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CASE STUDY

Resilient by Design: Ukraine's EdTech Emergency Response

A qualitative study

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Contents

Abbreviations and acronyms

AUSO	All-Ukrainian School Online
DLC	Digital Learning Center
ECW	Education Cannot Wait
EiE	Education in Emergencies
EMIS	Education management information system
ETC	Emergency Telecommunications Cluster
GEC	Global Education Coalition
GPE	Global Partnership for Education
HP	Hewlett-Packard
ICT	Information and communication technology
IDP	Internally Displaced Person
IIEP	International Institute for Educational Planning
INGO	International non-governmental organisation
IRC	Inclusive Resource Centre(s)
IT	Information technology
ITU	International Telecommunication Union
KII	Key informant interview
KSE	Kyiv School of Economics
LEARN	Lifting Education Access and Resilience in Times of Need in Ukraine
LNGO	Local non-governmental organisation

MHPSS	Mental Health and Psychosocial Support
MoDT	Ministry of Digital Transformation
MoES	Ministry of Education and Science of Ukraine
MYRP	Multi-Year Resilience Programme of ECW
NGO	Non-governmental organisation
NMT	National Multi-Subject Test
NUS	New Ukrainian School
OCHA	Office for the Coordination of Humanitarian Affairs
OECD	Organization for Economic Co-operation and Development
PISA	Programme for International Student Assessment
RDNA	Rapid Damage and Needs Assessment
TPD	Teacher professional development
SEN	Special educational needs
SSEQUA	State Service of Education Quality of Ukraine
STEM	Science, technology, engineering, and mathematics
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
USB	Universal Serial Bus

Executive summary

The Russian Federation (hereafter 'Russia') launched a military invasion of Ukraine in February 2022, threatening significant learning disruption for more than 5.7 million school-aged Ukrainian children. The country's ambitious education reforms collided with urgent new realities. As conventional learning pathways became inaccessible for many, education technology (EdTech), a pre-existing policy priority, took on heightened importance to mitigate learning loss and support continuity.

Ukraine's Ministry of Education and Science (MoES) benefited from earlier investment in digital infrastructure, teacher training, and policy planning. With digital learning platforms already in place, and a Ministry of Digital Transformation (MoDT) functioning prior to the invasion, the MoES was positioned to coordinate a national shift to distance and hybrid modalities. National digital platforms initially built to support learning during the Covid-19 pandemic were scaled up to reach millions of learners. This offered not only continuity of learning, but a semblance of normalcy for children impacted by the invasion. However, while EdTech supported learning continuity, the challenges of EdTech in emergency contexts were also laid bare: persistent digital divides in rural and vulnerable communities, ongoing exclusion of children with disabilities, and the extraordinary strain faced by teachers as they struggled with working during crisis conditions.

Scaling digital access nationally required more than policy and platforms. Large-scale device procurement and distribution called for complex coordination across government agencies, major donors, global tech companies, and civil society. While the MoES managed to align multiple actors behind a coherent strategy, this process demanded substantial institutional capacity and political capital. International partners also played a critical role in supporting the response, showing a level of flexibility and trust not typically seen in crisis settings. This responsiveness was enabled by a particular set of political conditions, and brings into focus broader asymmetries in the international education architecture. Ukraine's access to funding and identity as a nation trusted by international partners are not experienced equally by all crisis-affected governments. The disparities raise critical questions about equity, legitimacy, and whose leadership is recognised and resourced in global response efforts.

This case study draws on a desk-based literature review and key informant interviews with a variety of stakeholders, including education in

emergencies (EiE) responders, to identify important—but, at times, context-bound—lessons. The case study explores four themes:

1. The role of the MoES in Ukraine's technology-enabled humanitarian education response
2. The impact of EdTech on displaced and vulnerable students
3. Coordination and partnerships in the humanitarian education response
4. Policy and strategic recommendations for future responses.

Key recommendations arising from the case study's thematic analysis are below and further detailed in Section 5.

Invest early in digital transformation capacity: Ukraine's experience highlights that countries should prioritise building robust digital governance architecture pre-crisis. This should involve establishing not only infrastructure but also strategies, governance structures, secure data systems, and institutional capacity. These assets can be activated rapidly in emergencies, increasing the potential for a more coherent, equitable, and effective response.

Anchor private sector engagement in state-led frameworks: Governments should proactively design and lead coalitions or taskforces that coordinate private sector and donor inputs within a unified, government-owned framework. This ensures equity, sustainability, and alignment with sector reform goals.

Simplify bureaucracy during crisis, but preserve accountability: Both governments and donors should establish joint planning processes and build trust before or very early during a crisis so that streamlined procedures can be activated quickly. During emergencies, governments should proactively share their reform agendas and maintain open communication with partners, aligning all external support under a unified national response. Donors, in turn, should be prepared to activate flexible crisis protocols, enabling rapid aid delivery while relying on strong, government-led accountability systems.

Leverage trust, align with humanitarian norms, and remain actively engaged: To engage on equal footing with the humanitarian mechanisms, ministries need to cultivate expertise in international humanitarian principles, technical policy language, and collaborative practices. Doing this will enhance their ability to mobilise, coordinate, and sustain partnerships to fulfil their own agenda in future crises.

Design and invest for inclusion across modalities: Governments should embed equity and accessibility requirements in standards, financing, and delivery models from the outset. This should include:

- pairing national platforms with staffed community digital learning centres and school-based hubs in areas with weak home access;
- standardising low-bandwidth and offline options alongside online delivery;
- ring-fencing budgets for last-mile basics (devices, connectivity, power) and assistive technologies.

Teacher coaching and well-being support structures should include a designated inclusion focal point person. Procuring devices and selecting hub locations should be driven by disaggregated student data and simple learning checks. This will help to ensure that students with disabilities, those who are displaced, and those who are in rural locations are well catered for and that programmes can adapt as needs change.

Ultimately, as this Ukrainian case study shows, systems that invest early—treating EdTech as public infrastructure within state-led, equity-first governance, with teacher support and accountable, flexible financing—are better able to sustain equitable learning when crises disrupt schooling.

1. Introduction

The February 2022 invasion of Ukraine by the Russian Federation (hereafter 'Russia') upended access, delivery, financing, and governance in the Ukrainian education system: facilities were destroyed or turned to other uses, educators and learners were displaced, and safe in-person schooling was impossible in many areas. Pre-crisis investments—in EdTech platforms, policy, and professional development—did not remove these constraints, but they did provide a foundation for continuity that shaped the national response.

This section sets the groundwork for the study. It provides the background and rationale for focusing on Ukraine's digitally enabled emergency response in the face of the full-scale Russian invasion. It presents the purpose and thematic focus that guides the analysis, defines key terms used throughout, and explains how the case is structured.

1.1 Background and rationale

In the years preceding Russia's full-scale invasion in 2022, Ukraine had embarked on a comprehensive education reform agenda aimed at transforming its schooling model into one that aligned more closely with European standards. The reforms, which focused on curriculum changes and decentralisation, were coupled with growing investment in the digitalisation of education (↑MoES Ukraine, 2016).

Covid-19 had normalised distance learning and accelerated teacher capacity to deliver and safeguard education online. The MoES deployed and scaled a national digital learning platform, issued distance learning guidance, and ran rapid teacher training. While the pandemic provided an operational playbook for later crises, it also made visible the gaps in connectivity, devices, and digital skills.

As a response to the education crisis that followed the Russian invasion in 2022, EdTech emerged not simply as an innovation, but as a necessary modality for learning continuity in conditions where physical classrooms were unsafe or inaccessible. While EdTech solutions could not replace the social and protective functions of in-person schooling, particularly for the most vulnerable, they offered a scalable way to keep learning alive, especially for displaced and geographically dispersed learners (↑Eurydice, 2025b).

This case study examines how the Ukrainian government leveraged EdTech during a crisis, how existing digital strategies were operationalised

under pressure, and how partnerships and coordination evolved to meet emergency education needs.

1.2 Purpose and thematic focus of the case study

The study does not aim to measure learning outcomes or conduct a quantitative evaluation of the effectiveness of specific EdTech programmes or platforms. Rather, it explores the enabling conditions, coordination strategies, and policy frameworks that shaped Ukraine's EdTech emergency response in the education sector, while also assessing challenges related to infrastructure, equity, and long-term sustainability. To do this, the case study focuses on four specific themes:

1. The role of the MoES in Ukraine's technology-enabled humanitarian education response
2. The impact of EdTech on displaced and vulnerable students
3. Coordination and partnerships in the humanitarian education response
4. Policy and strategic recommendations for future responses.

1.3 Key definitions

The case study adopts the following definitions. These reflect how key terms have been commonly understood and used within the Ukrainian emergency response.

Distance learning
Learning that takes place when students and teachers are not physically present in the same location. In Ukraine's case, this often involved synchronous or asynchronous instruction delivered via digital platforms, TV, or printed materials, away from formal education institutions.

Hybrid learning
An approach that blends in-person and distance learning methods. It typically includes alternating between physical classroom attendance and online or remote instruction. Prior to the full-scale invasion, hybrid approaches were introduced during the Covid-19 pandemic.

Face-to-face learning
Traditional, in-person instruction where students and teachers are physically co-located in a school or learning space. During the full-scale invasion, this modality was only possible in areas deemed secure and was dependent on the availability of bomb shelters and safety protocols.

Dual schooling
A phenomenon where Ukrainian refugee learners simultaneously enrolled in a host country school and continued online learning through Ukrainian EdTech platforms (e.g., the All-Ukrainian School Online). This arrangement emerged organically and was not formally designed or regulated by the MoES.

Full-scale invasion
The term 'full-scale invasion' refers specifically to the new phase of the war that Russia instigated on 24 February 2022, when it extended its aggression from Crimea and Eastern Ukraine to the entire territory of Ukraine (↑Mills, 2025). This term is used throughout to emphasise that the paper focuses on this phase of the broader Russo-Ukrainian war; the terms 'crisis' or 'emergency' are also used to refer to this period.

1.4 Case study structure

The case study follows a thematic progression from contextual framing to analysis of findings and policy recommendations. Section 1 outlines the background, rationale and objectives for the case study. Section 2 outlines the case study's thematic areas of enquiry and methodological approach, including guiding questions and limitations. Section 3 describes Ukraine's education system prior to the full-scale invasion, the effects of the full-scale invasion, and the emergence of EdTech as a critical response mechanism. Section 4 presents detailed findings linked to the core themes that emerged from the analysis. Section 5 offers strategic policy recommendations for consideration. Finally, Section 6, the conclusion, synthesises the findings, distinguishes transferable lessons from Ukraine-specific conditions, and suggests priorities to sustain and institutionalise the gains.

2. Guiding research questions and methodology

2.1 Guiding research questions

The four case study themes of enquiry each link to a set of sub-questions that guided data collection and synthesis. The themes and guiding questions are as follows:

Theme 1: Role of the MoES in Ukraine's technology-enabled humanitarian education response

1. How has the MoES realised digital ambitions during the full-scale invasion?
2. How has the MoES facilitated the adoption of EdTech (e.g., through policy and teacher guidance)?
3. What strategies enabled learning continuity (e.g., remote/hybrid modalities)?
4. What successes and challenges emerged before and during the crisis?

Theme 2: Impact of EdTech on displaced and vulnerable students

1. What EdTech tools reached displaced and marginalised groups?
2. How were platforms adapted to support inclusion and engagement?
3. How did teacher training and pedagogy shift to serve vulnerable learners?
4. What has been done to facilitate educational access across modalities?

Theme 3: Coordination and partnerships in the humanitarian education response

1. How did the MoES collaborate with humanitarian and development actors?
2. How did coordination mechanisms evolve as the Ukrainian education response progressed?
3. How and to what extent were priorities aligned across diverse partners?

4. What collaborations or points of friction emerged?

Theme 4: Policy and strategic recommendations for future responses

1. How did Ukraine's digital transformation strategy shape future response capacity?
2. What are the key risks, gaps, and enablers for scale and sustainability?
3. What recommendations can support other ministries in times of crisis?

2.2 Methodology

This study employed a mixed-methods qualitative approach, combining a structured desk review with semi-structured key informant interviews. The methodology was designed to produce rich thematic insight and align with the systems-level framing set out in the case study rationale and thematic focus above.

2.2.1 Desk review

The desk review incorporated 107 documents that together reflect the breadth and complexity of Ukraine's education response following the full-scale invasion, as well as including education sector policies and documentation prior to the crisis.

