technological innovation with epistemic justice, and invites further empirical and theoretical work on inclusive models of digital and networked knowledge production.

Conclusions

The globalisation of knowledge is a multi-vocal process in which the voices of openness, epistemic justice, technological innovation, political decisions, cultural diversity, and knowledge of new digital agents. It is neither a clear benefit nor a threat – it is a complex range of opportunities and risks that will require critical analysis, ethical regulation and inclusive development. Piece

intelligence radically changes the structure of scientific knowledge, transforming algorithms into active co-creators of epistemic solutions. Public science is becoming a key agent in the development of communicative trust, and the concept of Open Science is a new architecture for access to knowledge, which simultaneously actualises complex ethical principles of insight, fairness, and authorship. Global inequalities in access to infrastructure, global resources, and technological platforms require the formation of new models of solidarity and a rethinking of the principle of epistemic equity. The future of the global scientific space lies in the fact that humanity can combine technological capabilities with the principles of justice, and openness with diversity. Globalisation of knowledge has the potential not only to break down barriers, but also to create minds for a healthy dialogue between cultures, methodologies and values, which will be accompanied by openness, ethics, and policies of inclusiveness.

In general, further research may be directly related to the development of the philosophy based on the influence of the networked, the artificial intelligence and multicultural era – the science that will continue to efficiency, insight, and humanity. Globalisation of knowledge is polyphony. It contains the voices of openness, uncertainty, technological progress, political decisions, local traditions, and new digital actors. This is neither a clear benefit nor a threat. This is a vast range of possibilities that will require critical analysis, ethical regulation, and inclusive development. Piece intelligence changes the very structure of scientific knowledge. And, in turn, public science becomes a key mechanism for the development of trust. Open Science is promoting a new architecture for access, but also for creating more ethical nutrition. Generalising what was said, global inequalities call for new models of solidarity and reimagined justice. The future of the global scientific space depends on how much can combine technological capabilities with equality, and openness with diversity. Science is becoming

a light ecosystem, and it is essential to make it not only effective, but also fair. Prospects for further research lie in several areas: disaggregation of the concept of epistemic ecology, which brings together the technological, cultural, and ethical aspects of the functioning of global knowledge; analysis of the role of piece intelligence as an autonomous agent of knowledge and assessment of it in the methodology of science; development of mechanisms for the development of communicative trust in digital scientific communities; investigation of the phenomenon of economic asymmetry, and the creation of models of rich scientific

communication; unbundling institutional strategies to address infrastructural and algorithmic inequalities; analysis of Open Science Ethics as a new normative field of global scientific education.

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None.

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Глобалізація знання: парадокси відкритості, нерівного доступу та горизонти наукового пізнання

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Анотація. Глобалізація наукового знання є одним із ключових процесів, що визначають трансформації сучасної науки в умовах цифровізації, розвитку мережових інфраструктур та впровадження політик відкритої науки. Дослідження глобалізації знання є актуальним у контексті зростання цифрових технологій, розширення відкритості наукових досліджень та нових форм епістемічної нерівності, що трансформують сучасний науковий простір. Метою роботи був аналіз парадоксальної природи глобалізації знання та виявлення механізмів формування епістемічної нерівності в умовах цифрової та мережевої науки. Методологічну основу дослідження становив комплекс методів наукового аналізу. У роботі застосовано такі методи, як феноменологічний аналіз, історико-аналітичний метод, інтерпретативна методологія соціальної епістемології, критичний дискурс-аналіз та структурно-функціональний підхід. Результатами стали: аналіз взаємодії відкритості, цифровізації та глобальної інфраструктури науки, виявлення «тіньових зон» – алгоритмічних, економічних та політичних механізмів нерівного доступу до знання. Показано, що штучний інтелект став новим епістемічним агентом, який одночасно розширив дослідницькі можливості та поглибив технологічні й інфраструктурні дисбаланси. Узагальнено, що відкритий доступ, мовна асиметрія та алгоритмічна селекція сформували нові моделі епістемічної видимості та неоколоніальні форми продукування знань. Уточнено роль культурного різноманіття як ресурсу інклюзивної глобальної науки та наголошено на потребі етики прозорості. Практична цінність роботи полягає в тому, що результати дослідження можуть бути використані для формування політики відкритої науки, розвитку інклюзивних інфраструктур, етичного регулювання цифрових платформ та підвищення епістемічної справедливості у глобальному науковому просторі

Ключові слова: відкрита наука; епістемічна нерівність; цифрова епістемологія; інтерсуб'єктивність; комунікативна довіра; культурне різноманіття; етика прозорості