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Introduction to digital globalization and the spread of technology☆,☆☆

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ABSTRACT

This study made an attempt to establish a theoretical outline among the digital globalization, technological advances, and its socio-economic impacts. It does not view digital globalization as a linear phenomenon or a process that is good for everyone. Instead, it sees it as a field with uneven access, power, and capabilities. The proliferation of digital technologies, particularly artificial intelligence (AI), is significantly influencing organizational behaviour, legal frameworks, and socioeconomic structures. The main contribution of seven articles included in this SI go beyond abstract theorization by showing how digital change happens in specific institutional and regional contexts. They address three interconnected themes: (1) institutional agility and digital skilling; (2) geopolitics, regulation, and the ethics of emerging technologies; and (3) socio-economic drivers and barriers to technological adoption in context of digital globalization and the spread of technology. The contributions across these areas demonstrate that rather than being fundamentally deterministic, technological change is shaped by human decision-making, organizational structures, and larger political economic processes.

Introduction

Today, the world is connected not only through trade, migration, investment, and capital flows, but also through the rapid expansion of internet access, digital platforms, online services, and, more recently, artificial intelligence (AI). Together, these developments have reshaped globalization into what is increasingly described as “digital globalization”. This has enabled data, information, and technology to move quickly across borders, fundamentally changing how societies interact, communicate, and develop (Skare & Soriano, 2021). At the same time, technological diffusion provides the infrastructure that makes digital globalization possible, creating a self-reinforcing cycle: digital connectivity supports cross-border collaboration that is accelerating innovation and the spread of new technologies. Digital globalization has initiated a new phase of global economic integration, in which data, digital platforms, and digital infrastructure play a crucial role in cross-border socio-economic activities. It involves not just the adoption of new technologies but also a broader structural transformation in how companies internationalize, coordinate production across multiple locations, and generate value across borders (Luo, 2021; Nambisan & Luo, 2021).

A key mechanism behind this transformation is that digitization reduces the costs of searching, copying, transferring, tracking, and verifying information, thereby lowering information frictions and facilitating remote coordination and platform-based exchange (Goldfarb & Tucker, 2019; Maiti et al., 2022). However, its gains are not automatic. Recent evidence suggests that the benefits of digital adoption depend on complementary organizational change, firm-level digital capabilities, and the intensity of digital technology use within firms (Nucci et al., 2023; Oduro et al., 2023). The implications also extend to international trade: earlier studies linked internet diffusion to stronger trade flows, while more recent evidence shows that broadband adoption can reshape bilateral trade patterns by changing how firms access information and engage with foreign markets (Akerman et al., 2022; Freund & Weinhold, 2004). To avoid conceptual ambiguity, it is important to distinguish three closely related terms that are used throughout this article. Digitization refers to the technical process of converting analog information into digital form (Poulose et al., 2025). Digitalization describes the use of digital technologies to transform organizational processes, business models, and economic and social activities (Poulose et al., 2025). Digital globalization, which is the primary focus of this paper, extends beyond organizational transformation by describing the growing cross-border flow of data, digital services, platforms, knowledge, and digitally enabled economic activities that reshape international business, governance, and society. While digitization provides the technological foundation and digitalization represents the organizational transformation enabled by digital technologies, digital globalization refers to the broader global integration made possible through these digital processes. Accordingly, the term digital globalization is used throughout this study to describe the overarching phenomenon, whereas digitization and digitalization are employed only

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when referring specifically to technological conversion and organizational transformation, respectively.

It has also altered diplomacy through "digital diplomacy", where states and leaders use digital tools such as social media, video conferencing, and online campaigns to communicate and influence (Manor & Huang, 2022). As digital globalization becomes increasingly organized around data-rich platforms, it creates new sources of concentration, market power, and regulatory difficulty (Farboodi & Veldkamp, 2023; Tirole, 2023). Recent study shows that data now plays a central role in economic activity, firm valuation, and competitive advantage, while also raising important policy concerns about the dominance of large technology firms (Farboodi & Veldkamp, 2023; Sinha et al., 2025; Tirole, 2023). Despite its benefits, speed, lower cost, and broader access, digital globalization introduces risks including cybersecurity threats, platform dominance, digital divides, fake information and misinformation, job polarization, legal and governance challenges, chaos, social dilemmas, and digital surveillance (Verbeke & Hutzschenreuter, 2021). Addressing these issues has become essential to ensure the benefits of digital technologies are shared more equitably.

