PUBLIC MANAGEMENT AND ADMINISTRATION

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DIGITAL TRANSFORMATION OF EDUCATION GOVERNANCEIN THE POST-WAR PERIOD

Russia's full-scale invasion has transformed digital technologies from supplementary instruments into a critical infrastructure of Ukrainian education. Online platforms, electronic registers, remote communication tools and digital assessment systems have enabled educational institutions to continue operating despite destruction, displacement, interruptions in electricity supply and restrictions on physical access to campuses. However, the emergency expansion of digital tools should not be equated with a completed digital transformation. Wartime digitalization has largely been reactive, fragmented and oriented towards maintaining continuity rather than redesigning governance processes.

The scale of the post-war challenge will require a transition from crisis response to systemic transformation. The fourth Rapid Damage and Needs Assessment estimated Ukraine's total reconstruction and recovery needs at USD 524 billion over the following decade and identified education among the most affected sectors [1]. Consequently, reconstruction should encompass not only buildings and equipment but also the governance capacity needed to identify educational needs, allocate resources and evaluate results.

In this context, digital transformation of education governance is understood as a qualitative change in the organization of public management based on integrated data, interoperable information systems, digital public services and evidence-informed decision-making. It differs from computerization, which primarily concerns the provision of hardware, and from digitization, which converts documents and procedures into electronic form. This distinction is essential because the multiplication of electronic tools does not itself change how institutions interact or how decisions are made.

The experience accumulated since 2020 illustrates both the potential and the limitations of emergency digitalization. During the COVID-19 pandemic and the full-scale war, educational institutions rapidly adopted learning management systems, videoconferencing, electronic document exchange and online assessment. This adaptability preserved access to education for millions of learners. At the same time, institutions often used several non-integrated platforms, repeatedly entered the same information and maintained electronic and paper records in parallel. As a result, the volume of digital data increased faster than the capacity to use it for governance.

The central problem is therefore not the absence of information but its fragmentation. Data are distributed among state registers, institutional systems, spreadsheets, local servers, cloud services and individual employees. Different systems may use inconsistent classifications, reporting periods and identification rules. This reduces comparability and makes it difficult to obtain an accurate picture of enrolment, staff availability, educational losses, infrastructure damage and programme performance. Post-war reform should replace the accumulation of isolated datasets with coordinated data governance.

Addressing this fragmentation requires both a strategic framework and an appropriate technical model. The Strategic Action Plan of the Ministry of Education and Science of Ukraine until 2027 envisages electronic interaction between state information resources, access to educational analytics, digitization of management processes and the development of the Mriia ecosystem [2]. These priorities create a foundation for transformation, but their implementation requires a clear institutional architecture. A single digital environment should not mean the concentration of all information on one server, since excessive technical centralization creates a critical point of failure under military and cyber threats.

A more resilient model is a distributed ecosystem in which educational institutions retain responsibility for their operational data, while authorized systems exchange verified information through common classifications, application interfaces and secure protocols. State registers should contain the minimum data required for regulation, funding, monitoring and public accountability. Detailed operational information may remain within institutions but should be available in standardized form when it is necessary for a lawful governance purpose. Such an approach combines institutional autonomy with information accountability.

The European Union's Digital Education Action Plan 2021–2027 defines a high-performing digital education ecosystem through infrastructure, connectivity, organizational capacity, digitally competent staff, high-quality content and secure platforms that respect privacy and ethical standards [3]. For Ukraine, alignment with these principles is important not only for technological modernization but also for integration into the European Education Area. Interoperability should therefore include compatibility of qualifications, educational data, digital credentials and quality-assurance procedures.

Within such an ecosystem, the architecture of post-war digital governance should be built around the principle of entering data once and using them repeatedly for authorized purposes. Information generated during enrolment, implementation of an educational programme, assessment, graduation, employment monitoring, accreditation and research activity should form a verified digital trail. Automated exchange can reduce administrative burden, but it must preserve information provenance: the system should record who created or changed a record, when the operation occurred and on what documentary basis.

