# 2023 Global Education Monitoring Report on Technology and Education

## Expert consultation convened by NORRAG

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# 1. Introduction

The 2023 Global Education Monitoring (GEM) Report will examine education challenges to which appropriate uses of technology can offer solutions while recognising that many of the solutions proposed may also be detrimental. The report will examine issues of access, equity and inclusion in education, looking at how technology can help reach disadvantaged learners and ensure that more knowledge reaches more learners in more engaging and cheaper formats. The GEM Report staff engages in a wide range of consultations to inform the development of their annual report.

This expert consultation on the 2023 GEM Report convened by NORRAG focused on the power and influence of technology corporations and philanthropists and the platforms and products they offer. The consultation also addressed potential implications for education governance and public education systems. These technology service providers, software developers, corporations and philanthropists are mainly non-state actors, linking the 2023 GEM Report on technology and education with the 2021/2 GEM Report on non-state actors and education.

On Thursday, 3 November 2022, a group comprising 39 participants from academia, development agencies, governments, implementing organisations, non-governmental organisations and the private sector, along with bilateral donors, participated in an online consultation convened by NORRAG. After opening remarks from Moira V. Faul, NORRAG Executive Director, and a presentation of the 2023 concept note by Manos Antoninis, Director of the GEM Report, the programme presented two panels: one focusing on governance and procurement and a second focusing on influence. Four panellists provided brief reflections to begin each panel. Following the panel introductions, all participants were invited to share their thoughts during a workshop. Experts attending the consultation were invited to add suggestions to a Padlet discussion board.[i]

The consultation and present output report aim to contribute to the development of the 2023 GEM Report. The report summarises key contributions of panellists and participants during the consultation.

# 2. Panel 1: Governance and Procurement

The Governance and Procurement panel was moderated by Anna d'Addio, thematic lead of the GEM Report, with the participation of panellists from United States Agency for International Development (Semra Seifu), the Global Partnership for Education (GPE; Stijn De Lameillieure), FHI 360 (Stephen Luke) and Education Business Vertical, HP (Mayank Dhingra).

Anna d'Addio welcomed the panellists and described how this panel aimed to further illuminate (1) how education technology shifts from concept to classroom and (2) how technologies are deployed across education systems. In this respect, the panel aimed to examine the range of public policies that promote the provision of education technology at various educational levels. It also looked at how various actors, including technology companies and other donors, work together to organise procurement and implement education initiatives at different educational levels.

All expert participants were invited to respond to two questions:

- How are different state and non-state actors working together to procure education technology and deliver education services using technology at different education levels? What has changed since the Covid-19 pandemic?

- What public policies that promote the provision of technology have been successful in terms of their impact on equity, efficiency and effectiveness in education?

## 2.1. Semra Seifu, Information and Communication Technology Advisor, Center for Education, USAID

From the perspective of USAID, Semra Seifu highlighted areas of importance in the design and implementation of sustainable technology in education programmes in local contexts. USAID education technology programmes are designed to address the needs of each local context, with an emphasis on the most marginalized and low-income communities. Sustainability and a long-term vision are built into the design and implementation of USAID programmes since the project's inception. It's critical for programmes to align with country priorities and commitments from partner governments. Linking systems funded by USAID to national systems or other investment donors is an example of how to work with local organizations, including the local private sector, to ensure community buy-in and the support of the local economy.

> **Example:** The USAID Higher Education for Economic Growth Activity in El Salvador encouraged the contributions of women to science and technology. It supported the development of the country's first national policy of higher education. The project formed alliances between the private sector and universities. Alliances were composed of an industry association, universities, government representatives and an advisory board comprising representatives from the private sector and academia. The alliances focused on economic sectors with high growth potential, such as information and communications technologies and energy.

> **Example:** The All Children Reading Grand Challenge is a model for how to convene local stakeholders to create innovative solutions that are responsive to their local context. In this model, international organizations fund programming to support foundational learning, but other partners support the necessary technology infrastructure.

> **Example:** The Building University-Industry Learning and Development through Innovation and Technology (BUILD-IT) campaign in Vietnam is an example of leveraging partnerships between government, industry and academia to advance university autonomy, improve programme quality and increase impact. The BUILT-IT Alliance focuses on creating a model to modernize innovative technology and engineering in higher education by providing teaching and learning resources to partner universities in Vietnam. The Alliance aims to directly link higher education to the needs of the private sector.