This study has made an attempt to establish a conceptual framework among the key three actors namely digital globalization, technological progress, and its socio-economic impacts. Then, it seeks to synthesize the major theoretical perspectives and contemporary literature on AI diffusion, digital globalization, and their economic, organizational, and socio-cultural implications, thereby establishing the broader intellectual context. Lastly, it integrates the contributions of the seven articles in the Special Issue by highlighting their collective contributions, and outlining future research directions for advancing scholarship on digital globalization and the spread of technology.

Understanding the spread of artificial intelligence

The spread of artificial intelligence should be examined from a "sociotechnical" lens rather than a purely technical or efficiency-driven one. This interpretation is consistent with Science, Technology and Society (STS) studies, such as Jasanoff and Kim (2009), who treat technological change as shaped by institutions, expertise, power relations, organizational routines, and everyday practices rather than by technical capability alone. AI diffusion depends on the interaction between technological capability, organizational decision-making, behavioral perceptions of risk, platform infrastructures, regulatory uncertainty, ethical concerns, and unequal global production capacity. In this section, AI diffusion is therefore framed through four connected dimensions: the technological attributes of AI, the behavioral and organizational mechanisms through which adoption decisions are made, the institutional and governance conditions that enable or constrain adoption, and the unequal social and regional consequences of diffusion.

Generative AI, which creates new content including text, images, video, audio, and code in response to user prompts, makes the current diffusion wave distinctive because it combines task-specific use with general-purpose potential. Many tools are marketed as narrow applications, such as writing emails, summarising documents, generating code, or supporting customer service, but users often discover wider applications once they begin experimenting. AI also spreads through the wider digital technology ecosystem. Cloud computing, digital platforms, enterprise software, customer relationship management systems, human resource systems, the Internet of Things, blockchain-enabled infrastructures, and data analytics platforms increasingly carry AI capabilities into firms and public institutions (Maiti & Ghosh, 2021). This means that AI adoption is often embedded in broader digital globalization rather than occurring as a separate technological decision.

For businesses, especially privately held and non-listed firms, adoption decisions are filtered through concentrated ownership, limited transparency on performance, and personal downside risk for owners and directors. Leaders interpret AI through uncertainty, control, accountability, and competitive pressure. Small firms may adopt early because peers, clients, or social media signal that AI-enabled responsiveness is becoming standard, while larger firms may experiment because employees are already using tools informally. Where decisions are shared across managers, AI can also change how work is coordinated by pushing cost-focused firms to simplify approvals and reduce bottlenecks so decisions reach revenue-generating activities faster.

For boards and owner-managers, AI is not just an operational upgrade. It shifts who does the thinking, who signs off on decisions, and who carries accountability when something goes wrong. In that setting, behavioral biases well documented in behavioral finance can shape adoption decisions (Barberis & Thaler, 2003). Loss aversion helps explain why many private firms move slowly (Kahneman & Tversky, 1979). AI can fail quietly: outputs may look confident while still being wrong, and the error is not always easy to spot. This creates an uneven risk profile in which the upside is difficult to verify early, while a reputational or legal downside feels immediate. Consistent with prospect theory, boards tend to wait unless they believe the firm is already falling behind competitors (Kahneman & Tversky, 1979).

This human dimension is central to understanding diffusion. Workers interact with and experience AI through productivity tools, automated monitoring, recruitment systems, performance analytics, and changes in task allocation. Managers encounter it through decision-support systems, forecasting tools, and workflow automation. Customers and citizens encounter AI through chatbots, credit scoring, fraud detection, digital banking interfaces, public service portals, and automated eligibility decisions. These everyday examples make AI diffusion socially consequential: it affects trust, autonomy, accountability, skills, and the distribution of risks between organizations and individuals. Ethical issues therefore do not arise only after AI is adopted; they shape adoption itself. Concerns about bias, privacy, surveillance, explainability, accountability, and liability influence whether organizations adopt AI, where they deploy it, and how tightly they govern its use.

AI also feels different from earlier automation because it substitutes not only labour, but judgement. This raises a classic "illusion of control" problem: leaders may feel less comfortable delegating work when they cannot fully see or explain the reasoning behind an output (Langer, 1975). That discomfort shows up in a common pattern: boards approve AI for low-stakes, easily reversible uses (drafting emails, summarising documents), but hesitate to use it in pricing, forecasting, or strategic analysis. These areas are where the economic value could be larger, but where mistakes are harder to explain or defend (Brynjolfsson et al., 2021). Biases can also push firms to adopt too quickly or in the wrong way. Overconfident leaders may assume they can manage AI risks through informal oversight. The result is often "piecemeal" adoption, where tools are introduced without the less visible organizational changes that support productivity gains, such as stronger data practices, process redesign, and staff training. The productivity literature argues that technology gains depend on complementary organizational adjustments (Bresnahan, 2002).