The review included programme documents, evaluations, and grey literature published between February 2022 and August 2025, with a focus on Ukraine's school-age education response and digital delivery. Searches were conducted in Google Scholar, organisational repositories (MoES, Education Cannot Wait (ECW), Global Partnership for Education (GPE), UNICEF, UNESCO, World Bank), ReliefWeb, and Education Cluster portals. Documents were included if they (i) directly addressed schooling or teacher support; (ii) described policy, financing, or delivery mechanisms relevant to wartime or schooling during wartime contexts; and (iii) contained empirical findings or official figures. Opinion pieces without verifiable data were excluded.

Titles were screened by two members of the research team before full-text review. Data was extracted in relation to intervention type, coverage, dates and outcomes. Discrepancies in interpretation were resolved through cross-checking and, where necessary, clarification was sought via key informant interviews (KIIs).

A substantial portion of the documents articulate Ukraine's national vision for digital education, equity, and reform. These were complemented by detailed implementation plans and programme reports for specific projects. Several documents focus specifically on teacher professional development, such as training programmes. These highlight efforts to build digital pedagogy and address learning loss at scale, with figures indicating training reach, modalities, and equity considerations.

Another set of documents analyses EdTech platforms and digital infrastructure. Some sources provide descriptions and usage, while others offer insights into platform reach, accessibility in frontline areas, and national efforts to digitise content, assessments, and parent–teacher communication.

The review also includes humanitarian and coordination-focused documents. These describe system-wide coordination mechanisms and evolving field-level challenges, especially in high-risk oblasts.[1]

In addition, case studies and articles on public–private partnerships were included. These demonstrate how private actors supported the MoES's EdTech response through hardware distribution and platform development.

Finally, regional and global resources helped contextualise Ukraine's experience within broader debates about EiE, digital inclusion, and resilience.

These documents provided a comprehensive evidence base spanning strategic planning, operational delivery, coordination, and innovation—critical to understanding the systemic nature of Ukraine's EdTech response in crisis.

2.2.2 Key informant interviews

Key informant interviews (KIIs) were conducted with 18 individuals representing government departments, donor agencies, UN bodies, non-governmental organisations (NGOs), academic institutions, and the private sector. These interviews were selected to provide diverse

[1] *Oblasts* (укр. області) are Ukraine's first-level administrative units—often translated as 'regions' or 'provinces'. Ukraine has 24 oblasts; the city of Kyiv holds special status equivalent to an oblast; and the Autonomous Republic of Crimea and the city of Sevastopol are internationally recognised as part of Ukraine but are under temporary occupation. Unless noted otherwise, references to 'region' in this paper denote the oblast level. Sub-national units below oblasts include *raions* (districts) and *hromadas* (amalgamated territorial communities) (↑Wikipedia., 2025).

institutional perspectives on Ukraine's digital education response during the full-scale invasion. The KIIs explored themes related to national leadership, coordination, equity, and the use of EdTech in crisis settings.

Participants were included if they (i) held a role directly linked to education policy, coordination, or implementation during the period February 2022–August 2025; (ii) represented an organisation with a formal mandate or recognised contribution to the education response; and (iii) were positioned to provide system-level insights on leadership, coordination, equity, or the use of EdTech in crisis settings.

Potential participants were identified through a combination of desk review (mapping key institutions and response actors), snowball sampling (referrals from initial contacts), and consultation with EdTech Hub staff and consultants. Invitations were extended by email, with participation voluntary and based on informed consent.

Each interview followed a semi-structured format and was conducted remotely and in English. Interview transcripts and notes were coded thematically, in alignment with the case study's analytical framework. Insights drawn from these interviews are integrated across the findings section to complement documentary evidence and contextualise emerging themes.

Quotations and references from key informant interviews are anonymised and cited by institutional affiliation and interview year in the format '(INGO KII, 2025)'; for example, 'INGO' indicates an international NGO and '2025' the year of interview. This approach preserves participant confidentiality while signalling the perspective and timing of the source. As multiple UN agencies and donor agencies were interviewed, they will be cited as UN1 or UN2 and Donor 1 and Donor 2, and so on.

A summary table listing the type of agency and general role of each interviewee is included below, with identifying details anonymised or generalised in accordance with informed consent protocols.

Table 1. *List of key informant interviews*

Agency	Agency Type	Interviewee Role
MoES	Government	Director-level staff
UNESCO	Multilateral	Education Specialist
UNESCO	Multilateral	Masters' student / Intern

UNICEF	Multilateral	Senior Officers
Osvitoria	Local NGO (LNGO)	CEO
Kyiv School of Economics	Academic Institution	Programme Lead
Global Partnership for Education	Donor	Senior Education Specialist
Education Cannot Wait	Donor	Programme Manager
Finnish Embassy	Donor	Senior Expert
Education Cluster	Humanitarian Coordination	Education Cluster Coordinators
Norwegian Refugee Council	INGO	Education Specialist
War Child Alliance	INGO	Education Specialist
Save the Children	INGO	Education Specialist
Coursera	EdTech company	General Director

2.2.3 Methodology limitations

While the majority of documents reviewed were available in English, some key materials were only published in Ukrainian. These were included through translated summaries or tools like Google Translate. However, there is a possibility that nuance, particularly around technical policy language, was lost in translation.

Evaluations with substantial data on learning outcomes and impact on individual projects and programmes were largely unavailable at the time of this research. To address gaps in detailed project and programme descriptions and timelines, the research team has included press releases and website updates from education stakeholders in this case study, when available. There are a number of research studies forthcoming, including from the NGO Teach for Ukraine[2] and the digital personal learning

[2] See https://teachforukraine.org/en/. Retrieved 24 September 2025.

application Can't Wait to Learn,[3] which will provide much-needed project performance effectiveness data.

All interviews were conducted online, and no visits to Ukraine were undertaken. The analysis draws on the perspectives of organisational representatives and secondary reporting, rather than the research team's first-hand classroom or learner-level experiences of teachers and learners.

All interviews were conducted in English. This may have prevented some individuals from participating. At the same time, opportunities were made available for translation needs, and participants did not request the support.

While 18 key informant interviews were conducted, some private-sector partners were unable to join due to time constraints, leaving out a more nuanced perspective from the major technology partners.

[3] See https://primary.org.ua/en/. Retrieved 24 September 2025.

3. Context: Ukraine's education sector in crisis

This section situates the education response within the crisis landscape following the full-scale invasion. It first sketches the pre-full-scale invasion system and reform trajectory, then traces how the full-scale invasion disrupted access and delivery. Finally, it shows how digital tools became a central means of sustaining learning while broader recovery and protection efforts unfolded.

3.1 Ukraine's education system prior to the full-scale invasion

In the decade prior to the 2022 full-scale invasion, Ukraine advanced an ambitious reform agenda to modernise schooling and align with European standards. The flagship New Ukrainian Schools (NUS) reform launched in 2016, shifted policy towards competency-based curricula, child-centred pedagogy, formative assessment and inclusion, and explicitly foregrounded digital readiness for teaching and learning. These directions were codified in legal architecture—most notably the 2017 Law 'On Education' and the 2020 Law 'On Complete General Secondary Education'—which also deepened decentralisation and clarified roles across levels of government (↑Nazarenko, 2025; ↑OECD, 2025; ↑Parliament of Ukraine, 2017; ↑Parliament of Ukraine, 2023).

Policy and governance

The NUS initiative was designed not only as a curricular change, but as a system reset: strengthening teacher professional development, updating textbooks and learning resources, and granting greater autonomy to schools and *hromadas*[4] within a national standards' framework. The 2017 and 2020 laws formalised this balance, maintaining MoES control over policy, curricula, and assessment, while assigning delivery, budgeting, and maintenance to local authorities. European briefings and country profiles characterise the direction of travel as alignment with EU competencies and structures (↑Eurydice, 2025c; ↑Eurydice, 2025d; ↑Parliament of Ukraine, 2017; ↑Parliament of Ukraine, 2023).

By the late 2010s, quality assurance was organised as an 'inside–outside' system. The State Service of Education Quality of Ukraine (SSEQU/SQE)

[4] *Hromadas* are local communities, created under decentralisation reforms, responsible for local governance and school management.

supports and evaluates schools against national quality frameworks (institutional reviews, internal quality systems), while the Ukrainian Center for Educational Quality Assessment (UCEQA) runs external examinations and monitoring studies. Together, they provided a backbone for accountability that reform could build on (↑Government of Ukraine, 2025a; ↑SSEQU, 2023; ↑UCEQA, 2025).

Financing followed the governance split across national and local authorities. Since 2015, the state has transferred an education subsidy to local budgets using an annually approved per-learner formula to fund teacher salaries; local authorities cover utilities, repairs, and capital works. Guidance notes emphasise that the formula includes multiple coefficients (e.g., learner numbers, curriculum, salary norms), with a small reserve managed at the centre—creating predictability while allowing local adaptation (↑Eurydice, 2025a; ↑SKL International, 2021; ↑SKL International, 2023).

Decentralisation also enabled network reform. With demographic shifts and long travel distances in rural areas, authorities promoted school-network optimisation (including hub-school models) to keep provision viable and raise quality. Recent profiles from the Institute of Educational Analytics document how enrolment patterns and accessibility have been managed through this approach across oblasts. Capacity building for municipalities—via programmes such as U-LEAD[5] —underpinned this local role (↑MoES Ukraine, 2025c).

Digital transformation

In parallel with education policy reforms, Ukraine advanced a broader digital transformation agenda, led by the Ministry of Digital Transformation (MoDT), established in 2019, which aimed to digitise public services and promote digital literacy nationwide. Many of these initiatives benefited digitisation in the education sector.

In late 2019, the Cabinet of Ministers formalised the Unified State Web Portal of Electronic Services (Diia).[6] The accompanying mobile app was launched in February 2020. Diia integrated over 70 e-government services, becoming central to Ukraine's vision of a "digital-first" state (↑Mamatova & Sydorenko, 2020). These services include digital IDs and licences, residence registration, the eMalyatko birth-registration bundle, business registration,

[5] See https://decentralization.ua/en/donors/u-lead. Retrieved 18 September 2025.

[6] See https://expo.diia.gov.ua/. Retrieved 18 September 2025.

IDP registration and assistance, fine / debt payments, Covid-19 certificates, petitions, and e-signatures.[7]

On the government side, the Automated Information Complex for Educational Management (AIKOM/AICEM, approved by the Cabinet of Ministers on 2 December 2021) became the national EMIS-type software-hardware platform under the MoES (run by the Institute of Educational Analytics) that unifies school / system data, enables e-document workflows (e.g., the state e-class journal), and supplies official education statistics. The data from this empowers MoES indicator dashboards (↑IEA, 2022; ↑UNESCO, 2023d).

Beyond Diia and AIKOM, Ukraine's education sector utilised the Unified State Electronic Database on Education (EDEBO) and Ukrainian Center for Educational Quality Assessment (UCEQA) for core registries and exams, ProZorro for e-procurement for sector purchases, the Trembita interoperability platform for cross-registry data exchange, and national open data and public finance portals (data.gov.ua)[8] for transparent monitoring of education spending (↑Interoperable Europe, 2024).

This pre-2022 digital architecture, including registries, procurement, e-ID, and interoperability, created the enabling environment that the Covid-19 pandemic immediately forced into frontline use.

Digital learning during the Covid-19 pandemic

The pandemic became a stress test for the education sector and the digital transformation reforms. On 12 March 2020, all educational institutions nationwide closed. The MoES began working with Osvitoria and the Ministry of Digital Transformation (MoDT) to develop the All-Ukrainian Schools Online (AUSO),[9] a national digital education platform to support distance and hybrid learning.

On 6 April 2020, AUSO began delivering TV and YouTube lessons for Grades 5–11, expanding to Grades 1–4 on 28 April 2020. This emergency broadcasting initiative enabled learners without a stable internet to follow learning opportunities on television (↑Euro Health Observatory, 2020; ↑MoES Ukraine, 2020; ↑Selega, 2020; ↑UNICEF, 2020b; ↑Zhenchenko et al., 2022). Sign-language interpreted lessons were made available (e.g., via the

[7] See https://expo.diia.gov.ua/. Retrieved 19 September 2025.

[8] See https://data.gov.ua./. Retrieved 19 September 2025.