## 2.2. Stephen Luke, Senior Technical Advisor, FHI 360

From the perspective of a US-based implementing partner for USAID and other donors, Stephen Luke of FHI 360 highlighted programme implementation examples relevant to this consultation. Luke emphasised that the work of FHI 360 is guided by a set of principles. These principles include the USAID digital principles but also a broader set of principles for digital development that emphasise the implementation of projects designed in collaboration with end users and with their needs

in mind. The following examples illustrate the importance of understanding local ecosystems to ensure design for sustainability and scale.

> **Example:** The [Macedonia Primary Education Project](#) is an example of the use of ecosystem development to promote long-term programmatic sustainability through competitive pricing. The programme's aims were to provide technology to schools, connect schools to broadband and support teaching and learning through the integration of technology. The partnership, in collaboration with the government, advocated for regulations within the country to ensure that there was a competitive landscape for internet service provision in Macedonia. As a result of the work of USAID, FHI 360 and the Macedonian government, Macedonia became the first country in the world to be completely wirelessly connected. This technological foundation made it possible to provide the technology to schools within an ecosystem with a more competitive landscape in terms of internet service provision. The diversification of internet service providers for competitive pricing for sustainability allowed the schools to both scale the technology and sustain their contracts past a period of performance.

> **Example:** [Ghana Learning](#) was established in direct collaboration with the Ministry of Education in Ghana to develop regional teacher professional development centres and connections to resources. In the local context, there was a shortage of internet connectivity. The partnership worked with a UK-based partner to provide satellite-based internet connectivity to regional teacher professional development centres to ensure state-of-the-art equipment and support teacher training in this context.

## 2.3. Stijn De Lameillieure, Head of Private Sector and Foundations Team, Global Partnership for Education

From the perspective of the GPE, Stijn De Lameillieure highlighted how the Covid-19 pandemic was an impetus for the GPE to rethink the value of technology in and for education in a more intentional context. Since the onset of the pandemic, the GPE has provided over 500 million USD to support 66 countries and sustained learning for more than 350 million learners. These funds resulted in 66 grants, 40% of which included low- to high-technology distance learning solutions. These solutions ranged from low-tech radio and television to high-tech online solutions via mobile phones, tablets and web platforms.

The pandemic coincided with the GPE's launch of a new strategy and strategic plan, which runs from 2021 to 2025. The core strategy of system transformation sheds a new light on the value of technology in and for education. In the GPE's view, the private sector is central, and it is critical to the exploration of technology and education. Consultations were held with stakeholders, including some of the countries they support and private sector actors. The overall position is that the accelerative effect that technology could have on educational outcomes has not yet fully materialised. Technology solutions remain difficult to scale, and challenges remain in the meaningful deployment of technology, especially in conflict-affected and remote areas. Lessons coming out of these consultations include the following:

- The application and deployment of technology must be rooted in evidence. This implies (1) equipping decision-makers with the knowledge and tools they need to vet and procure technology and (2) a need for private providers of technology to reassess the effectiveness of the solutions that they offer.

- The implementation of meaningful technology deployments requires an ecosystem change approach. Those using technology for education solutions must look beyond hardware and software to consider success factors and ecosystems.

- Multistakeholder collaboration is essential, including dialogue between the education and technology sectors and cross-sectoral collaboration.

- The development of common ground around core principles of engagement – for example, the importance of equity and accessibility in technology use – highlights the need for a multimodal approach to technology, from low to high technology.

- There is a need to strengthen policies governing the ethical use of data and technology deployments.

## 2.4. Mayank Dhingra, Head, Education Business Vertical, Southern Europe, Middle East and Africa, HP Inc.

From the perspective of an international technology corporation, Mayanak Dhingra highlighted some public–private partnership models HP has enacted in its commitment to education equality and digital equity. The commitments are mass public pledges to which HP holds itself accountable. One of HP's key strategies is to map initiatives to existing international development goals. For example, HP aligned itself with five of the goals in the Continental Education Strategy for Africa (CESA 2016–25), which is a strategic framework used in the realisation of the African Union's vision as articulated in Agenda 2063: The Africa We Want.