Recent empirical evidence supports the view that AI diffusion is accelerating but uneven. The McKinsey Global Survey reported that organizational AI adoption increased to 72% in 2024, while regular use of generative AI rose to 65%, nearly double the previous survey level (McKinsey, 2024). KPMG's, 2024 survey of senior business leaders found that 83% expected generative AI investment to increase over the next three years, but only 16% considered their workforce highly equipped to use it effectively (KPMG, 2024). Deloitte similarly reports that generative AI adoption requires complementary investment in data management, cloud infrastructure, cybersecurity, governance, and workforce capability (Deloitte, 2024). These findings reinforce the productivity literature: AI value depends not only on the technology itself, but also on complementary organizational capabilities, skills, data quality, and governance arrangements.

Competition can speed up adoption, but the relationship is not linear. Aghion et al. (2005) describe an inverted-U relationship between competition and innovation. In private firms, adoption is often triggered

less by abstract market pressure and more by vivid peer comparison. Boards may ignore industry-wide statistics, but react when a familiar competitor showcases AI, a key client expects AI-enabled responsiveness, or employees begin using tools informally and create internal pressure. This fits reference point theory: firms judge their position relative to what peers appear to be doing, not only to an "objective" efficiency frontier (Fiegenbaum, Hart & Schendel, 1996). Tools such as chatbots often become the entry point. They frame AI as assistance rather than replacement, making trials feel low-risk and reversible. Economically, this reduces adoption costs and increases trialability conditions that accelerate diffusion (Rogers, 2003). Behaviourally, it can also preserve a sense of control. The downside is that firms may adopt defensively, aiming to keep up with peers rather than redesigning workflows to create a real advantage. Agentic AI raises the stakes because it blurs the line between a tool and a decision-maker. Once leaders authorise these systems, they may become reluctant to reverse course even when results disappoint. This is consistent with escalation of commitment (Staw, 1976) and with path dependence and "lock-in" dynamics (Arthur, 1989). In practice, firms can remain committed to suboptimal configurations not only because switching is costly, but because admitting a wrong call can feel reputationally risky. Timing also reflects how comfortable decision-makers are with ambiguity. When demand is volatile or regulation is unclear, private firms often delay AI investment and adopt a "wait and see" approach. Because generative AI is evolving quickly and brings governance and liability questions, it can amplify ambiguity aversion, that is, the tendency to prefer known, quantifiable risks to unknown, difficult-to-quantify risks (Camerer & Weber, 1992). Some firms still adopt early, but often for legitimacy reasons (to look current to clients and peers) rather than because they have already quantified the efficiency case.

The global spread of AI is also uneven across regions. The IMF's AI Preparedness Index shows that readiness differs across countries because digital infrastructure, human capital, labour market policy, innovation capacity, economic integration, and regulatory frameworks vary substantially (IMF, 2024). The World Bank similarly notes that many developing countries can benefit from practical, targeted AI applications, but only where affordable connectivity, trusted data systems, digital public infrastructure, cybersecurity, and institutional safeguards are in place (World Bank, 2025). In African contexts, AI diffusion may be accelerated through mobile banking, digital financial inclusion, agricultural services, and platform-based commerce, while still being constrained by data quality, connectivity costs, skills shortages, and regulatory uncertainty. In Asia, diffusion is often linked to digital public infrastructure, business-process outsourcing, education technology, and platform ecosystems. In Latin America, adoption may be shaped by uneven cloud access, SME capability gaps, informality, and the availability of digital skills. These examples show that AI diffusion is global, but its pathways are locally mediated.

Governance conditions also shape the pace and direction of AI diffusion. Cross-border data flows, data sovereignty, cybersecurity, digital taxation, vendor dependence, platform lock-in, and regulatory fragmentation all affect whether AI systems can be deployed at scale. These issues are especially important because AI often depends on data that move across jurisdictions, cloud infrastructures controlled by a small number of global firms, and models whose training data and decision logic may be difficult to inspect. As governments develop national AI strategies and data governance regimes, firms face a dual challenge: they must move quickly enough to remain competitive while also maintaining accountability, compliance, transparency, and public trust. In this sense, governance is not external to diffusion; it is one of the conditions through which diffusion becomes possible, legitimate, or contested.

Finally, AI is increasingly bundled into existing software platforms, so diffusion can happen through institutional channels rather than deliberate strategy (DiMaggio & Powell, 1983). When accounting, human resources, customer relationship management, digital banking, or cloud productivity systems add AI features by default, organizations may adopt them passively. This normalises AI while sidestepping explicit accountability, which may be attractive in the short run but problematic in the long run. Thus, AI is both a product and a driver of digital globalization. It accelerates, cheapens, and broadens traditional diffusion mechanisms by turning them from slower, location-bound processes into faster, network-driven, and globally connected ones. At the same time, AI amplifies gaps where access, skills, data, institutional capacity, or policy frameworks lag. The central point is therefore not simply that AI spreads quickly, but that it spreads unevenly, through sociotechnical systems that connect everyday users, firms, platforms, states, and global infrastructures.