[9] See https://lms.e-school.net.ua/. Retrieved 19 September 2025.

free online TV platform MEGOGO), expanding access for learners with hearing impairments (↑Osvitoria, 2020).

Alongside AUSO, national and civil society actors moved quickly to support teachers. During the Covid-19 pandemic, EdCamp's[10] national teacher professional development marathons. An initial five-day anti-crisis online EdCamp (April 2020 was followed by a 42-day gamified marathon (November–December 2020), providing mentoring and team-based upskilling with MoES-recognised certification. These marathons drew thousands of participants and rapidly built practical distance teaching skills. International partners highlighted these peer-learning spaces as a rapid way to build distance-teaching skills (↑EdCamp Ukraine, 2021).[11, 12] The World Bank also noted the early TV-plus-platform strategy and teacher PD initiatives as key pillars of Ukraine's response to the Covid-19 pandemic (↑Donnelly et al., 2021).

Pandemic lessons also seeded adjacent digital initiatives. The MoES drew on AUSO experience to build the programme 'Professional Education Online' for vocational learners and teachers, while the national Diia.Digital Education[13] / Diia.Osvita[14] effort (launched in 2020 under the MoDT) broadened digital skills access, including free teacher courses on remote-teaching tools during lockdown.[15] Local Massive Open Online Course (MOOC) providers (e.g., Prometheus, EdEra) expanded open courses used by educators (↑Leu-Severynenko, 2022; ↑Radmila & Andrii, 2020; ↑Shevchenko et al., 2024; ↑UNDP, 2025).

Importantly, around the pandemic onset, internet use was high but uneven—approximately 75% of Ukrainians had access to the internet in 2020, shaping who could access digital learning (↑Freedom House, 2022). By 2021, 85% of households had home internet (urban 87%, rural 73%) (↑ITU,

[10] See https://en.wikipedia.org/wiki/EdCamp_Ukraine?utm. Retrieved 19 September 2025.

[11] See also https://www.edcamp.org.ua/onlineedcamp2020en, retrieved September 24, 2025.

[12] See also https://www.edcamp.org.ua/edcampmarathon2020. Retrieved September 24, 2025.

[13] See https://diia.gov.ua/. Retrieved 19 September 2025.

[14] See https://osvita.diia.gov.ua/. Retrieved 19 September 2025.

[15] See also https://osvita.diia.gov.ua/en/courses/online-services-for-teachers? Retrieved 24 September 2025.

2023). Meanwhile, around 96% of households had a television in 2020.[16] The role of broadcast, therefore, was also critical to learning continuity; for example, Suspilne, the National Public Broadcasting Company of Ukraine, broadcast school lessons and educational content as part of the Covid-19 pandemic response (↑Suspilne Ukraine, 2022).

3.2 How the invasion disrupted education

The full-scale invasion in 2022 turned a system mid-reform into an emergency operation overnight. Within days, schooling was suspended nationwide as active hostilities, mass displacement, and curfews made routine instruction impossible. Humanitarian reporting estimated that more than 5.3 million school-aged children were affected by closures in the initial phase; nearly 3.6 million lost access to physical classrooms and were pushed into ad-hoc alternatives under highly variable—and often unsafe—conditions. (↑OCHA, 2022; ↑UNICEF, 2023).

The full-scale invasion has caused widespread damage to educational infrastructure. Across Ukraine, 3,373 educational institutions have been damaged (of which 385 have been destroyed), accounting for more than 10% of the education infrastructure at a cost of USD 13.4 billion, according to the latest Rapid Damage and Needs Assessment (RDNA4) (↑World Bank et al., 2025). Schools in frontline regions have been disproportionately affected, but even institutions far from the active frontlines have been impacted by air raids and missile strikes (↑Save the Children, 2025; ↑UNICEF, 2024a). Some school buildings have been repurposed into emergency shelters, military barracks, or humanitarian distribution hubs, further limiting access to safe learning environments (↑MoES Ukraine, 2023b).

In addition to physical destruction, the full-scale invasion has caused disruption in terms of teaching personnel and learning materials (↑Esveld, 2024). Thousands of educators were internally displaced, conscripted into military service, or stranded in occupied areas. Textbooks, pedagogical equipment, and digital tools were lost or rendered inaccessible, while procurement and distribution of new materials became challenging under invasion logistics (↑Humanitarian Action, 2025b). Internet access—relatively widespread in Ukraine before the war—was severely disrupted by infrastructure damage, power outages, and cyberattacks (↑Hrynevych, Liliia, 2023). Many communities, particularly in rural or occupied areas,

[16] See also https://datahub.itu.int/data/?Affordability=Functional+separation&Connectivity=Access&Governance=Legal+frameworks&Markets=Workforce&Sustainability=Environment+%26+e-waste&Trust=Consumer+protection&e=UKR&utm. Retrieved September 2025.

experienced long-term loss of connectivity, constraining access to online learning platforms (↑OCHA, 2024c).

Displacement has further fragmented education access. By June 2022, nearly 2.8 million school-aged children had been internally displaced within Ukraine (↑OCHA, 2022). Many of these children lacked the personal documents required for enrolment, such as birth certificates or proof of prior schooling. According to ↑UNHCR (2024b), around 9% of legal aid cases in Ukraine between 2022 and 2023 concerned problems with documentation, particularly among internally displaced persons (IDPs) from high-conflict regions. Host communities, already overstretched, struggled to accommodate newly arriving students, and some IDP children remained out of school for extended periods (↑UNHCR, 2024a).

The situation in frontline areas has been especially dire. In mid-May 2023, only 33% of school-aged children were attending fully in-person classes, meaning approximately 67% were accessing remote or hybrid learning due to safety concerns and the lack of bomb shelters (↑International Rescue Committee, 2024). Even when schools were formally open, frequent air raid alarms forced students and staff to evacuate or relocate to shelters multiple times a day. Many schools lacked bomb-proof infrastructure or had insufficient sanitation and heating in underground shelters, making them unsuitable for extended use. These conditions contributed to the continued reliance on distance and hybrid learning modalities. In September 2024, the MoES formalised a national directive requiring schools to have access to a functional air raid shelter—either on site or within 500 meters—in order to reopen for in-person or hybrid learning. This policy reinforced existing safety expectations and institutionalised the link between infrastructure readiness and learning modality, i.e., establishing whether schools can teach offline or offer blended learning or must stay remote, especially in crisis-affected or resource-constrained regions (↑Savisko & Karakai, 2025).

The psychological toll of the crisis has been immense. Children, educators, and caregivers alike experience high levels of trauma and chronic stress due to displacement, family separation, bombardment, and economic hardship (↑MoES Ukraine & ECW, 2024). According to a needs assessment report by the refugee protection organisation ↑HIAS (2023), 9.6 million Ukrainians are estimated to be experiencing mental health problems, based on World Health Organisation (WHO) modelling, due to the crisis (↑HIAS, 2023). Students study in bomb shelters and during frequent air raid alerts, creating an environment of constant fear and disruption. A February 2025 report by Reuters highlighted the deepening emotional and cognitive effects of the crisis on children, with teachers and mental health

professionals noting an increase in anxiety, attention difficulties, and behavioural regressions (↑Reuters, 2025).

In areas under Russian occupation, including parts of Donetsk, Zaporizhzhia, Luhansk, and Kherson, Ukrainian schools have been forcibly subjected to Russification policies. These included the removal of Ukrainian-language instruction, the adoption of Russian curricula, and the imposition of ideological education aligned with Russian state narratives. Teachers were reportedly threatened with dismissal or prosecution if they resisted compliance. A 2024 investigation by Le Monde documented the intimidation of educators and the psychological manipulation of students, some of whom were coerced into denouncing Ukrainian identity (↑Vincent, 2024).

For the over 2 million Ukrainian children who have fled abroad, access to continued education has been equally complex. While most host countries in Europe have offered school enrollment, many refugee children have faced language barriers, administrative hurdles, and psychosocial challenges that have limited integration. Enrolment rates have varied widely, and a significant number of children have remained out of host country schools or have enrolled only in Ukrainian online platforms. Of those enrolled, 50 % attend host country schools exclusively, 29 % follow both host country schooling and Ukrainian online education, 16 % rely solely on Ukrainian online education, and 6 % are not engaged in any learning (↑UNESCO, 2025c). Parents fear that enrolling in a new system will hinder their children's reintegration into Ukraine later, and many students attempt to follow both the Ukrainian digital curriculum and the host country's schooling, leading to burnout and disengagement. Language is a critical barrier; externally displaced children with limited host country language proficiency are significantly less likely to enrol and succeed in local education systems (↑UNESCO, 2025c).

OCHA estimates that 1.2 million children continue to require education assistance, with acute needs concentrated in frontline and newly de-occupied regions in Ukraine (↑OCHA, 2024b). In this context, EdTech's increased prominence has not been solely a function of innovation, but of necessity—driven by urgent gaps in access, safety, and continuity.

3.3 Emergence of EdTech in the crisis response

In this crisis landscape, technology has emerged as a critical enabler of education continuity. With in-person instruction rendered impossible in many areas due to insecurity, damage to school buildings, or displacement, digital platforms have provided an immediate and scalable

solution for delivering relevant curriculum content, facilitating teacher–student engagement, and maintaining a sense of normalcy, to whatever extent possible.

Amid the disruption, Ukraine's MoES has maintained a long-term vision for system resilience and reform. In 2023, the MoES formalised its priorities through the 'Strategic Action Plan of the Ministry of Education and Science of Ukraine by 2027', which emphasised the creation of flexible, resilient, and inclusive digital learning environments (↑MoES Ukraine, 2023d). The strategy includes eight priority areas, among them:

- Digital transformation of teaching and learning (Priority 8)
- Inclusion and equity in education access (Priority 4)
- Support for teacher professional development, especially through digital tools (Priority 2)
- Monitoring and evaluation systems for data-driven decision-making (cross-cutting).

These priorities were reinforced through the World-Bank–financed programme known as Lifting Education Access and Resilience in times of Need (LEARN) in August 2024, which built on Ukraine's previous reforms and focused on curriculum modernisation, science, technology, engineering, and mathematics (STEM) education, data systems, and digitalisation of educational services, with a heavy emphasis on system monitoring and teacher training (↑World Bank, 2024a).

The MoES's education response strategy laid out plans to scale AUSO, expand broadband internet to all schools, introduce digital management tools, and strengthen teacher capacity to use digital platforms (↑MoES, Ukraine, 2023). During 2022 and 2023, AUSO was enhanced with additional curriculum-aligned content and expanded access features. AUSO provided structured video lessons, quizzes, and assessments across grades and subjects aligned with the national curriculum. To reach students in areas with limited connectivity, televised lessons and asynchronous learning repositories were also deployed (↑MoES Ukraine, 2022a).

In parallel, the MoDT expanded the Diia.Osvita platform to include educational and digital literacy resources, contributing to a broader digital ecosystem (↑European Commission, 2023; ↑MoES Ukraine, 2023d). Between 2024 and 2025, Diia had scaled from a launch suite of core IDs to an ecosystem used by 20–22+ million people, offering 150+ e-services and 30 digital documents (e.g., ID card, driver's licence, student card, among others). This saturation, unusual for a country at war, underpinned

continuity of public services and cross-sector transactions (↑McKenna, 2025; ↑Kyiv Global Government Technology Centre, 2025; ↑Vyhovska et al., 2025).[17]

Education actors benefited directly from this infrastructure. MoES and MoDT aligned sector tools with the state platform — Diia.Osvita for digital skills / reskilling and education content, and Diia's e-ID / Diia.Signature to streamline student-facing processes. By 2024–2025, applicants could register for the National Multi-Subject Test (NMT)[18] through the UCEQA portal[19] using Diia credentials, while the test itself was run as a secure computer-based assessment in Ukraine and abroad — maintaining higher-education access (↑Ukrainian National News, 2024).