> **Example**: One CESA goal is to revitalise the teaching profession to ensure quality and relevance at all levels of education. HP identified a challenge in achieving this goal: a large portion of the technology coming into classrooms is wasted because teachers are expected to do far more than what they were trained to integrate. Thus, technology coming into classrooms is not assisting teaching and learning in creating outcomes. The [HP Innovation & Digital Education Academy](#) was designed to address this challenge. The programme's emphasis was on creating digital comfort and fluency with teachers. Equally importantly, the programme aims to make teachers more innovative and resilient. After two years, the programme now exists in 17 countries and works with 15 governments, 10 of which are in Africa. The programme has impacted 600,000 students and 23,000 teachers.

## 2.5. Summary

The panellists converged on the need to involve stakeholders at the civil society, government and private sector levels while remaining mindful of the features of the national ecosystems in which education technology is delivered. The key role of the private sector was reiterated alongside core principles that need to be applied in these partnerships, such as equity, transparency, sustainability and scalability. The panellists agreed that project implementation must be evidence-based to provide decision-makers and educators with the knowledge and tools to apply technology in educa-

tion. The panel also reflected on the cost of the maintenance and replacement of education technology, issues that relate to sharing data, monitoring evaluation indicators and research within the education community on ways to make informed decisions based on what does and does not work in education technology. Finally, the panellists agreed that the Covid-19 pandemic accelerated the inclusion of technology in education, although challenges to its application and scaling persist in some national contexts.

## 2.6. Participants' responses during the Padlet workshop

After the panel, all participants responded to two questions during the Padlet workshop. A brief analysis of the participants' responses to these questions follows.

**Panel 1 / Q1: How are different state and non-state actors working together to procure education technology and deliver education services with the use of technology at different education levels? What has changed since the Covid-19 pandemic?**

### State and non-state actors working together

There is significant momentum around strengthening education systems in nations and subnational regions with education technology. Digital equity in the education space should be part of every purpose-driven entity's obligations. This entails managing many moving pieces – hardware, software, interoperability, regulations, use, stakeholders and change management. Reflection upon how government operating models need to change and adapt to manage these initiatives so that the systems formed represent a connected and coordinated effort, rather than isolated projects, is an important component of ensuring long-term sustainability, scalability and programmatic equity. A series of questions was raised: Do we need Chief Information Officers/Chief Technology Officers? If yes, how are they funded and hired? Do we need governance services to be procured for managing tech reforms? How much agency do school leaders and teachers in the classroom have in choosing the best technology solutions for their students? What is the role of families in this discussion?

Reflections from the state on differences in technology solutions provided by for-profit vs. not-for-profit private actors are critical. For example, there is a need to examine the inherent logic of the interest and engagement of technology actors in the education sector. The private sector narrative often emphasises altruism; looking beyond profit and embracing impact can make their participation in development a successful collaboration. Participants noted that the governance of technology actors working in the education sector should reflect their differences in purpose and some participants questioned how we can expect for-profit private sector organizations to really look beyond profit.

Participants noted that the scale and scope of collaboration between state and non-state actors, particularly in the realm of education technology, is quite breathtaking. However, discussion of issues with the blurring of boundaries between intergovernmental organisations, private corporations, governments, etc. was noticeably absent. What problems arise? With the increase in tech users within the education system, how are state and non-state actors addressing privacy and security issues? What regulatory frameworks should be highlighted and implemented?

### Education technology during the pandemic

With the drastic increase in technology users within education systems following the pandemic, relations between state and non-state actors have been amplified and are shifting. This is particularly

relevant for technology corporations, as there has been further commodification of education with the advance of EdTech. This shift creates competition with the state as well as conflicts of interests.

In Brazil, for example, state partnerships with large technology companies deepened, with Google and Microsoft dominating the market. While the state claims that the partnership is free and that many partnerships do not make contracts, the initiatives are subject to the determinations of the big technology firms. In practice, corporations govern how education technology services are offered. Thus, the Brazilian government's infrastructure is largely dependent on these technology companies. This dependency and the potential trade-offs and risks associated need to be reviewed. This situation highlights how government systems of education need to regulate commercial interests in the teaching and learning process and in connection with education as a human right.

The Covid-19 pandemic amplified the importance of digital literacy, attention to distance learning and a systems approach to providing comprehensive eLearning opportunities to teachers and students. Donors and national ministries have placed increased focus on the resilience of education systems to provide continuous education delivery, even in contexts of crises and emergencies. Inequalities persist, however, with a general disregard of educational inequality, experiences of learners and consistent evidence of difficulties faced by teachers, students and parents in accessing these tools.