The preceding discussion suggests that digital globalization and the spread of artificial intelligence should be understood as an interconnected sociotechnical system rather than as isolated technological developments. Fig. 1 presents the conceptual framework that guides this introductory article. It illustrates how digital globalization creates the conditions for AI diffusion, while institutional, organizational, behavioral, and geopolitical factors shape the adoption and use of AI. These interactions ultimately generate a range of economic, organizational, and socio-cultural consequences that are explored throughout this Special Issue.

Economic and socio-cultural impacts

AI reinforces economic inequality while providing new participation opportunities, restructuring labor markets through polarization and remote work, and redefining comparative advantages around data and technology.

From a mainstream perspective, digital globalization can support growth, productivity, and innovation by lowering the costs of information, coordination, and market participation. Because digitization reduces the costs of searching, replicating, transmitting, tracking, and verifying information, it can improve economic efficiency and make cross-border coordination easier (Goldfarb & Tucker, 2019). Digital platforms also allow firms to reach foreign consumers and suppliers with a limited physical footprint, and firm-level studies generally find positive effects of digital adoption on productivity, innovation, and overall performance (Gaglio et al., 2022; Nucci et al., 2023). Meta-analytic evidence points in the same direction, while also showing that these gains depend on complementary organizational change, firm capabilities, and the intensity of technology use (Oduro et al., 2023). These effects extend to international trade. Digitalization has reshaped what is traded, how trade is organized, and who can participate by lowering the costs of communication, coordination, and delivery in digitally enabled sectors (OECD, 2019). Earlier work linked internet diffusion to stronger trade flows, while more recent evidence shows that broadband adoption can reshape bilateral trade patterns by reducing information frictions and changing how firms engage with foreign markets (Akerman et al., 2022; Freund & Weinhold, 2004). Digital technologies may also widen participation for some developing economies, especially in digitally deliverable services, but those gains are conditional on skills, infrastructure, and complementary capabilities rather than occurring automatically.

From a political economy perspective, the benefits of digital globalization are distributed unevenly. Digital markets often demonstrate significant concentration, and data-rich platforms can amass market power, economic rents, and regulatory influence (Farboodi & Veldkamp, 2023; Tirole, 2023). Access to digital infrastructure, skills, and data remains highly unequal both across and within countries, which limits many developing economies' ability to capture higher-value segments of the digital economy (Norris, 2001; UNCTAD, 2021). At the labor market level, digitalization can increase polarization by boosting the demand for high-skill jobs while displacing routine tasks. This shift widens the disparities not only between companies that are leaders in digital technology and those that lag, but also within the national labor markets