To further increase accessibility, AUSO and Diia.Osvita were complemented by the Mriia[20] platform — a national digital learning system launched in late 2024 and expanded in 2025. By 30 June 2025, officials reported that more than 1,300 schools had connected to Mriia, with plans for a progressively broader roll-out and integration of personalised learning features (↑Government of Ukraine, 2025b; ↑IEA, 2025; ↑MoES Ukraine, 2022b; ↑Ukrainian National News, 2025). The MoES and humanitarian partners supported other solutions, such as low-connectivity alternatives including offline digital resources, radio broadcasts, and printed self-learning packets. Civil society organisations and INGOs played a central role in these efforts, distributing pre-loaded USB drives, hosting community learning hubs, and designing context-specific adaptations for children in frontline or newly de-occupied areas (↑UNICEF, 2024d; ↑UNICEF, 2025b; ↑UIED, 2022).[21]

Meanwhile, humanitarian partners expanded the EdTech ecosystem by piloting inclusive and localised approaches. Among them was the Can't Wait to Learn initiative, co-developed and implemented by War Child and Osvitoria in partnership with the MoES. Originally designed for conflict-affected contexts globally, the programme was adapted to the Ukrainian setting to support early grade learners through gamified literacy

[17] For further information about the Diia project see https://digitalstate.gov.ua/projects/govtech/diia. Retrieved 24 September 2025.

[18] See https://komersant.ua/en/sohodni-startuie-reiestratsiia-na-nmt-2025-shcho-potribno-znaty-vstupnykam. Retrieved 29 September 2025.

[19] See https://testportal.gov.ua/en/nmt-2024-abroad/. Retrieved 29 September 2025.

[20] See https://mriia.gov.ua/en/app. Retrieved 19 September 2025.

[21] Note. UIED is an English acronym for Ukrainian Institute of Education Development, in Ukrainian «Український інститут розвитку освіти» (далі – УІРО).

and numeracy instruction. Can't Wait to Learn was specifically introduced to complement AUSO, which does not offer instruction below the Grade 5 level (INGO3 KII, 2025 [see Section 4.1.1 below]). A significant innovation in the Ukrainian rollout was the introduction of a mobile app—available on both the Apple App Store and Google Play—which was redesigned specifically for smartphones to support multi-modality use across home, distance, and hybrid learning settings. While it can also be used on tablets, the focus on mobile functionality ensured broader accessibility, particularly for displaced children learning in shelters or informal settings. Designed to function both online and offline and requiring minimal adult facilitation, the platform provided a critical access point for children facing barriers to traditional instruction (↑Osvitoria, 2024).

Elsewhere, Education Cluster partners worked to develop guidance on distance education, school safety protocols, and psychosocial support. Local organisations like EdCamp Ukraine,[22] Nova Ukraine,[23] Razom for Ukraine,[24] and Osvitoria[25] delivered training, curated digital content, and created teacher support networks (Education Cluster KII, 2025). An interview with a local NGO revealed that educators in urban settings quickly adapted to the digital tools, motivated by a shared sense of purpose and national resilience (LNGO KII, 2025; UN1 KII, 2025; Donor1 KII, 2025; Donor2 KII, 2025).

To mitigate access barriers, the MoES and partners paired platforms with devices, safe spaces, and power / connectivity solutions. Following government-endorsed minimum standards issued by the OCHA Education Cluster (hereafter 'Education Cluster'), implementing partners opened dozens of DLCs to expand learning-support hubs nationwide (↑UNICEF, 2025c; ↑Education Cluster et al., 2023; ↑MoES Ukraine, 2024a).

Civil society and INGO-led programmes complemented state offers. Teach For Ukraine provided virtual tutoring and remedial support, while GoGlobal's CATCH programme—implemented with UNICEF/GPE—moved onto AUSO to extend structured recovery lessons in early grades (↑GoGlobal, 2025; ↑Teach For All, 2022). Targeted design for the hardest-to-reach was critical.
A vital element of distance learning was the availability of devices for learners and teachers. One of the most significant equity-focused

[22] See https://www.edcamp.ua/en/main-page/. Retrieved 25 September 2025.

[23] See https://novaukraine.org/. Retrieved 25 September 2025.

[24] See https://riseofukraine.com/. Retrieved 25 September 2025.

[25] See https://osvitoria.org/en/. Retrieved 25 September 2025.

innovations came later in the response, with the formal launch of the Device Coalition[26] in January 2024. This multi-stakeholder initiative, coordinated by the MoES, brought together private sector actors, humanitarian agencies, and donors to scale device access. The coalition, as discussed in greater detail in Sections 4.1 and 4.3, distributed hundreds of thousands of laptops and tablets to displaced and vulnerable learners, prioritising equity and speed (↑UNESCO, 2025d). Among the key contributors, UNESCO coordinated the delivery of 50,000 Chromebooks donated by Google, working alongside UNICEF, Save the Children, and others as part of the broader Device Coalition effort (↑UNESCO, 2023b). A further 11,000 laptops for students were delivered in early 2024 under a GPE-supported programme implemented by UNESCO with UNICEF; the Hewlett-Packard (HP) / Global Business Coalition for Education 'Digital Equity for Ukraine' initiative reported 70,000+ laptops and learning devices for refugee and displaced learners (↑Global Business Coalition for Education, 2022); and coalition / UNICEF updates cited 39,000 laptops for school children via coalition channels (↑EU4Digital, 2024). The MoES established digital dashboards[27] and monitoring tools to track device allocation, school status, and student engagement in real time, facilitating more responsive interventions (↑MoES Ukraine & ECW, 2024). In April 2024, UNICEF delivered 39,000 laptops across eight regions as a part of this effort, and made additional frontline drops (e.g., 3,600 laptops in Kharkiv) where in-person schooling remained unsafe (↑UNICEF, 2024e; ↑UNICEF, 2024c). The MoES and partners also ran targeted drops to protect exam access, for example, 500 laptops to schools hosting large numbers of National Multi-Subject Test (NMT) candidates to shore up test-day infrastructure (↑MoES Ukraine, 2025a).

Major tech partners played distinctive roles. Google contributed devices for teachers and collaborated on national platform enablement; Microsoft underwrote critical cloud and cybersecurity support for Ukrainian public systems and later joined coalitions efforts; HP provided large device donations via Global Business Coalition for Education; and GPE leveraged its multiplier to crowd-in private and multilateral co-financing for distance learning, mental health and psychosocial support (MHPSS), teacher training, and planning aligned to the MoES priorities (↑Brittin, 2022; ↑Smith, 2022; ↑UNESCO, 2022).

[26] See https://www.dcoalition.org.ua/en. Retrieved 24 September 2025

[27] See https://lookerstudio.google.com/reporting/d156064e-81a3-4df1-b0ca-ed8132731e5f/page/kxPID

4. Analysis

This section synthesises evidence from the desk review and key informant interviews and is organised around three themes:

- Theme 1: **The role of the MoES in delivering the technology-enabled humanitarian education response** examines the MoES's digital vision, policy continuity, and preparedness; how national leadership was asserted; and how coordination and institutional learning evolved during protracted emergency conditions.
- Theme 2: **The impact of EdTech on displaced and vulnerable learners** assesses reach and usage, persistent access gaps, and inclusion (including disability), the dynamics of dual schooling, and teacher preparedness for remote and hybrid delivery.
- Theme 3: **Coordination and partnerships** analyses the Education Cluster's functioning 'in partnership with Government', donor adaptability (including accelerated modalities), and government-directed public–private engagement (e.g., the Device Coalition).

4.1 The role of the MoES in the technology-enabled humanitarian education response

This subsection explores how the MoES assumed a central role in steering the education response. It begins by examining the pre-crisis digital groundwork and policy frameworks that shaped the government's capacity to lead, and then considers how these institutional assets enabled a coherent digital strategy during the full-scale invasion. The analysis shows how pre-existing digital assets and governance capacity enabled a government-led model of coordination, with implications for transferability beyond Ukraine.

4.1.1 Digital vision, policy continuity and preparedness

Ukraine's ability to implement a nationally coordinated, technology-enabled education response was shaped by earlier investments in digital planning and policy development. As outlined in Section 3.1, the MoES had begun a shift toward digital transformation well before 2022—guided by formal strategies, laws passed, interministerial

collaboration, and experience gained during the Covid-19 pandemic. These efforts informed the structures and tools that would later be adapted to address emergency conditions (↑MoES Ukraine, 2023d).

Building on pre-crisis institutional and policy foundations

When the invasion escalated in 2022, the MoES could plug learning platforms, assessments, and identity / verification tasks into a mature state digital system rather than stand-alone apps. This reduced fragmentation, enabled rapid scaling (e.g., access to the NMT from abroad), and supported later integration with the national EMIS (known as AIKOM) for device tracking and school functionality—key ingredients for a coordinated, tech-enabled education response (↑UCEQA, 2024).

The updated legal, institutional, and financing architecture did not eliminate disparities, particularly between urban and rural areas (↑European Training Foundation, 2024). However, it meant that when the crisis escalated, the MoES and local authorities were working within a known framework—with defined responsibilities, assessment and quality control institutions, and a rule-based funding flow—to which emergency digital delivery and recovery measures could be attached (↑Eurydice, 2025d).

Among the administrative measures taken before the full-scale invasion was the establishment of the Directorate for Digital Transformation within MoES—a unit tasked with overseeing digital education and coordinating partnerships. Public records show the Directorate and its leadership in place pre-2022 (e.g., the Director General appointed 10 August 2021), supporting interview accounts that it provided institutional continuity during the early crisis phase (↑MoES Ukraine, 2025e). As one UN agency informant noted, "It wasn't a one-off project. There was an actual unit in the ministry, staffed and functioning before the war. That changed everything when the crisis hit" (UN1 KII, 2025).

In its Strategic Action Plan to 2027, the MoES outlined eight priority areas, including digital transformation, universal connectivity, and professional development for educators—providing a policy framework with which the crisis response could align rather than one needing replacement (↑MoES Ukraine, 2023d). The World Bank–financed programme LEARN, approved in August 2024, was explicitly designed to build continuity with these objectives. Programme documents specify support to data systems, curriculum delivery, and teacher support, alongside school shelters (civil works), school buses (goods), and textbooks (goods), reflecting both resilience and recovery needs (↑World Bank, 2024b; ↑World Bank, 2024c).

Additionally, the data from the AIKOM/AICEM infrastructure provided the policy basis for a unified EMIS to integrate school-level data, e-journals, and recovery monitoring. Subsequent programme documents place AIKOM at the centre of the MoES's digital architecture, with progressive consolidation and public dashboards during the response (↑IEA, 2022).

Leveraging EdTech platform readiness and earlier capacity-building initiatives

The Covid-19 pandemic served as a testing ground for digital tools, including AUSO (see Section 3.1). By early 2022, MoES described AUSO as the principal channel for distance / hybrid learning and promoted its use domestically and abroad for displaced learners (↑Istomina, 2020; ↑MoES Ukraine, 2022b).[28] A senior MoES official described AUSO not as a temporary measure, but as "a component of our digital architecture going forward" (Government KII, 2025). Independent profiles note AUSO's continuing expansion (e.g., in terms of users, subjects, and mobile apps).

Prior to the full-scale invasion, AUSO had evolved from emergency broadcasting into a state e-learning platform[29] launched on 11 December 2020, registering nearly 5 million visits in its first month. By early 2022, public materials described about 2,200 lessons live on the platform; more recent descriptions cite 4,500+ curriculum-aligned video lessons and tests across 23 subjects for Grades 5–11, reflecting continuous content growth (↑AUSO, 2022; ↑hundrED, 2025; ↑MoES Ukraine, 2021). While access and teacher digital skills varied, AUSO normalised online provision and seeded habits and content sources, which were later mobilised during the full-scale Russian invasion. The MoES subsequently showcased AUSO internationally for overseas Ukrainians (↑MoES Ukraine, 2022b).

The Diia.Digital and Diia.Osvita efforts, as described in Section 3.1, which had already started providing free teacher courses on remote teaching during the response to the Covid-19 pandemic, later expanded to map public digital education hubs nationwide. These assets proved useful once schools cycled through hybrid and remote modes during the full-scale invasion (↑Shevchenko et al., 2024; ↑UNDP, 2025).

Concurrently, teacher digital-pedagogy skills were increased through national and partner-supported initiatives. In late 2023, the MoES and UNESCO launched the 'Digital Teacher' online training, targeting 50,000 teachers. Within four months, 48,000+ teachers had enrolled—an indicator

[28]See also this portal for partner ministries of education https://emergency.mon.gov.ua/?. Retrieved 24 September 2025.

[29] See http://lms.e-school.net.ua. Retrieved 19 September 2025.

of both demand and delivery capacity for large-scale upskilling (↑UNESCO, 2024a; ↑UNESCO, 2024b). Coursera's partnership with MoES opened up access to 5,500–5,800+ courses and 3,400–3,500 guided projects to students and faculty across 280+ higher education institutions (↑MoES Ukraine, 2023a). UNESCO further documents sustained communities of practice for educators and psychologists as part of this effort (↑UNESCO, 2024c).