### Procurement processes

Participants noted that the pandemic introduced the "wild west" of procurements. Often, procurement decisions were made without adequate due diligence on quality assurance, particularly with respect to matters such as data privacy and age appropriateness. Furthermore, given the crisis, purchases increasingly rely on commercial actors with off-the-shelf offerings. Reliance on commercial actors has increased at the expense of accepted principles. Some participants noted the importance of developing standard, replicable solutions that represent best-of-breed capabilities and can scale across countries, which would simplify procurement and minimise reinventing the wheel. Other participants noted that standardisation does not allow for flexibility and customisation for local environments. Key questions were raised: How can governments make sure that actors making decisions on EdTech are well informed and have access to evidence grounded in data and not just anecdotal evidence? To what extent are the tech-based solutions proposed truly made open source, and do they foster knowledge transfer and collaboration between actors? How can various pathways and models of moving from conception to classroom be explored (ie highly centralised to highly decentralised models)?

### Panel 1 / Q2: What public policies that promote the provision of technology have been successful in terms of their impact on equity, efficiency and effectiveness in education?

### Public policies that promote successful provision of education technology

Universal service fund funding and government information and communication technology stimulus funding are examples of successful public policies that promote the provision of technology worldwide. Similarly, developing local industries that make technology and content is key, and many countries have done this successfully for self-reliance. Participants commented that universal service access funds are interesting tools if they are used effectively. However, evidence suggests that their rate of disbursement is generally extremely low.

Participants noted the importance of training education decision-makers in emerging technologies, such as artificial intelligence and 5G, and determining their potential efficacy in and impacts on ed-

ucation outcomes. An understanding of these technologies could help foster public–private ecosystems by empowering decision-makers to make informed and independent decisions. The training of decision-makers could help counter a process heavily driven by the private sector and potentially avoid the dependence of governments on technology companies in decision-making.

Participants also noted that policies should be planned for, driven towards and focused on ensuring access, equity and quality for all (based on research, needs and the realities of teaching and learning). Participants also emphasised that policies should be rooted in local needs and that providing support for capacity building in the use of technology was critical. This process would be aided by more data-driven evidence to understand successes and how technologies can be designed to meet local and specific needs. The question was raised, however, of how success should be defined. If success is defined by the importation of technologies to classrooms, examples abound. However, when one looks at equality, scale and cost-effectiveness, success is less widespread.

General principles designed to guide digital development could help by providing useful frameworks. For example, digital strategies developed by United Nations Development Programme, USAID and Foreign Commonwealth and Development Office under the label of Principles for Digital Development can be found at https://digitalprinciples.org/.

### International and national examples

A participant from the United States noted that their legislative and policy environment revolves around local control of schools and districts and that state-level policies almost always mean new laws. The push for student data privacy laws was emphasised along with new laws and policies concerning the protection of that data. Most purchasing and provisioning decisions are left to local control by schools and districts, which pass their own policies. A desire to see more of a state-level focus on standardisation of technology offerings in data and reporting was also noted.

A participant from India noted that the government has set a very comprehensive education technology agenda through the National Education Policy and National Digital Education Architecture. However, an ecosystem of technology actors (electricity, internet connectivity, safe storage spaces in public schools, hardware, software, project management, adoption enablement, maintenance, etc.) working together closely with each other and the government is required to ensure that the vision enshrined in these documents comes alive. It would be good for the report to explore initiatives and models that drive this ecosystem construction, including those from other fields.

A participant from Brazil noted a national policy on connected education and a national proposal on digital policy. The first deals with the digitalisation of schools through the potential of the internet, devices and applications. The second talks about digital education in the sense of literacy and digital training.

## 3. Panel 2: Influence

The Influence panel was moderated by Lara Patil from NORRAG, with the participation of panellists from the University of Edinburgh (Michael Gallagher), Brooklyn School of Law (Dana Brakman Reiser), University of Cambridge (Kathryn Moeller) and Instituto Educadigital (Priscila Gonsales).

Lara Patil welcomed the panellists and described how this panel aimed to further understand the power and influence of technology actors, including the platforms and products they offer, and the

potential implications for education governance and public education systems. Each panellist offered a unique perspective: Dr Gallagher reflected upon the adoption of educational technology in the Global South; Dr Brakman Reiser addressed new models of private sector and philanthropic engagement; Dr Moeller presented research on the influence of venture capital on the development of education technology products and services that come to market; and Priscilla Gonsales offered reflections on the influence of technology corporations' products and platforms on government systems of education in the context of Brazil.