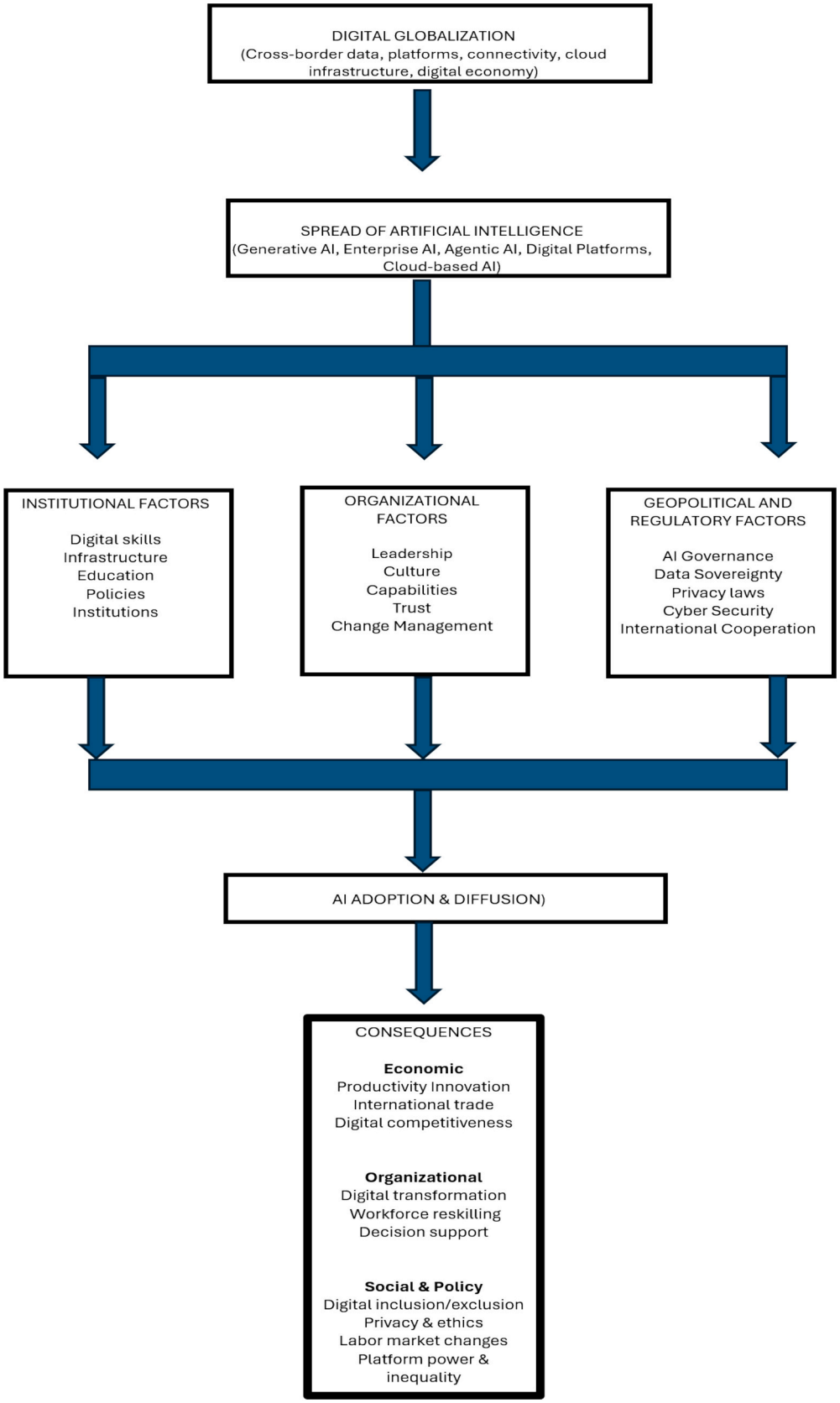

Fig. 1. Conceptual framework illustrating the relationships among digital globalization, artificial intelligence diffusion, contextual factors, and their economic, organizational, and socio-cultural consequences.

themselves (Autor, 2014; Autor & Dorn, 2013).

The reshaping impact of digital globalization on labor markets takes place through task tradability and remote work. The mainstream view of impacts on labor markets is mostly optimistic (Autor, 2014). Mainstream economists believe that it promotes remote work (telemigration) by expanding global labor supply, contributing to the reduction of geographic constraints, and increasing labor market flexibility. Digital globalization improves labor market efficiency by facilitating global matching between employers and workers. Online platforms enable remote work and freelancing, allowing workers to access international labor markets (Autor, 2014). Technological advancements also increase productivity and generate new types of jobs. Although automation may displace certain occupations, it is expected to create new opportunities in the long run through innovation and skill upgrading (Acemoglu & Restrepo, 2020). For example, automation of professional services (finance, law, accounting) may create employment challenges for intermediate-skill labor, while favoring highly skilled professionals.

In contrast, political economy approaches emphasize labor market polarization and precarity. Digital globalization disproportionately benefits high-skilled workers while displacing middle-skilled jobs, leading to increased wage inequality (Autor et al., 2008). The rise of the gig economy has introduced flexible but insecure forms of employment. Platform workers often lack social protection, job security, and stable income, shifting risks from firms to individuals (De Stefano, 2016). Additionally, global competition in digital labor markets can exert downward pressure on wages, particularly for routine and easily tradable tasks. This weakens labor bargaining power and contributes to the erosion of traditional employment relationships. In labor markets, the platform economy can create new job opportunities and greater flexibility, but it also raises concerns about job insecurity, unequal bargaining power, and growing control over workers (Vallas & Schor, 2020). The economic effects of digital globalization are therefore mixed: it can widen market access and improve efficiency, but it can also increase concentration and reinforce unequal bargaining power (Farboodi & Veldkamp, 2023; Tirole, 2023; Vallas & Schor, 2020).