Entering 2022, Ukraine's education system was still mid-transition, but it possessed:

- A standards-based legal framework
- Decentralised but clear delivery lines
- A government-backed digital public infrastructure (Diia) and
- A national online learning platform (AUSO).

These elements constituted a policy and technical foundation that could be adapted rapidly as the crisis escalated—an assessment echoed in recent OECD and Eurydice reporting on the reform trajectory and its European orientation.[30]

Foundations for crisis adaptation

The existence of platforms (AUSO), institutional structures (the MoES Directorate), and interministerial cooperation before the full-scale invasion provided a foundation for faster adaptation under crisis conditions. Public-sector communications during the crisis consistently directed learners and teachers to AUSO and related resources, illustrating how pre-existing assets were repurposed at scale for continuity (see for example, the ministry's press release from September 2022, directing families and school professionals towards AUSO) (↑MoES Ukraine, 2022a). In contexts where digital infrastructure and reliable power are limited, early responses lean—appropriately—on broadcast radio and printed self-learning packs coordinated through humanitarian channels. These modalities are effective for rapid reach, but they typically run in parallel to national systems at first (which may result in limited curriculum integration, weak links to an EMIS and assessment, and ad-hoc teacher support), with system integration coming later as ministries assert leadership and capacity grows. A UNESCO case study on South Sudan, for example, illustrates how broadcast / print solutions provided access to

[30] "Eurydice is a network of 43 European National Units providing data and analyses on European education systems." See https://eurydice.eacea.ec.europa.eu/ for further information.

learning opportunities in the acute phase and were later connected into government frameworks (↑UNESCO IIEP & UNCF, 2022).

Together, these digital foundations—though unevenly distributed—proved critical to enabling the MoES to lead with direction and credibility in a government-led response. Section 4.12 examines how this leadership translated into action, specifically how the ministry coordinated stakeholders and aligned contributions within a national framework.

4.1.2 Government-led coordination of external actors

Building on the digital foundations discussed in the previous section, this subsection examines how the MoES evolved its coordination mechanisms in real time. It explores how national leadership was asserted amid a rapidly evolving crisis and how international actors were integrated into a government-led framework. In contrast to many emergencies, where ministries have limited roles and partners run parallel systems (↑IIEP-UNESCO, 2022; ↑INEE, 2024), Ukraine's MoES led coordination from the outset, with partners integrating into government platforms and procedures. As one EiE expert remarked, "The ministry wasn't just responsive—it was directive. They had a system in place, and partners had to plug into that (INGO3 KII, 2025)."

Government leadership was particularly evident within the first weeks of the full-scale invasion. The MoES mobilised the support of the Global Education Coalition (GEC)—the outcome of which is detailed below in Section 4.3)—with UNESCO as broker and facilitator. Twenty-five coalition members responded to the MoES's call to action, including major contributions from Microsoft and Google (↑UNESCO, 2022; ↑UNESCO, 2025d). The process was unusually fast, and the government was fully engaged. "The ministry was under pressure, but calling the shots," one UNESCO official recalled, noting that partners "showed up knowing they had to be in service of the government—or they weren't invited" (UN2 KII, 2025).

Governance arrangements emphasised traceability and integration. Coalition communications and the MoES describe inventory requirements, coordinated procurement, and routing of donations through official school systems and continuity plans rather than parallel pipelines—codifying expectations for partners and local authorities (↑MoES Ukraine, 2024b). This level of orchestration stood in stark contrast to more fragmented aid models (see for example ↑ALNAP, 2022; ↑Humanitarian Action, 2024; ↑Tindall, 2024). Analyses of the broader Ukraine response note a context of

strong state and civic capacity in which international actors were encouraged to support, not supplant, national systems—helping explain why centralised coordination and consolidated procurement avoided common duplication traps (↑Humanitarian Action, 2025a; ↑Nicholas Noe, 2025; ↑OECD, 2023b; ↑UNDP, 2022).

Government leadership did not eliminate friction. Several key informants, including those representing INGOs, UN agencies, and the Education Cluster pointed to confusion and coordination friction, especially in the first year of the response. Humanitarian actors accustomed to working more independently of national ministries reported confusion over approval processes, overlapping mandates, and unclear points of contact. An INGO representative explained:

> *"The ambition was great, but at times, the communication was scattered. We weren't always sure whether to go through the Education Cluster, MoES directly, or another national body"* (INGO1 KII, 2025).

Still, the MoES's willingness to engage deeply with international partners was widely noted by humanitarian actors: "They were always responsive and eager and really appreciative of everything we had to offer them" (Education Cluster1 KII, 2025).

Coordination spaces were routinely bilingual (Ukrainian/English) (↑Ukraine Shelter Cluster, 2025; ↑UNHCR, 2024c), and most formal guidance and standards were issued in both languages (↑Education Cluster et al., 2023; ↑Education Cluster & Save the Children, 2025)—an important equity gain that kept national systems and local actors at the table. The MoES maintained an English-language interface alongside Ukrainian communications, signalling openness to cross-border partners.[31]

The MoES directed alignment to national platforms, most notably AUSO. Programme documentation shows subsequent donor-financed content and activities being delivered within AUSO rather than through parallel platforms, consistent with this alignment approach (↑GPE, 2023a). As described by one UNICEF colleague, "The ministry has said very clearly that AUSO is the main platform, and so we have to work through that" (UN1 KII, 2025). AUSO, among other initiatives such as teacher training supported by Coursera and UNESCO, was framed as a state-led initiative rather than a stand-alone offering.

[31] See https://mon.gov.ua/en. Retrieved 22 September 2025.

The evolving role of the Education Cluster during the emergency response further illustrates MoES's approach to coordination. From 2022 onward, the Education Cluster scaled from an eastern-region focus to nationwide coordination, onboarding dozens of new partners and civil society organisations. Over 2023–2025, the Cluster increasingly operated "in partnership with Government," with MoES staff regularly engaged in technical forums (↑Education Cluster & Save the Children, 2025; ↑GEC, 2025; ↑UNICEF, 2024e). This shift reduced duplication and moved the centre of gravity towards government decision-making.

The technical standards developed by Education Cluster were co-endorsed and socialised by the MoES, and then scaled through partners. Operationally, the MoES and UN co-leads utilised Education Cluster mechanisms to reduce fragmentation, for example, directing that donated devices be inventoried in official school systems (rather than handed directly to households) and procured to MoES technical specifications. Public dashboards were introduced to monitor distribution. These steps strengthened traceability, sustainability, and legal compliance while enabling partners to move at pace (↑MoES Ukraine & ECW, 2024; ↑UNESCO, 2023d).

The novel element in the case of Ukraine is that the Cluster did not substitute for the state; it scaffolded MoES leadership (↑UNICEF, 2020a). By 2025, the model in Ukraine had illustrated how humanitarian architectures can support national ownership and systems reform when technical standards, data, and procurement are co-created and progressively embedded in state practice (↑Education Cluster & Save the Children, 2025).

This coordination approach was underpinned by institutional capacity. The MoES' Directorate for Digital Transformation functioned as both a technical body and a partner coordinator. One UN agency informant noted that it was "a real structure with staff [...] not just a one-off initiative," noting its capacity to shape guidance and allocate human resources to the response (UN3 KII, 2025). International partners engaged directly with the Directorate to align platforms, vet procurement lists, and coordinate rollout. MoES also set the policy tone by issuing guidelines and integrating partner efforts into national systems, for example, by incorporating humanitarian digital learning centres into broader data and EMIS tools (UN3 KII, 2025). Donors adapted to the ministry's accelerated pace: GPE's Board approved an accelerated funding multiplier grant for Ukraine with UNESCO and UNICEF as grant agents—an example of donors formally adopting faster-than-usual modalities alongside government-led priorities (↑GPE, 2022; ↑GPE, 2023b).

These initiatives — UNESCO and UNICEF serving as grant agents for GPE's accelerated funding while working with the MoES to operationalise device, training and platform strands, and the World Bank's system-strengthening through LEARN — reflect how public–private collaboration was embedded in government-led programmes rather than operating as ad hoc, parallel initiatives (↑GPE, 2022; ↑GPE, 2023b).

The MoES's role as both as policymaker and operational coordinator enabled an unusual level of national coherence and strategic alignment in education delivery. This evolving capacity positioned MoES to manage a wide array of partnerships — including with private sector actors. The next section turns to these public–private collaborations and assesses how the government framed and governed private sector engagement during the crisis.

4.1.3 Public–private partnerships under government direction

With a wide array of private actors entering the education response space, public–private partnerships became a central feature of Ukraine's digital strategy. This section examines how the MoES ensured that such collaborations were framed within national priorities and sustained through strategic governance.

In many emergencies, private-sector engagement is typically mediated by UN agencies or INGOs — formalised as partnerships between aid organisations and corporations and coordinated through UN private-sector engagement channels — rather than being driven by national ministries (↑Zyck & Kent, 2014). By contrast, in Ukraine, the MoES deliberately placed itself at the centre of public–private engagement, ensuring that private support served national priorities and was routed through state systems. The Device Coalition, described in Section 3.3, serves as a clear example of how the government shaped public–private engagement. This approach helped reduce duplication, improve transparency, and keep pace with crisis demands. The coalition brought together diverse actors, including UNESCO, UNICEF, Save the Children, the Olena Zelenska Foundation, and private sector partners such as Google and HP, each contributing resources or operational capacity (↑UNESCO, 2025d).

The contributions from the private sectors, described in Section 3.3, were possible in part because of Ukraine's pre-existing institutional infrastructure: device needs were mapped when the Digital Transformation Strategy was drafted, and distribution was logged through

a public dashboard. UNESCO received clear instructions from the ministry about how many devices were needed. For example,

> *"[UNESCO] brokered the tripartite agreement [and] agreed to take ownership of goods* [...] *to speed delivery to municipalities* [...]. *Two months and 29 days after we signed the agreement, the last truck pulled up into the last municipality"* (UN2 KII, 2025).

Importantly, the MoES treated public–private partnerships not as one-off transactions but as opportunities to embed capacity and advance strategic reforms. Guidance to oblasts and coalition rules emphasised that donated devices be inventoried within official systems and linked to continuity plans, helping avoid common pitfalls where emergency inputs are poorly tracked or disconnected from sector planning (↑MoES Ukraine, 2024b).

Ukraine's experience provides an example of how partnerships can be structured to serve public goals in crisis contexts through strong leadership. Leadership alone, however, was not enough; processes had to evolve. Section 4.1.4 below traces how this leadership adapted over time, highlighting the ministry's learning, responsiveness, and evolution as a system actor during protracted emergency conditions.

4.1.4 MoES adaptation and learning

Over time, MoES leadership matured to iterative system stewardship, absorbing humanitarian routines, while remaining anchored in its strategic national education agenda.

In the early phases of the emergency response, although the MoES asserted a clear strategic direction, it was initially unfamiliar with humanitarian planning cycles and procedural requirements. One donor official noted, "For the ministry, it was a bit difficult to understand what this *cluster* was [...] they had no prior experience of development-aid architecture" (Donor1 KII, 2025). Early engagement involved onboarding the MoES to the Education Cluster protocols and donor processes—including proposal development and submission windows, results frameworks, budget formats, and procurement safeguards. Interviewees noted, however, that the ministry was open to learning and adapted quickly, "They have no idea of the whole humanitarian architecture [...] now they're taking over it [and] will take the full responsibility of coordination after the transition" (Education Cluster1 KII, 2025).

At the same time, the MoES's unfamiliarity with established aid routines enabled it to question typical timelines and insist on adjustments—pushing for faster approvals, streamlined documentation,

and closer alignment with national plans and platforms. A donor official noted, “When the ministry wanted something, they were really going to the top level […]. If somebody said, ‘this is our rule,’ Ukraine didn’t take it — [they asked] to make changes and adapt” (Donor2 KII, 2025).