All participants then responded to the following questions:

- What are the potential trade-offs of their engagement? How might the power and influence of technology actors, and of the platforms and products they offer, have implications for education governance and systems of public education?

## 3.1. Michael Gallagher, Senior Lecturer in Digital Education, University of Edinburgh

From the perspective of technology in education in the Global South, Michael Gallagher explored the positive and negative effects at the intersection of technology and education. Gallagher asserted that the influence of technology in education worldwide is at an all-time high. The trend was amplified by, but is not only a result of, the pandemic. Through the lens of accelerants, Gallagher presented a multitude of factors that intersect to create environments wherein education is increasingly being determined, or defined through, digitisation. Current narratives of how technology is used in education have both structural and technological consequences. The trade-offs were presented as significant. Some key areas to consider include the following:

- Non-state actors, including educational technology actors, are stepping in as accelerators to fill gaps as a result of the general defunding of national educational systems, especially in higher education. One potential area of impact is autonomy, and specifically the agency of local educational systems to respond to local educational needs. Attempting to globalise education in a way that makes sense to each and every community is futile. The implications of this should be explored.

- There are complications in terms of data protection regimes. For many countries around the world, data protections are presently weak or non-existent.

- The issue of digital or data colonialism – the concept that technologies will naturally reinforce colonial divides – requires mindfulness to avoid reinforcing a Global North system of education marginalisation.

- Marginalisation through increasing use of technology renders some groups, such as refugees or displaced persons, borderline invisible, which is problematic. Equity in access depends on access connectivity – and to a great degree on electrical access to a power supply – but also on gender roles and social norms that determine who has access to the technology and who does not.

- The climate crisis is problematically entwined in the use of technology and education through electronic waste sites. Thus, the increasing use of technology has an expanding environmental impact as well.

Meaningful public–private partnerships were offered as one path forward. For example, in some universities in Tanzania and Uganda, meaningful partnerships resulted in the immediate effect of eliminating a cost barrier through zero-rated offsets with mobile telecoms. This means that the mobile telecoms provided particular IP addresses free of charge. As a result, people have direct, free access to those IP addresses, which link directly into the university's learning management system, a collection of educational resources. Most of the world's internet traffic is mobile; thus, the use of mobile telecoms was emphasised as a means of avoiding the challenges of being locked in to commercial vendors.

## 3.2. Dana Brakman Reiser, Centennial Professor of Law, Brooklyn School of Law

From a legal perspective, Dana Brakman Reiser articulated changes in how elite donors structure their philanthropic activities and how these changes in donor engagement are relevant to the discussion of technology in education for development. Her reflections were largely based on tracking developments in the United States. Brakman Reiser described how elite donors in the US are increasingly moving away from the most highly regulated philanthropic vehicles. New strategies include either starting new philanthropic vehicles that will be less regulated or selectively using alternatives in combination with their pre-existing, more regulated options. A US example illustrated this trend.

> **Example**: The most highly regulated philanthropic vehicle in the United States is the private foundation. It is a non-profit organisation created under state law and is thus subject to state-level regulation. It is also a tax-exempt entity under federal tax law, which means it is federally regulated through the tax regulators at the Internal Revenue Service.
>
> Private foundations are singled out under U.S. tax law for especially detailed regulations. One example is how their philanthropic activity is targeted. There are limits to the types of activities in which private foundations can engage. For a private foundation, there is a walling off from the business or private holdings of the substantial donors to that foundation. This separation could be between a corporation and the corporate foundation it works with or an individual or family of high net worth who has a connection to a particular set of businesses. Under this regulatory system, the intent is to keep the business dealings and private interests of philanthropic donors out of their philanthropic activities. The goal of this intent is that we, as a society, can trust that tax-benefited private foundations are in fact doing public good rather than somehow doing the private bidding of these business interests or the private interests of the very powerful individuals who run them. Another example is how private foundation rules are set up around timing. In addition to disbursement timing regulations, there are significant transparency requirements and disclosure rules, not only on regulators but also on the public. These regulations are intended to make private foundations accountable. At the core, this approach prevents the wealthiest and influential powerful people in society from being able to control the social agenda through their philanthropic activity and getting tax benefits for doing so.
>
> Increasingly, we see the highest-end donors, elite donors, moving away from highly regulated private foundations. One alternative example is the philanthropic limited liability company (LLC), which uses a for-profit corporate form (the LLC) to organise the philanthropic activities of a high net worth individual or family. By doing so, the

alternative vehicle avoids all the timing transparency and targeting rules that apply to private foundations. The implication is that the public only knows what the philanthropic LLC chooses to disclose. They are also free to engage in political endeavours.