Digital globalization is transforming the foundation of comparative advantages. In traditional trade theory, competitiveness is defined by relative productivity differences or by factor endowments such as labor, capital, and natural resources. In the digital economy, success increasingly relies on digital connectivity, data capabilities, and the institutional frameworks that govern cross-border coordination and platform-based exchanges (Luo, 2021; Nambisan & Luo, 2021). As data becomes a nonrival and scalable input, comparative advantage is less tied to factor costs alone and more dependent on dynamic capabilities, technological capacity, and the ability to generate and use data productively (Jones & Tonetti, 2020). These advantages are cumulative: early gains in digital technologies, platforms, and data can reinforce themselves through increasing returns, network effects, and learning. Digital platforms can lower search and matching costs, enhancing firms' access to foreign markets and thereby transforming trade organizations (Carballo et al., 2022). From a political economy perspective, these dynamics are path-dependent because control over data and digital platforms can entrench market power and raise barriers to entry (Tirole, 2023; UNCTAD, 2021).

Besides these economic impacts of digital globalization, it has also some important socio-cultural impacts as well. Since digital globalization is not a neutral phenomenon, it fundamentally changes privacy, participation, and the relationships among individuals, businesses, and institutions. It has increased access to information, communication, and social involvement, creating new opportunities for learning, connection, and inclusion. From a broader perspective, these advancements can foster human capital development and increase participation opportunities, particularly for historically marginalized groups. While its socio-cultural effects can be uneven and contradictory, global digital platforms increase access to cultural products and shared media spaces, fostering exchange and mutual understanding. However, these same technologies may also deepen societal fragmentation. Algorithmic curation and personalized digital environments can reinforce existing beliefs, limit exposure to diverse perspectives, and amplify the voices of the privileged. The social consequences of digital globalization should not be viewed as a simple process of cultural convergence. While digital connectivity can promote participation, connection, and integration, it can also lead to exclusion if access, digital skills, and resources are not distributed evenly (van Deursen & Helsper, 2018; van Deursen & van Dijk, 2019). In the context of migrants and refugees, smartphones and social media can play a vital role in helping individuals stay connected, access information, and adjust to life in their host countries. However, these benefits largely depend on access to digital technology, digital literacy skills, and a supportive information environment (Alencar, 2020; Kaufmann, 2018).

Recent research on digital inequality highlights that this issue extends beyond mere physical access to technology. It now encompasses differences in material access, digital skills, usage patterns, and the outcomes individuals achieve through their online engagement (Lythreatis et al., 2022; Ragnedda et al., 2022; Scheerder et al., 2017; van Deursen & Helsper, 2018; van Deursen & van Dijk, 2014, 2019). Digital globalization can expand participation in communication and culture, but it can also reinforce existing inequalities regarding visibility, networking opportunities, and the ability to translate digital engagement into tangible benefits (van Deursen & Helsper, 2018; van Deursen & van Dijk, 2014, 2019). Furthermore, digital globalization is reshaping social interactions as the influence of large digital platforms and data-driven business models grows. While these platforms can enhance participation, they also concentrate visibility, control, and informational power among a small number of actors. As a result, personal data has become a crucial economic and social asset. In this context, platforms can gain significant advantages in information, raising concerns about privacy, autonomy, market power, and democratic accountability (Farboodi & Veldkamp, 2023; Tirole, 2023).

The main idea is that the economic and socio-cultural effects of digital globalization are closely linked. The technologies that lower search, coordination, and information costs also change how people access work, participate in society, gain visibility, and wield power based on data (Farboodi & Veldkamp, 2023; Goldfarb & Tucker, 2019; van Deursen & van Dijk, 2019). The key question is not whether digital globalization is ultimately beneficial or harmful. Instead, it focuses on the organizational, regulatory, and social conditions necessary for its benefits to be widely distributed rather than concentrated in the hands of a few (Oduro et al., 2023; Tirole, 2023; van Deursen & Helsper, 2018). The results of digital globalization are not solely determined by technology; institutions heavily influence them. Factors such as education policy, digital infrastructure, competition policy, and data governance will significantly impact whether digital globalization promotes greater inclusion or exacerbates existing inequalities.

Insights from the special issue and future directions

The seven contributions to this Special Issue communicate with each other and thereby create a conversation across diverse contexts and approaches, deliberating how digital globalization is reshaping economic, social, political, and organizational structures. Instead of viewing technology as a uniform global force, the papers in this special issue analyze how technology is mediated by various factors such as local capabilities, individual risk attitudes, and shifting geopolitical landscapes. Overall, the papers in the special issue primarily track three intersecting thematic dimensions: i) institutional agility and digital skilling, ii) geopolitics and regulatory aspects and ethics of emerging technologies, and iii) socio-economic drivers and barriers to technological adoption. Andrés C. Aponte-López, Mariana Trujillo-Gallego, and Cristian Rincón-Guio explore the critical role of “strategic agility” in the higher education institutions (HEIs) that are facing pressures from

different global knowledge economies. By employing data from Colombian HEIs, they demonstrated that human capabilities and digital technologies are simply not functional tools; rather they are the primary enablers that permit universities to make a balance between global reach and local engagement. The combination of global reach and local engagement has been referred to as the "glocal university". Their findings indicate that in a post-COVID pandemic virtualized environment, agility has evolved into a sociotechnical capability, in which digital infrastructure finds itself as a substrate for human-led innovation.