Partners reported that the MoES progressively adjusted its communication channels, coordination mechanisms, and approval flows in response to early bottlenecks and ambiguity, as one INGO representative recalled: “In the beginning, it was hard. Roles weren’t clear, and processes were slow. But they listened and improved” (INGO1 KII, 2025). Consistent with this, Cluster updates and appeals describe UN agencies leading Clusters “in partnership with Government,” signalling routine engagement between ministry staff and international counterparts inside coordination forums(↑UNICEF, 2023). Practices established earlier, such as bilingual coordination and dual-language guidance, reinforced inclusion and reduced friction without diluting state leadership.

This learning orientation helped stabilise coordination and reduce duplication in areas such as teacher training and device deployment. As one INGO informant noted, “the Ministry took a leadership role not just in approvals but in design and delivery,” gradually internalising coordination roles traditionally held by humanitarian agencies (INGO2 KII, 2025). This included tracking school functionality, guiding digital learning centre standards, and co-developing platforms and content distribution frameworks, as previously described in Section 4.1.

This dynamic created a feedback loop of mutual trust. “We had daily contact with MoES, not just for clearance but for co-planning”, one UN agency informant noted (UN2 KII, 2025). Unlike in many other emergency contexts where ministries are marginalised in implementation, here the ministry was perceived as a credible leader and a full partner (↑UNESCO, 2025b). This legitimacy stemmed from both its technical grounding — evident in its digital strategy and prior platform development — and its political coherence, as it consistently framed its wartime response as part of a broader resilience-building agenda. As one donor interviewee noted, “The ministry never abandoned its reform goals — they just adapted them to [the] context (Donor2 KII, 2025).”

Indeed, the MoES approached the crisis not as an interruption but as a pivot point. The ministry repeatedly emphasised a ‘build back better’ ethos, seeking to use emergency investments to accelerate long-term reforms — such as EMIS consolidation (AIKOM), hybrid learning, and inclusive digital pedagogy — rather than standalone, time-bound projects.

Section 4.2 below shifts focus from institutional leadership to outcomes—particularly the impact of EdTech interventions on displaced and vulnerable learners.

4.2 Impact of EdTech on displaced and vulnerable students

This section examines how EdTech interventions reached (or failed to reach) children across geographies and needs, and what these experiences reveal about the equity, usability, and effectiveness of digital solutions in crisis contexts.

4.2.1 EdTech usage and early findings on effectiveness

The Covid-19-era response initiatives—broadcast lessons, a national platform, teacher professional development at scale, and public digital-skills infrastructure—did not eliminate inequity, but it shortened the distance from emergency provision to a workable digital ecosystem. Those pre-crisis capabilities explain, in part, how Ukraine sustained learning when conflict made in-person schooling intermittent or unsafe (↑UNESCO, 2023e).

Despite institutional investments, geographic disparities persisted. Rural areas and oblasts with lower resources faced connectivity and budget constraints that limited both school digitalisation and teacher participation in professional development. Pre-crisis analyses by the European Training Foundation (ETF) highlighted exactly these gaps in updating digital skills and access among educators (↑ETF, 2019; ↑ETF, 2021).

As a result, many marginalised learners—especially from low-income households, children with disabilities, and those in frontline or newly de-occupied areas—could not participate consistently due to weak internet, limited devices (and power), and the lack of adult support at home when caregivers were displaced, overstretched, or unprepared to assist (INGO2 KII, 2025; UN1 KII, 2025; UN2 KII, 2025). The rapid adoption of EdTech solutions unfolded alongside enduring equity challenges (↑UNESCO, no date).

Geographic disparities in schooling modalities remained pronounced. In frontline and border-adjacent oblasts (e.g., Sumy, Donetsk, Zaporizhzhia, Kherson, Mykolaiv, Kharkiv), significant numbers of students continued to access learning using fully distance or hybrid modalities into late-2024/2025, while central and western regions saw a fuller return to in-person provision (↑UNICEF, 2025a). Displaced learners were

disproportionately online; humanitarian analyses for 2025 note that internally displaced children were far more likely than non-displaced peers to learn exclusively online, with IDPs hosted in the western part of the country particularly affected (↑Humanitarian Action, 2025b).

Usage patterns differentiated synchronous and asynchronous tools. A civil society survey conducted in 2022 and 2023 found only ~11% of students regularly used AUSO, while ~87% relied on Zoom / Google Meet or similar tools for live instruction—reflecting complementary functions (asynchronous repository versus synchronous teaching), rather than strict substitutes (↑Kohut et al., 2023).

Despite multiple modalities and efforts to reach learners, constraints among households—particularly displaced and rural—limited meaningful engagement, with caregivers' time, skills, and resources often stretched by displacement-related pressures. Humanitarian reporting in 2024 and 2025 repeatedly flags such capacity gaps as binding constraints on distance learning (↑Humanitarian Action, 2025b).

Key to understanding the impact of EdTech deployment is determining whether it improves learning outcomes—not just whether students have access to devices. In May 2024, over 4,400 Grade 8 students across Ukraine participated in national monitoring of Ukrainian language learning(↑MoES Ukraine & UCEQA, 2024). Results revealed notable patterns shaped by digital access, displacement, and instructional quality. Girls slightly outperformed boys, and regional variation remained significant, with Kyiv and southern oblasts showing the highest average scores. Interestingly, learning modality—whether in-person or remote—did not significantly impact outcomes, although students in hybrid formats performed marginally worse (↑MoES Ukraine & UCEQA, 2024).

These findings gain additional context from Ukraine's participation in the PISA 2022 assessment, where 15-year-olds scored 441 in mathematics (OECD average: 472), 428 in reading (OECD average: 476), and 450 in science (OECD average: 485) (↑OECD, 2022; ↑OECD, 2025). Released on 5 December 2023, the PISA results underscored significant learning gaps, a reality the MoES and its partners described as a call-to-action to bolster digital pedagogy and recover learning losses (↑MoES Ukraine, 2023c).

Device type mattered: in Ukraine's national monitoring, students using laptops or desktops had better results than those relying on smartphones. While 26% of students had access to tablets or Chromebooks, fewer than half had printed learning materials at home. Access to a personal study environment also varied—67% had their own room, but only 29% had a dedicated workspace. Despite these challenges, many students expressed

confidence in their teachers: 48% reported receiving consistently clear instructions, and nearly 9 in 10 said they were frequently encouraged to think critically during language lessons (↑MoES Ukraine, 2023c; ↑OECD, 2023a).

The data reinforces the fact that learning outcomes depend not only on the tools or methodologies used but also on the presence of quality teaching, supportive environments, appropriate infrastructure, and outreach to vulnerable learners. EdTech is one approach among many for sustaining instruction and engagement—particularly during disruptions—but its effectiveness, like that of structured pedagogy or print-based materials, is shaped by the ecosystem in which it is deployed.

The Ukrainian case shows that platforms (AUSO, Mriia) and protected spaces (DLCs) can support sustained continuity at scale, yet impact hinges on the surrounding ecosystem: devices and power / connectivity, trained teachers, caregiver capacity, and psychosocial safety. As recovery proceeds, priority should shift to robust evaluations of reach / usage and learning impact, particularly for hybrid models and for displaced and rural learners, to inform the quality assurance and improvement of education response in wartime.

4.2.2 Device access: Progress and gaps

Despite the momentum on device delivery and attempts to reach more marginalised learners, as described in Section 3.3, a substantial shortfall persisted. Reputable monitoring and media syntheses from late 2024 and up to and including mid-2025 indicate that more than 300,000 children still lacked the devices needed for distance or hybrid study, with coalition targets around 125,000 additional laptops / tablets to narrow the most acute gaps (↑Brown, 2024). Figures vary by source and cut-off date; where official dashboards exist, they are improving but remain incomplete. Importantly, the device deficit is not evenly distributed: shortages cluster in frontline / border-adjacent oblasts and among IDPs, where distance-only schooling is most prevalent (↑Brown, 2024).

The MoES sought to reduce duplication and improve transparency by instituting tracking. Ministry documentation describes a device-tracking tool that records the number, location, and beneficiaries of digital devices provided by development partners as part of the humanitarian response—an information backbone intended to inform future allocations (↑MoES Ukraine, 2024a). In parallel, Education Cluster guidance codified minimum standards for DLCs to support learners without home devices so they could join online classes and access wrap-around services. (↑Education Cluster et al., 2023). UNICEF reporting shows the network of student

learning support hubs scaling through 2024, including dedicated DLCs alongside catch-up centres (↑UNICEF, 2024f; ↑UNICEF, 2024g). Connectivity and power reliability—frequent bottlenecks for schools and community hubs—were addressed in part through Emergency Telecommunications Cluster deployments and upgrades. However, humanitarian situation reports continue to flag outages that periodically limit use of devices even where available (↑ETC, 2025).

Device provision was increasingly paired with psychosocial and instructional support. GPE programme documentation with UNESCO / UNICEF outlines the intention to integrate mental health and psychosocial support (MHPSS) and social and emotional learning into DLCs and related activities, recognising that hardware alone is insufficient for meaningful engagement under stress (↑UNESCO, 2023d). Sector reporting shows large-scale MHPSS delivery through schools and hubs during 2024 (↑GPE, 2025; ↑UNESCO, 2023d; ↑UNICEF, 2025d), the impact of which remains to be evaluated.

These measures show clear progress toward a more equitable device landscape, but they also underscore a practical question about wraparound packaging for devices to translate to learning. Embedding hardware in a service package, connectivity, upkeep, safe learning spaces with facilitators, and explicit links to schools, helps the learners most at risk participate and persist (↑UNESCO, 2023c). Where such packages exist (e.g., standards-aligned DLCs linked to local schools), the likelihood of exclusion is lower (↑Education Cluster et al., 2023; ↑UNESCO, 2023d; ↑UNICEF, 2025a).

4.2.3 Pedagogical strain and teacher support

Teachers continue to sustain learning under extraordinary pressure. As schools cycle between in-person, hybrid, and distance provision, educators manage multiple modalities, teach through air-raid disruptions, and support displaced and traumatised learners—often while coping with their own displacement and care responsibilities. Reporting through 2024–2025 describes frequent lesson interruptions and shelter-based teaching, and the chronic, non-academic burdens the workforce carries (↑Plan International, 2025; ↑UNICEF, 2025a).

Pre-crisis reforms (New Ukrainian Schools) prioritised learner-centred pedagogy and basic digital competence, but current needs go beyond standard continuous professional development. The response has therefore shifted to upskilling at scale and to teacher well-being as a protection function, not only a pedagogical input. UNESCO's nationwide Digital Teacher course, launched in late 2023, enrolled more than 48,000 teachers within its first four months, complementing earlier UNESCO /

Google support that delivered 50,000 computers to teachers to sustain distance and hybrid instruction (↑UNESCO, 2022; ↑UNESCO, 2024a).

UNICEF and partners also run large training waves linked to learning recovery and hybrid delivery. By November 2024, 55,279 teachers had participated in UNICEF-supported training and workshops—including dedicated MHPSS sessions in frontline hromadas—with situation reports noting how air strikes and power cuts affect participation, precisely the conditions under which teachers are expected to keep learning on track (↑UNICEF, 2024g).

Alongside general digital-pedagogy offers, partners explicitly address psychosocial support. A GPE country story compiled with UNESCO / UNICEF reports more than 60,000 education professionals trained in psychosocial support and school safety (↑GPE, 2025), while a GPE-financed UNESCO programme sets out an integrated MHPSS component (teacher well-being guidelines, referral policies, and training on safe educational environments) (↑UNESCO, 2023d).

System work proceeds in parallel, so training is coherent and sustained, rather than a patchwork of short courses. Under GPE support, UNESCO and the MoES have analysed the teacher professional development model across 25 regional teacher training institutions and found the missing backbone to be external quality assurance, overlapping mandates, uneven digital readiness, content gaps, and a fast-growing but lightly regulated non-state market (↑UNESCO, 2025e). On the strength of these findings, they set up a National Advisory Committee (chaired by the Deputy Minister) and three working groups to harmonise norms. The same programme also convened the Education Cluster MHPSS Task Team (34 members) to coordinate approaches and produce Teacher Well-Being Guidelines, ensuring pedagogy, provider rules, and teacher support move together rather than in silos (↑UNESCO, 2023d).

Global evidence suggests learner attainment and motivation are strongly predicated on teacher well-being (↑Madigan & Kim, 2021), indicating that supporting teachers is instrumental to learning recovery in the Ukrainian context. In early response snapshots, 90% of teachers self-reported worsening psychological well-being, alongside widespread child distress (↑Global Education Cluster, 2023), signifying an acute need for teacher and learner psychosocial support services during the crisis. However, rigorous impact measures for support mechanisms such as DLCs, device pipelines, and specific teacher professional development packages remain limited.