Brakman Reiser concluded that new models can free philanthropists to do more, given the flexible tools at their disposal. The downside is that although they have more flexibility, more donor control and more privacy, there is a potential trade-off in terms of that loss of transparency and accountability with the public. Thus, the situation raises questions about the legitimacy of philanthropic activity and the charitable sector more generally. The need was emphasised for thinking about how donors operate in educational development, how they structure their organisations and how societies can trace the benefits created by these organisations.

### 3.3. Kathryn Moeller, Assistant Professor, University of Cambridge

Kathryn Moeller addressed panel questions through the lens of examining the power of venture capital (VC) and its influence on the development of educational technology. Her remarks are based on a publication currently under review. Venture capitalists are investors who buy an equity stake in companies, typically technology companies, that have high growth potential. The aim is to receive high rates of return on these capital investments. Venture capitalists are significant investors in technology products adopted by educational institutions and systems around the world. Failure is part of the venture capitalist's gamble. The consequences of those failures may be disproportionately shouldered by marginalised individuals, communities and institutions. With regard to the panel questions, Moeller laid out a conceptualisation of the VC chain of influence, specifically addressing three questions.

How is VC driving decisions about what products come to market?
Generally, large institutional investors, pension funds, university endowment foundations and a small percentage of high net worth individuals are the limited partners (LPs). LPs are generally not disclosed by VC funds unless there is only one LP. Information on investment transactions is generally not publicly available. The chain of influence lacks transparency and accountability in terms of who is contributing to the funds. Investors prioritise two kinds of interrelated ideas to promote profitability: scale and public revenue streams. Public funds function as a key investment strategy for venture capitalists. Presently, for example, Covid-19 recovery funds are a potential source of revenue for existing and new companies.

Who is profiting from public funds?
The relationship between profit and educational value often lacks transparency and is highly contextual. Moeller raised some key questions and issues: (1) Are these products reaching and serving diverse learners and accounting for the cultural context. For example, is particular attention paid to factors such as disability, language, gender, race, etc.? (2) How are products distributed and at what costs? Furthermore, what costs are incurred by whom? And in what geographies? (3) How are profits actually extracted? Is this done in ethical ways that respect the rights of privacy and data protection of users? And (4) what are the extractive environmental costs of technological production? These are some relevant questions that have implications for educational equity and governance.

How might we create systems of transparency and accountability to ensure that learners, educators and communities are prioritised over profit?

In closing, Moeller argued that if we consider education to be a public good, then information about funding, as well as data use, should be publicly available. Their research shows, however, that this level of transparency has not yet been established. A key aim of their present research is to work towards developing transparency parameters around VC investment in education and technology for public institutions so that global governance solutions can work towards accountability.

## 3.4. Priscila Gonsales, Diretora, Instituto Educadigital

From the perspective of the local context in Brazil, Pricilla Gonsales emphasised the new context of digital culture. Gonsales described how the model of business engagement 20 years ago was mostly straightforward purchases or the adoption of products and services to support teaching and learning processes. The emerging context is now characterised by AI technologies, machine learning, deep learning and a data-driven business model. The new model claims to be "free of charge"; however, it is, in fact, making profits on the data of students and educators. Relating to the panel questions, Gonsales highlighted two frequent misconceptions. The first is related to the polarity between closed platforms and open-source platforms. Recent studies in Brazil show that the most famous open source software, such as Moodle, is also hosted at big-tech data centres. The second misconception is related to the first: the narrative emphasising technology in education is primarily about usability, digital competencies, digital skills assessment tools or open digital educational resources. Yet it is important to note that the infrastructure that supports all of these tools is intertwined with political, social and economical issues. Gonsales emphasised that these issues must be addressed.