Anuj Sharma, Satender Pal Singh, Robin Nunkoo, and Rajesh Mahadeva bring forward a comprehensive scientometric review of emerging technologies, wherein they identify blockchain, AI, and the Internet of Things (IoT) as the core pillars of digital globalization. They mapped nearly two decades of research, revealing the way these technologies streamline global supply chains, reduce information asymmetry, and increasingly drive sustainability goals in international business.

Jon Truby, Andrew Dahdal, Rafael Brown, and Imad Ibrahim present the strategic and legal dimensions of the AI race. They pursue the concept of "AI Diplomacy," arguing that, even though technonationalism and the competition for AI chips have made global rivalry very intense, these have also made space for creation of novel avenues for international law and cooperative guardrails. Based on their analysis, it is revealed that stability in future will depend on institutionalized coordination, such as a global AI agency, which can manage the profound impact of advances in AI systems on humanity.

Chipeta, Mani, McSharry, Luhanga, Seetharam and Nyakurukwa explore the background of the COVID-19 pandemic in Africa, especially in the context of resilience of digital financial inclusion. By employing World Bank Findex data, they recognise two paths: the crisis accelerated digital onboarding for those who were already connected, but "financial worry" made it much harder to adopt for those who were vulnerable. Their research emphasizes the imperative for specific policy measures to mitigate health-related financial difficulties that risk exacerbating the digital divide.

Prabodh B. Nayak and Itam Urmila Jagadeeswari discuss the internal organizational aspect of digital globalization by suggesting an AI-powered framework for managing human resources. They integrate Big Data Analytics with privacy-preserving technologies, and the subsequent outcome of this integrated model shows a 99% accuracy in fair compensation allocation and a 70% reduction in verification times, respectively. Their study brings forward how digital tools can optimize performance, while keeping a balance between employee trust and data security in the context of remote work environments.

Mhaske, Bhattacharjee, Haldar, Upadhyay and Mandal provide a comprehensive literature review of digital skill gaps, and its enablers and barriers. By deploying a mixed-methods strategy, they integrate expert insights through interviews and a PRISMA-informed systematic review of existing literature to develop a framework for addressing the digital skill gap in the workforce. They identified the critical enablers to tackle digital skill gaps as targeted investments, government-led digital literacy initiatives, accessible digital infrastructure, inclusive policies, industry-aligned curricula, and organizational digital maturity. In addition, they identified the key barriers to addressing digital skill gaps as outdated curricula, limited access to quality educational resources, inadequate regulatory support, and high infrastructure costs.

Adriano Biondo, Giuseppina Rizzo, Giuseppina Migliore, and Antonino Galati focused on the problem of adoption of precision farming technologies in the context of Sicilian wine growers. Using the Technology Acceptance Model (TAM2) as a theoretical lens for the technology adoption problem, they found that risk perception was the biggest barrier; although perceived usefulness was observed as a strong motivator. In addition, they also observed that financial incentives and focused training are key for speeding up the digital transformation in the wine industry, which is a largely conservative segment in terms of technology adoption.

Future research directions

The contributions in this Special Issue collectively demonstrated that digital globalization and the spread of artificial intelligence are multidimensional phenomena shaped by technological capabilities, institutional arrangements, regulatory environments, and socio-economic contexts. While the studies provide valuable insights into these issues, they also highlight several promising directions for future research.

First, future studies should move beyond cross-sectional analyses to examine the long-term dynamics of digital transformation. Longitudinal research would help explain how organizations, governments, and societies adapt to rapidly evolving digital technologies, particularly generative and agentic AI, and how these adaptations influence productivity, innovation, workforce capabilities, and organizational resilience over time.

Second, comparative cross-country and cross-regional research is needed to understand why digital technologies diffuse unevenly across institutional settings. Future studies could investigate how differences in digital infrastructure, regulatory frameworks, governance quality, education systems, and cultural contexts influence technology adoption, digital capability development, and the outcomes of digital globalization. Such research would be particularly valuable for understanding digital transformation in emerging and developing economies.

Third, greater attention should be devoted to the governance of artificial intelligence. As AI becomes increasingly embedded in organizational decision-making and public services, future research should examine issues related to algorithmic transparency, accountability, explainability, privacy protection, cybersecurity, and cross-border data governance. The interaction between national AI strategies, international regulatory cooperation, and technological innovation represents an important area for interdisciplinary investigation.