Against this backdrop, reach and equity remain uneven. Frontline and rural teachers face recurrent connectivity and electricity outages; many juggle

mixed-ability classes, hybrid timetables, and the emotional load of learners under prolonged stress—factors humanitarian updates link to lower engagement and motivation among students. These constraints and their effect on learning also warrant further research efforts.

4.2.4 Inclusion: gaps for children with disabilities and other vulnerable groups

The pivot to distance and hybrid learning exposed and widened pre-existing gaps for children with disabilities and other high-needs groups. Policy commitments to inclusion were in place, but disruption strained the practical supports that make inclusion work day to day (↑MoES Ukraine & ECW, 2024). By 2022, an estimated 7,000 learners were in special classrooms and more than 40,000 in inclusive classrooms nationwide; almost 11,000 were studying under pedagogical patronage (home-based instruction for children unable to attend school). These figures set a baseline for the scale of need at the outset of the full-scale invasion (↑MoES Ukraine & ECW, 2024).

Local capacity remains constrained. A national education needs assessment found that close to 40% of communities lacked the technical means to organise learning for children with special educational needs (SEN), and 60% reported urgent needs for equipment and specialised teacher training for inclusion. Equipment for children with disabilities to physically access education was also in short supply (↑MoES Ukraine & ECW, 2024).

Access barriers multiplied online. Reporting from 2024 to 2026 describes SEN learners who were not in touch with teaching assistants, could not consistently join virtual classes, and lacked individualised learning pathways or corrective services. In the west—to where many families fled—Inclusive Resource Centres (IRCs) became overloaded by the influx of internally displaced children with disabilities, leaving schools and IRCs to "their own resources" in too many cases (↑MoES Ukraine & ECW, 2024).

Caregivers were often left without guidance on how to support learning at home. Sector analysis from the ECW 2024–2026 Multi-Year Resilience Programme notes that many parents "were left alone with the problem," underscoring the need to couple distance-learning offers with practical family-facing support (↑MoES Ukraine & ECW, 2024).

Partners responded with a mix of higher and low-tech measures. Alongside state platforms, programmes financed printed as well as digital learning materials and set up DLCs (↑GPE, 2023a).

Beyond disability, poverty and displacement compounded exclusion risks. ↑UNICEF's (2024b) situation analysis highlights sharp increases in poverty among households with children—especially large families—since 2022; these constraints affected the ability to afford devices, connectivity, and quiet learning spaces, and intersected with high rates of distance learning among pupils still enrolled from abroad.

Taken together, the picture is consistent: inclusion during the full-scale invasion hinged on more than opening digital access. Assistive technologies and human support (teaching assistants, IRC services), caregiver coaching, MHPSS, and locally available low-tech materials were decisive enablers. Where these were thin, online provision struggled to translate into equitable participation for children with disabilities and other vulnerable learners (↑GPE, 2023a; ↑MoES Ukraine & ECW, 2024).

That said, rigorous learning evidence from the crisis period, disaggregated for disability, remains limited. Most sources track inputs and participation, with few robust impact estimates for learning platforms, DLCs, device pipelines, or specific teacher-support packages. Recent syntheses also flag a general lack of robust outcome data in the literature on the use of EdTech in emergency situations (↑Barnes et al., 2025). At a system level, PISA 2022, implemented in 18 of 27 oblasts and thus not nationally representative, offers a partial snapshot: the share of students reaching baseline proficiency was 58% in mathematics (OECD average: 69%), 59% in reading (OECD average: 74%), and 66% in science (OECD average: 76%), with an 84-point socio-economic gap in mathematics; results should be interpreted with caution given coverage and crisis disruptions (↑OECD, 2023a). PISA does not capture disability-specific outcomes, underscoring the need for targeted monitoring and evaluation for learners with SEND.

Inclusion remains a critical and unfinished challenge. As Ukraine's education system adapted to serve students across borders, new forms of exclusion and complexity emerged—particularly for refugee learners navigating dual schooling. Section 4.2.5 below unpacks this cross-border dynamic.

4.2.5 Dual schooling for Ukrainian refugees

Dual schooling—enrolling in a host-country school while also following Ukrainian online classes—has become widespread: UNESCO's 2025 regional dashboard across ten European hosts estimates ~29% of Ukrainian refugee learners follow both systems, with about a quarter spending 3+ extra hours daily on the Ukrainian

curriculum; UNHCR echoes these figures in its regional update (↑UNHCR, 2025).

Why dual schooling? Interviews and programme reporting point to uncertainty about length of stay, a desire to avoid curriculum slippage, and parental strategies to keep children grade-aligned with Ukraine (INGO1 KII, 2025; INGO2 KII, 2025). Early in displacement, the MoES guidance explicitly promoted continuity via the AUSO and encouraged teachers to re-establish contact with students abroad—signalling a state preference for maintaining links to the national system (↑MoES Ukraine, 2025b). At the same time, multiple analyses note information and coordination gaps: the MoES can only systematically track children still in the Ukrainian system, while data on Ukrainian learners fully absorbed into host systems are held abroad—complicating attendance tracking and case management across borders (↑The Accounting Chamber, 2025).

Teachers often made dual schooling possible. Ukrainian classroom teachers continued parallel online instruction after hours to keep cohorts connected and grade-aligned: “Teachers kept the dual classroom alive on their own initiative.” (INGO KII, 2025). This coping strategy, however, carries trade-offs for both students and teachers. Students navigating two systems face overlapping timetables, misaligned calendars, homework loads, and language barriers—factors associated with fatigue and reduced time for rest or psychosocial recovery. UNESCO’s 2025 analysis highlights these risks alongside the headline participation figures, and UNHCR’s regional brief flags the dashboard as the shared evidence base informing host-country coordination (↑UNHCR, 2025).

Systems are adapting—slowly. Recognition of learning completed abroad has been a pivotal policy shift. Between June and July 2025, Ukraine approved procedures for automatic recognition of graded learning attained in foreign schools, by Ukrainian schools, easing re-entry and reducing the need for double-schooling purely to secure credit. Recognition of non-formal Ukrainian studies abroad is also envisaged in the new framework (↑MoES Ukraine, 2025d).

Dual schooling has functioned as both continuity and overload: it protects curriculum alignment but can crowd out rest, play, language acquisition in the host system, and psychosocial recovery. Where cross-border policies (e.g., on credit recognition, timetable coordination, and information sharing) are in place, the burden eases; where they are not, families and teachers shoulder the complexity. The emerging policy direction—encouraging continuity without requiring parallel study,and

recognising learning undertaken abroad—points to a more sustainable equilibrium (↑MoES Ukraine, 2025b; ↑MoES Ukraine, 2025d).

As of mid-2025, rigorous outcome evaluations of dual schooling are limited; the strongest figures come from UNESCO's regional dashboard and partner monitoring. Continued tracking and qualitative study—especially on stress, engagement, and language / attainment trajectories—will be essential to calibrate support without overburdening learners (↑UNESCO, 2025a).

Overall, Sections 4.1 and 4.2 show that digital platforms (AUSO, Diia.Osvita, and Mriia) were essential to continuity, but their effects hinged on the state's ability to steer and integrate them. On the learner side, impact depended on the surrounding ecosystem, with persistent inequities affecting displaced, rural, and low-income learners, as well as the added burden of dual schooling for refugees.

Section 4.3 below turns to the coordination architecture that enabled, and at times constrained, this implementation, and how partnerships helped or hindered alignment, speed, and equity at scale.

4.3 Volume, speed, and adaptability of international funding

This section examines how flexible financing (from the GPE, ECW,and others) facilitated rapid, state-aligned digital delivery (↑Education Cluster & Save the Children, 2025; ↑UNICEF, 2024b).

Ukraine's education response benefited from flexible instruments used at a rapid pace and aligned with a government-led plan. In April 2023, the GPE Board approved a USD 25.55 million GPE Multiplier financing instrument as accelerated funding, an atypical move both in approving the full Multiplier envelope under the accelerated window and in accepting substantial, in-kind co-financing (↑GPE, 2023b; ↑GPE, 2023c). The two Board choices were distinctive in Ukraine's case, as GPE often caps accelerated funding around USD 10 million (↑GPE, 2023e). With matched cash and in-kind inputs (e.g., from tech partners), the GPE-backed package for distance learning and MHPSS totalled just over USD 51 million, later complemented by a USD 2.45 million System Capacity Grant (↑GPE, 2023d; ↑UNESCO, 2023a).

ECW likewise adapted its model. An initial USD 5 million First Emergency Response (March 2022), then the 2024–2026 Multi-Year Resilience Programme, launched with USD 18 million catalytic funding on a 24-month implementation horizon to preserve agility. Across mechanisms,

funds were channelled through state-aligned architecture (the MoES, Cluster co-leads, and grant agents), rather than one-off projects (↑MoES Ukraine & ECW, 2024).

Across mechanisms, a common feature was trust-based collaboration with a technically capable ministry. GPE's country materials and results stories emphasise large-scale teacher training (including MHPSS and school safety) delivered through MoES-approved pathways—evidence of donors funding both emergency delivery and core system functions in tandem (↑GPE, 2022).

There are noted risks and limits to consider. Several reports note that the velocity of funds / devices sometimes outpaced local IT support and school-level systems (e.g., asset management and maintenance), requiring further investments to avoid equipment being underused or locked away. Customs and border processes, while improved, also introduced timing risks for device pipelines—typical of crisis logistics and highlighted in 2024–2025 updates (↑Education Cluster et al., 2025; ↑GPE, 2023a).

Ukraine demonstrates how pooled, flexible, government-aligned financing can unlock emergency digital delivery *and* advance system transformation (e.g., of an EMIS, standards, and teacher professional development) under crisis conditions. But speed must be matched by implementation capacity (e.g., IT support, inventory systems, and coaching), or quality and equity can lag behind the volume of inputs (↑UNESCO, 2023d).

The emergency education response has drawn international attention for its speed, coherence, and innovation. But to assess transferability, it needs to be situated within the political and financial ecosystem that enabled it. Two features stand out: (1) unusually high, rapid external support and (2) strong political alignment with European institutions that smoothed engagement and accelerated decision-making. The EU granted Ukraine candidate status in June 2022 and, alongside member states, subsequently mobilised large macro-financial and humanitarian packages (including the 2023–24 macro-financial assistance and the 2024–27 Ukraine Facility), while EU institutions and capitals together committed EUR 3.7 billion in humanitarian aid for 2022–2025 (↑European Council, 2025). This surge occurred against a global backdrop in which net overseas development assistance hit a record high in 2022, primarily due to aid to Ukraine and in-donor refugee costs, underscoring how geopolitical salience influenced the volume and speed of international funding (↑OECD, 2023c).

From the outset, the MoES was treated as a primary actor rather than a peripheral beneficiary. International partners joined government-led

coalitions and adapted procedures to meet ministry timelines—an arrangement not typical across emergencies. Comparative reviews consistently note that humanitarian architectures remain centred in international agencies, with limited devolution of leadership and finance to national authorities despite localisation commitments. This pattern is documented by ↑ALNAP (2022)[32] and analyses of power and coordination by the Humanitarian Policy Group at the Overseas Development Institute, as well as Grand Bargain monitoring, all of which highlight slow progress toward government-led models (↑Metcalfe-Hough et al., 2022). OCHA's Global Humanitarian Overview 2023 finds that at the sub-national level, only 38% of clusters, sectors, or Areas of Responsibilities (AORs) had a local or national actor in a leadership role, meaning that governments are still a minority in coordination leadership (↑OCHA, 2024a). Ukraine's co-led Education Cluster, with active MoES participation in technical guidance, therefore illustrates an alternative approach (↑Humanitarian Action, 2022).

This enabling environment was potentially not only about volume, but also reflected political relationships and institutional credibility. Ukraine's reform track record, digital-governance architecture, and EU orientation may have fostered high-trust engagement (e.g., streamlined use of accelerated windows, acceptance of in-kind co-finance, and rapid co-design with UNESCO/UNICEF as grant agents). By contrast, in many crises with comparable educational disruption, donors apply tighter controls and route funds through parallel mechanisms, reinforcing the systemic centre of gravity in international actors flagged by ALNAP and ODI reviews. The implication is straightforward: replicating Ukraine's model elsewhere may be difficult without addressing underlying asymmetries in how authority and risk are distributed in the humanitarian education system (↑U.S. Department of State, 2024).