These data will also be necessary for restructuring the educational network. Population displacement, migration abroad, demographic decline and uneven territorial recovery will change demand for educational services and require evidence-based decisions on the restoration, relocation, specialization or consolidation of institutions. At the same time, the greater availability of data should not reproduce a model of detailed administrative control. Attempts to monitor every internal operation would weaken autonomy and shift responsibility from educational organizations to the central authority. The state should define mandatory outcomes, minimum standards, information requirements and risk indicators, while institutions should independently choose how to organize educational, staffing and research activities within the law. Digital accountability should therefore focus on outcomes and material risks rather than on the number of documents produced.

The balance between integration and autonomy is inseparable from information security. The destruction of buildings, loss of local servers, cyberattacks and the displacement of employees threaten financial records, personnel files, educational histories and research data. Critical resources should therefore be backed up in geographically distributed locations, protected by differentiated access rights and supported by tested recovery procedures.

Research information requires particular protection within this continuity framework. Universities accumulate project proposals, contracts, primary datasets, software code, reports, information on international partners and intellectual-property rights. Loss of these materials may terminate projects and destroy years of institutional knowledge. A post-war digital ecosystem should include interoperable registers of research projects, trusted repositories, metadata on funding and ownership, and differentiated rules for open, restricted and security-sensitive information.

Human capacity is no less important than infrastructure. Digital transformation requires managers who can formulate information needs, interpret indicators, compare policy alternatives and understand the limitations of automated analysis. Teachers and researchers need competencies in digital content, data protection, copyright and the ethical use of artificial intelligence. Technical personnel need stable institutional roles, because systems that depend on the knowledge of one employee become particularly vulnerable during displacement or staff turnover.

The development of these competencies should remain guided by educational rather than purely technological objectives. UNESCO emphasizes that technology should be subordinate to educational purposes, equity, scalability and sustainability, and that human interaction should not be replaced merely because a digital instrument is available [4]. This warning is especially relevant to post-war Ukraine. Digital systems should expand access and management capacity without deepening inequalities between safe and affected territories, urban and rural communities, or institutions with different levels of funding.

Accordingly, the digital transformation of education governance in the post-war period should be implemented through five interconnected priorities. The first is the creation of an interoperable and distributed information architecture. The second is the restoration and protection of critical data, servers, registers and research repositories. The third is the transition from administrative reporting to analytics and decision support. The fourth is the development of digital and managerial competencies. The fifth is the establishment of transparent rules concerning access, personal data, copyright, cybersecurity and the use of artificial intelligence.

The implementation of these priorities should result not in a single universal platform but in a coherent digital public-management ecosystem. Its effectiveness should be evaluated by the reduction of repeated reporting, the speed and quality of decisions, the recoverability

of critical information, the accessibility of services, the transparency of resource allocation and the ability to identify educational risks.

Thus, post-war reconstruction requires a transition from fragmented wartime digitalization to a resilient, interoperable and human-centred model of education governance. The state must establish common rules and infrastructure while preserving institutional autonomy and preventing excessive concentration of data. Educational institutions should become responsible producers and users of verified information rather than passive providers of reports. Under these conditions, digital transformation can contribute to the restoration of human capital, territorial development, European integration and the long-term resilience of Ukraine's education system.

References:

1. World Bank, Government of Ukraine, European Commission & United Nations (2025). Ukraine Fourth Rapid Damage and Needs Assessment (RDNA4): February 2022–December 2024. Available at: https://www.worldbank.org/en/news/press-release/2025/02/25/updated-ukraine-recovery-and-reconstruction-needs-assessment-released

2. Ministry of Education and Science of Ukraine (2024). Strategic Action Plan of the Ministry of Education and Science of Ukraine by 2027. Available at: https://mon.gov.ua/static-objects/mon/sites/1/Strategy.MON%202027.12.03_compressed.ENG.pdf

3. European Commission (2020). Digital Education Action Plan 2021–2027: Resetting Education and Training for the Digital Age. Available at: https://education.ec.europa.eu/focus-topics/digital-education/actions

4. UNESCO (2023). Global Education Monitoring Report 2023: Technology in Education – A Tool on Whose Terms? Paris: UNESCO. Available at: https://www.unesco.org/en/articles/2023-global-education-monitoring-report-technology-education-tool-whose-terms