Fourth, future research should further explore the human and organizational dimensions of AI adoption. While technological capability is important, successful implementation also depends on leadership, employee skills, organizational culture, trust, behavioral factors, and complementary organizational changes. Integrating perspectives from behavioral economics, organizational theory, information systems, and innovation management could provide a more comprehensive understanding of AI adoption and diffusion.

Finally, there is a need for more interdisciplinary and mixed-methods research that integrates technological, economic, legal, political, and social perspectives. Digital globalization is fundamentally a sociotechnical phenomenon whose consequences cannot be fully understood from a single disciplinary perspective. Combining large-scale quantitative analyses with qualitative case studies, policy analysis, and computational methods would provide richer insights into how digital technologies reshape organizations, industries, and societies while addressing concerns related to inequality, inclusion, sustainability, and ethical AI.

Collectively, these research directions provide a foundation for advancing scholarship on digital globalization and the spread of technology, while informing policymakers and practitioners seeking to promote inclusive, responsible, and sustainable digital transformation.

Conclusions

The conceptual framework proposed in this article highlights that AI diffusion is not driven solely by technological advances but is jointly shaped by institutional capacity, organizational readiness, governance arrangements, and socio-economic conditions operating within the broader process of digital globalization.

Digital globalization has fundamentally reshaped how technologies, knowledge, data, and economic activities move across borders. This introductory article has argued that digital globalization should not be understood as a uniform or technologically deterministic process, but rather as a dynamic sociotechnical phenomenon shaped by institutions,

governance structures, organizational capabilities, and human decision-making. Artificial intelligence has emerged as one of the defining technologies of this transformation, accelerating digital connectivity while simultaneously creating new challenges related to regulation, ethics, inequality, skills, cybersecurity, and geopolitical competition.

The seven articles included in this Special Issue collectively demonstrated that the spread of digital technologies occurs differently across institutional, industrial, and regional contexts. Together, they highlight three interconnected themes that characterize contemporary digital globalization: (i) institutional agility and digital skilling, emphasizing the importance of organizational capabilities and workforce preparedness; (ii) geopolitics, regulation, and the governance of emerging technologies, illustrating how AI and digital technologies are increasingly influenced by international competition, legal frameworks, and policy coordination; and (iii) socio-economic drivers and barriers to technology adoption, demonstrating that digital transformation is mediated by differences in resources, risk perceptions, infrastructure, and institutional capacity. Collectively, these studies reinforce the view that technological change is embedded within broader organizational, political, and social systems rather than driven solely by advances in technology itself.

From a theoretical perspective, this Special Issue contributes to the growing literature by integrating insights from digital globalization, Science and Technology Studies (STS), institutional theory, behavioral decision-making, technology adoption, and political economy. Rather than treating AI adoption as a purely technological process, the papers emphasize that digital transformation is simultaneously influenced by organizational capabilities, governance arrangements, behavioral factors, and institutional contexts. This broader perspective advances our understanding of digital globalization as an evolving sociotechnical system in which technological innovation, institutions, and human agency continuously shape one another.

The findings also have important practical implications. For policymakers, the studies highlight the need to invest in digital infrastructure, digital literacy, workforce development, and regulatory frameworks that encourage innovation while ensuring accountability, privacy, fairness, and cybersecurity. For organizations, the evidence suggests that successful digital transformation requires considerably more than technology investment. Long-term value depends on complementary organizational changes, effective governance mechanisms, continuous workforce upskilling, and responsible AI implementation. For educational institutions and industry, stronger collaboration is essential to reduce digital skill gaps and prepare future workforces for rapidly changing technological environments.

Overall, this Special Issue demonstrated that the future of digital globalization will depend not only on technological progress but also on the institutional, organizational, and societal choices that determine how digital technologies are designed, governed, and deployed. Ensuring that the benefits of digital globalization are broadly shared will require coordinated efforts among governments, businesses, educational institutions, and civil society to promote inclusive, ethical, and sustainable digital transformation.

CRediT authorship contribution statement

Moinak Maiti: Writing – review & editing, Writing – original draft, Visualization, Validation, Resources, Project administration, Investigation, Formal analysis, Conceptualization. **Biplab Bhattacharjee:** Writing – review & editing, Writing – original draft, Visualization, Validation, Investigation, Formal analysis, Conceptualization. **Yudhvir Seetharam:** Writing – review & editing, Writing – original draft, Validation, Investigation, Formal analysis, Conceptualization. **Mustafa Özer:** Writing – review & editing, Writing – original draft, Validation, Investigation, Formal analysis, Conceptualization. **Darko Vukovic:** Writing – review & editing, Visualization, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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