[32] "ALNAP is a global network of humanitarian organisations, including UN agencies, members of the Red Cross/Red Crescent Movement, NGOs, donors, academics, networks and consultants dedicated to learning how to improve the response to humanitarian crises" (↑ALNAP, 2022).

5. Recommendations

The following recommendations are primarily directed at governments navigating or preparing for crises, or considering the role of digital transformation for education systems, drawing on lessons from Ukraine's experience to inform systemic approaches to resilience and reform. This emphasis reflects the central role of governments as stewards of public education systems, with the authority and responsibility to shape coordinated, equitable, and sustainable responses to educational needs. It is not intended to suggest that governments alone bear the burden of action. A smaller number of additional recommendations for other stakeholders is also included.

5.1 Invest early in digital transformation capacity

Ukraine's experience underscores that the foundations for successful crisis response are laid well before a crisis emerges. The government's pre-crisis investments in digital infrastructure, e-governance platforms, and data management systems enabled the MoES to quickly pivot and scale digital learning, device tracking, and remote coordination during the full-scale invasion. Prior exposure to hybrid learning, digital teacher training, and systems reforms meant the sector could absorb large-scale EdTech interventions without being completely overwhelmed. The strategy played a crucial role in aligning partners, granting authority to the ministry, and serving as a roadmap to a sustainable response amid the crisis. It allowed actors (as well as the MoES) to focus on the longer-term goals and ensure emergency response was well attuned to those ambitions.

Additionally, the Covid-19 pandemic acted as an accelerator for crisis preparedness. Teachers participated in digital skills training and hybrid approaches were piloted, and online platforms were created and socialised among students and families. The familiarity and experience with hybrid learning only contributed to the relatively rapid and somewhat seamless transition to online learning during the full-scale invasion.

Recommendation 1: Countries should prioritise building robust digital governance architecture pre-crisis, establishing not only infrastructure but also strategies, governance structures, secure data systems, and institutional capacity. This will enable them to activate these assets rapidly in emergencies, increasing the potential of a more coherent, equitable, and effective response.

5.2 Anchor private sector engagement in state-led frameworks

A core lesson from Ukraine's crisis response is that transformative, system-wide partnerships with the private sector benefit from state leadership, strategic frameworks, and disciplined curation. The MoES, supported by other international partners, took an active stance as convener, regulator, and broker, ensuring that every private sector engagement, whether with a global technology giant, EdTech start-up, or local telecom provider, fit into a broader digital transformation vision rather than simply addressing the needs of the moment.

Rather than accepting piecemeal donations or allowing disconnected pilot projects to proliferate, the MoES made it possible through the digital transformation strategy for partners to align with comprehensive needs. With coordinated procurement logistics and transparent device tracking and reporting systems, device distribution and digital learning interventions were not simply the sum of independent partner actions, but part of an orchestrated, government-led strategy with national equity and efficiency as a core goal.

Ultimately, it is the state, and not the market, donors, or external partners, that must set the agenda for digital transformation, particularly in emergencies when the risks of fragmentation and inequity are at their highest.

Recommendation 2: Governments should proactively design and lead coalitions or task forces that coordinate private sector and donor inputs within a unified, government-owned framework, thus ensuring equity, sustainability, and alignment with sector reform goals. In practice, leading on design could look like defining the mandate, providing minimum standards, and sharing clear priorities. In terms of leadership, governments should convene and steer partners around the set priorities, align resources with national systems, and oversee delivery and learning cycles.

5.3 Simplify bureaucracy during crisis—but preserve accountability

The Ukraine response showed the difficult, but essential, balancing act between urgent flexibility and rigorous accountability in crisis financing, procurement, and programme delivery. Traditional humanitarian and development bureaucracies, often designed to minimise risk and ensure procedural compliance, can become bottlenecks, slowing the flow of

critically needed resources. Ukraine and its partners showed that, with the right structures and mutual respect and trust, it is possible to move quickly without sacrificing integrity or transparency.

Both donor and implementing agencies made adjustments to meet the ministry's request for quicker responses. Ukraine demonstrated that donors and governments can adopt flexible mechanisms while maintaining accountability through EMISs, dashboards, and distribution protocols.

Recommendation 3: Both governments and donors should establish joint planning processes and build trust before or very early during a crisis, so that streamlined procedures can be activated quickly when needed. During emergencies, governments should proactively share their reform agendas and maintain open, coordinated communication with partners, aligning all external support under a unified national response.

Recommendation 4: Donors, in turn, should be prepared to activate flexible crisis protocols, enabling rapid aid delivery while relying on strong, government-led accountability systems, such as digital dashboards and EMISs, to ensure resources are tracked, transparently reported, and reach intended beneficiaries without undermining systemic integrity.

5.4 Leverage trust, align with humanitarian norms, and remain actively engaged

One of Ukraine's essential assets in its education response was the MoES's ability to operate with credibility and agility in international humanitarian and donor spaces—a product of both technical capacity and astute political navigation. Ukraine's MoES consistently demonstrated what partners described as 'dual fluency'—comfort and confidence with both domestic reform and international standards.

The MoES's proactive engagement went beyond language: it entailed aligning the national digital transformation agenda with international standards for inclusion, gender, and MHPSS, and participating actively in technical working groups and policy dialogue with funding and Education Cluster actors. This earned a high level of trust. This approach paid dividends. International agencies were not merely tolerated, but actively integrated into national strategy. The political economy of this approach is significant: the MoES, leveraging its reformist credibility and strategic relationships, was able to maintain policy sovereignty while channelling international resources to its priorities—a rare achievement in humanitarian contexts, where aid can sometimes fragment national

systems or undermine government authority. Ukraine's experience shows the necessity of developing both technical policy expertise and the political acumen to engage confidently with humanitarian and donor platforms.

Recommendation 5: In order to engage on an equal footing with the humanitarian mechanisms, ministries need to cultivate expertise in international humanitarian principles, technical policy language, and collaborative practices, thus enhancing their ability to mobilise, coordinate, and sustain power and develop partnerships to fulfil their own agenda in future crises.

5.5 Design and invest for inclusion across modalities

Delivery in crisis made clear who is left out first: learners in frontline and rural areas, children with disabilities, low-income households, and many displaced students navigating unstable and continuous movement. The response worked best where inclusion was built into the offer — pairing national platforms with staffed hubs, keeping offline / low-bandwidth routes open, targeting device pipelines, and budgeting for assistive technologies and power resilience. Where these elements were absent, access widened but participation and quality stalled. Inclusion needs to be specified in standards, costed in budgets, and monitored with disaggregated data, and then actively course-corrected through continuous professional development of service providers, outreach, and service placement.

Recommendation 6: Governments should embed equity and accessibility requirements in standards, financing, and delivery models from the outset. This should include: pairing national platforms with staffed community digital learning centres and school-based hubs in areas with weak home access; standardising low-bandwidth and offline routes (broadcast, print) alongside online delivery; and ring-fencing budgets for last-mile basics (e.g., devices, connectivity, and power) and assistive technologies.

Recommendation 7: Teacher coaching and well-being support structures should include a designated inclusion focal point person. Procuring devices and selecting hub locations should be driven by disaggregated student data and simple learning checks, allowing programmes to adapt as needs change.

6. Conclusion

Reflecting on three years of crisis and adaptation, Ukraine's emergency education response illustrates how a foundation of digital readiness, adaptive leadership, and coordinated partnership can redefine what is possible for crisis-affected learning systems. While technology offered an unprecedented bridge for continuity, it could not, on its own, address the complexity of educational needs—nor erase longstanding disparities exposed by the war.

This case study does not offer a complete comparative political economy of humanitarian education finance. Still, acknowledging Ukraine's exceptional enabling conditions clarifies which lessons travel and which depend on context: high-capacity government leadership; aligned, flexible financing (within existing policies) that can move at pace; and political cover from powerful regional institutions. The value of Ukraine's experience, then, is less a universal blueprint than a benchmark for what becomes possible when national authorities are trusted to lead and resourced accordingly—and a prompt to donors and agencies to revisit how power, procedures, and partnership norms can be rebalanced in other crises (↑European Council, 2025; ↑GPE, 2024).

For Ukraine, the coming years will test the sustainability of its digital advances. The transition from emergency-driven innovation to system-wide, equitable reform will require persistent political will, resource mobilisation, and continued attention to teachers and vulnerable learners. Ukraine's story highlights that education sector resilience depends not only on crisis response, but also on the investment, planning, and partnerships forged beforehand. The challenge and opportunity for humanitarian and global education actors is to prioritise preparedness and collaboration, creating more resilient, equitable, and innovative systems that can serve every learner, everywhere, in times of both stability and emergency.

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Annexe

Key informant interviews — Analysis

The case study draws from 18 key informant interviews conducted with representatives of government, donors, UN agencies, NGOs, research institutions, and private sector partners. These conversations offered deep insight into how Ukraine's MoES led and adapted its education response during the war, particularly in the domain of technology-enabled learning and response leadership and coordination.

The MoES perspective was captured through an interview with a senior staff member involved in digital transformation, coordination, and teacher development. The official emphasised the Ministry's pre-crisis planning, citing the draft digital strategy and prior investments in digital competence training as foundational to the wartime response. They described a systemwide push to scale up device access, roll out learning platforms, and align partner activities under a coherent national vision — even in the absence of domestic financing. The MoES representative also acknowledged equity challenges, particularly in addressing needs across regions and among vulnerable groups.

Donor voices, including those from ECW, GPE, and the Finnish Ministry of Foreign Affairs, largely reinforced this framing. They noted that Ukraine stood out from other crisis contexts due to the government's strategic clarity and strong ownership. Donors highlighted the Ministry's ability to convene actors, define standards, and rapidly absorb innovations such as digital learning centres into national structures. However, they also noted frictions within the humanitarian architecture — particularly the Ministry's initial unfamiliarity with cluster coordination processes — and the surprising level of authority and convening power of the Ministry.

UN agency staff and Education Cluster representatives, including those from UNICEF and Save the Children, emphasised the Ministry's increasing leadership over time. They described a shift from ad hoc, partner-led innovations to government-owned implementation. Several interviewees pointed to the progressive handover of initiatives — such as device distribution frameworks and minimum standards for digital learning centres — from the Cluster to MoES. They also noted important gaps: data on children with disabilities remained limited, psychosocial needs were under-addressed in some areas, and tensions persisted between humanitarian speed and national system-building processes.

Ukrainian educational actors, including Osvitoria and the Kyiv School of Economics (KSE), played pivotal roles not only in implementation, but also in shaping national education reform and strategy. Osvitoria, in particular, is a leading Ukrainian educational organisation, a recognised think tank, and a key policy actor within the national system. As the Ministry's core partner in delivering the New Ukrainian School reform, its contributions go beyond programme delivery to include agenda-setting, strategic design, and systems strengthening. Both Osvitoria and KSE emphasised the importance of trust, shared objectives, and coordination frameworks. They contributed substantively to content development, teacher training, and data monitoring, while also underscoring the importance of cultural continuity and national identity—highlighting the value of connecting displaced learners to Ukrainian teachers, language, and curricula.

Academic and research stakeholders framed Ukraine's response within a broader comparative and policy context. They highlighted the importance of pre-existing education priorities and national digital capacity, while also warning against over-reliance on private actors without sufficient regulation. Their reflections helped situate Ukraine's experience in ongoing debates around system resilience, sovereignty, and innovation during the crisis.

Private sector voices were not interviewed directly due to availability, with the exception of Coursera, who provided written responses. However, their roles were consistently referenced across interviews as examples of public–private collaboration with high-level political and ministerial buy-in.

Notably, two EiE experts provided valuable comparative reflections. One emphasised the exceptional nature of Ukraine's nationally led coordination model, contrasting it with fragmented responses in other conflict settings. The other stressed the role of EdTech and the importance of aligning education and protection responses—particularly for displaced children navigating dual curricula, social cohesion challenges, and high mental health needs.

Taken together, the KIIs offered a rich perspective on Ukraine's EdTech response during wartime. They highlighted both the strength of centralised leadership and the fragility of systems stretched by conflict. Across all actors, there was consensus that Ukraine's case offers instructive—though not universally replicable—lessons about how governments can drive adaptive, inclusive, and technology-supported education during a crisis.