## 3.5. Summary

Experts reflected on some of the possible trade-offs of increased education technology. These include the increased datafication of learning, the marginalisation of vulnerable groups that do not have access to these tools, new models limiting transparency and accountability, and the environmental consequences of technology waste. The experts highlighted that data-driven business models are more frequent in the education sector. With regard to private sector engagement, transparency and accountability are reiterated as key principles to ensure that the priority of these actors is to advance the interests of learners equally. Thus, practitioners are called to ensure that the link between economic profit and educational value is balanced.

## 3.6. Participants' responses to questions

All participants responded to the following questions. A brief analysis of the participants' responses follows.

**Panel 2 / Q3: What are the potential trade-offs of their engagement? How might the power and influence of technology actors, and of the platforms and products they offer, have implications for education governance and systems of public education?**
**Asymmetric power relations**

The participants reflected on how technology actors can silence other groups or crowd them out of the political arena. The importance of equally representing the perspectives of governments and other local actors in this conversation was emphasised. For example, the power and influence of technology actors often push countries into making decisions about technology before they are

ready in terms of skills, resources, etc. In addition, technology actors may have similarly phrased goals and motivations, but their incentives are different. Specifically, they are driven to develop products and services that sell. This limits what technologies come to market or are promoted as solutions. Participants also reflected on other potentially problematic issues. For example, commercial interests may prevail over pedagogical values and data privacy, as corporations have financial incentives to amass a large amount of data. In a data-driven economy, the more students use their products, the more powerful the companies become. Ultimately, technology actors have interests beyond the right to education, as they need to secure profit. A key question when dealing with public education is, where does that profit come from, and at whose expense does it come? Most of the time, there is intentional dependence on vendor-specific technologies. Users simply do not see it at first.

## Technology management and digital governance

Participants reflected that, at times, political leaders can and do use education technology agreements to promote their own political platforms. While this can offer some form of transparency through the public declaration of promises, it can also lead to initiatives that are not always designed with the needs of teachers and students in mind. Participants suggested that independent civil society organisations could take up governance and project management roles in education technology wherein they could anchor and manage unbiased reform agendas for governments. Capacity development for technology management in government was also highlighted as a potential solution to counter the use of technology initiatives as political platforms.

Potential trades-offs and risks of technology corporations in management and digital governance were noted. Technology companies could be influencing local governments through political agendas as well, thus blurring corporate profits, education objectives and the public good. On the one hand, there is the offer of technology that can be used to improve teaching. On the other hand, there is a lack of transparency and control on the part of society, with a dependence on commercial interests. The challenge is that many educational technologies are black boxed, so even investigating them through research is problematic. When reflecting on trade-offs, it is important to ask to whom the costs accrue and to whom the benefits, as the costs usually accrue to the most vulnerable and marginalised.

Participants further reflected that some innovative and catalytic solutions can come from the appropriate use of the computational power that sits with tech companies. The trade-off comes with an understanding of what "appropriate" means. Technology corporations can, for example, at times behave as if the data belongs to them and use it for other purposes. For example, open-source alternatives are not "open" if their data has been hosted on private data centres. Participants further highlighted the need for mechanisms to prevent abuse. Paradoxically, this can include existing technologies, such as encryption and blockchain, as well as the need for the independent evaluation of technology partnerships. Mechanisms to regulate technology venture capitalists, described as "supra-national mechanisms for regulation," were also noted.

Issues of cost and sustainability, as well as shifts in engagement, were raised from the perspective of an implementing partner. From this viewpoint, fewer opportunities have arisen for the types of traditional corporate social responsibility (CSR) development programmes that have materialised in the past. Presently, there is a shift through an increasing tendency for CSR technology partners to request a percentage of development funding to collaborate.

# 4. Conclusion

NORRAG and the Global Education Monitoring Report would like to thank all of the panellists and expert participants for their time and contributions to this consultation. The key takeaways captured in this report will inform the development of the 2023 Global Education Monitoring Report on technology and education, due for launch on 26 July 2023.

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[1] The Padlet board remained open for one week following the event. After reading through the Padlet entries, experts had the opportunity to vote (or not vote) for each entry, assigning a score from 0–5. To support the voting, the experts were asked to explain their suggestions or ask questions of clarification. Finally, they were given the opportunity to change their vote (up or down) on each suggestion. Data were collected on the scoring of each suggestion (0–5) by each expert and on the total number of experts who voted for that suggestion. The strength of the vote (0–5) was multiplied by the number of votes received to produce a ranking.