Applying UNESCO's Six-Pillar Framework to Assess Digital Transformation in Bulgarian Education

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Abstract: - The accelerated development and integration of artificial intelligence in the education system requires the use of systematic and evidence-based approaches to assess the state of digitalization. For the publication, a study of the mechanisms for national research and evaluation of digitalization in the education system has been conducted. In most cases, the assessment covers various aspects of digitalization, indicating a lack of an integrated approach that includes all key indicators. The current study bridges this methodological gap by using the "Six Pillars of Digitalization" model as a framework to assess the state of digitalization in the education system. A methodology is proposed that consists of four stages: identifying programs and projects under the six pillars, defining key evaluation questions and performance indicators, selecting data collection methods, and applying the PDCA cycle-based evaluation approach. The National Program "Information and Communication Technologies (ICT) in Pre-school and School Education" is used as an empirical case, as its objectives and implemented activities correspond to the conceptual dimensions of the six pillars. The evaluation results provide a structured overview of the extent to which the national program meets the individual digitalization indicators. The study confirms the Six Pillars of Digitalization as a comprehensive tool for assessing the current state and identifying areas for improvement in digital transformation within the education system.

Key-Words: - education system, policy, six pillars of digitalization, assessment, artificial intelligence, digital transformation, performance indicators, PDCA cycle.

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1 Introduction

Digitalization in education is a long-standing, ongoing process, driven by technological development and, in recent years, accelerated by the rapid penetration of artificial intelligence across all areas, including the education system, [1]. This leads to significant transformations in the way students learn, interact with content and teachers, and are evaluated, offering new opportunities for personalization and efficiency, [2].

At present, there is no comprehensive and systematized evaluation mechanism that covers all aspects of digitalization and fully covers all UNESCO criteria through comparable and relevant indicators. The existence of such an integrated analytical framework is essential to ensure timely and adequate responses to the requirements of the digital society. In this context, this publication presents the results of an analysis of the National Program "ICT in the System of Preschool and School Education" (NP ICT), made through the analytical model based on the "Six pillars for the digital transformation of education: a common framework" proposed at the 2024 Transformative Education Summit, [3].

2 The Research Background

The proposed Handbook "Digital Assessment in Education" by the European Center for Digital Education (EDEH) describes three types of assessment using digital methods, as well as key criteria for their successful implementation, including legal aspects, technology, pedagogy, and organization.

The use of artificial intelligence in education has the potential to both promote and undermine student well-being, depending on whether it is implemented in accordance with well-being principles. In the EU's Artificial Intelligence Regulation (AI Act), educational AI systems used to assess or make decisions about access to learning

are defined as high-risk technologies, [4]. Student well-being is directly related to learning success, motivation, stress resistance, and long-term prospects for personal development. In modern research, well-being is seen as a multidimensional concept encompassing mental, emotional, social, physical, and academic health, [5], [6]. At the same time, ethical frameworks for the use of AI in education emphasize that AI should support learners' development and learning outcomes, [7]. In 2024, the Ministry of Education and Science in Bulgaria developed and published Guidelines for the use of artificial intelligence in the educational system and the "Vision for the digitalization of preschool, school, and higher education in the Republic of Bulgaria" (2024 – 2030).

Over the past two years, leading organizations have been actively working and publishing studies, analyses, and documents on the implementation and use of AI in education. The Digital Schools Community in Europe brings together many perspectives on digital wellbeing and describes them in a model, [8]. An interactive infographic with key digital well-being indicators is presented on the Digital Well-being Hub, developed in collaboration with Cisco, [9]. UNICEF publishes useful information on mental health and well-being and on how to support children and their parents, [10]. The European Report of the Framework for Digital Wellbeing at School, based on field research carried out in Cyprus, Turkey, Italy, Greece, Portugal, and Spain, identifies learning needs as "training youth to enhance their critical thinking when it comes to assessing online information, the best course of action to take when faced with cyberbullying or online harassment," etc., [11]

Already in 2021, to support the sustainable and effective adaptation of education and training systems to the digital age, the European Commission (EC) published "The Digital Education Action Plan (2021-2027)", [12]. This Plan has two strategic priorities: first, "to foster a high-performance digital education ecosystem"; and second, "to enhance digital skills and competences for the digital age."

For the reporting of students' progress, as well as for digitalization in the educational system, different assessments and analyses are carried out for different reporting periods. For example, in 2023, the Ministry of Education and Science published a Report on the Ex-Post Impact Assessment of the Results of the Implementation of the Preschool and School Education Act for the period 2017 – 2022, [13]. In this document, one of the results shows that 57.4% of respondents, principals, and teachers, assess the current teaching practice as adequate to modern conditions. The following year, 2025, the OECD and the EU will present their reports with analyses and recommendations for the education system in Bulgaria, respectively, Education and Skills in Bulgaria [14] and Education and Training Monitor 2025 [15]. Both reports provide a comprehensive overview of the policies implemented, using various statistics (PISA results, rate of early school leaving, etc.) to assess them.

The Global Education Policy Dashboard created by the World Bank collects data focused on 4 main areas of the education system: teaching, school management, inputs and infrastructure, and learner preparation, [16]. In the field of ICT in schools, the World Bank reports: "(1) Number of computers, laptops, tablets or other computer devices; (2) Number of students having access to these devices; (3) Whether the devices are functional; (4) Whether the devices are connected to the Internet; (5) Whether teachers have used computer devices to explain the material in the last 2 weeks." It can be seen that the questionnaire does not examine digital maturity, since among the questions, there are no questions related to the digital competencies of teachers and students (Future-ready skills), the use of open educational resources in the school, the use of AI or algorithms to personalize learning or administration, even though these are some of the significant elements in the modern education system.

At the beginning of 2026, the OECD published "Digital Education Outlook 2026: Exploring Effective Uses of Generative AI in Education", which describes different viewpoints on GenAI applications and encourages the use of GenAI in collaboration with teachers, [17].

3 Research Methodology

3.1 Analytical Framework: The Six Pillars of Digitalization

"The framework builds on the three keys of digital learning (connectivity, capacities and content) endorsed by countries at the Transforming Education Summit, adding three pillars (coordination, cost and data) to support holistic strategies." Each of the pillars contains 5 indicators, the only exception is content and solutions, which has 6 indicators, and all of them are presented in Figure 1, [3].

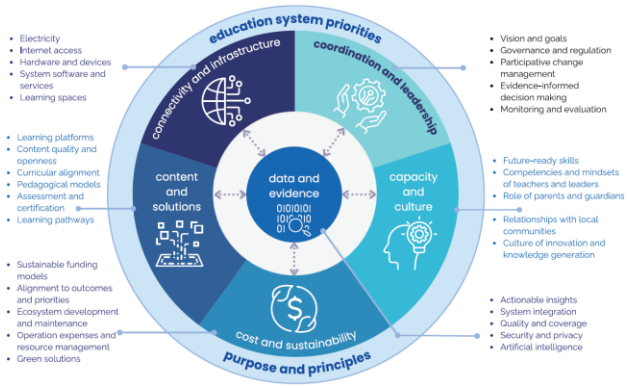

Fig. 1: Core elements of the six pillars for the digital transformation of education
Source: [3]

The proposed framework brings together the assessment of quantitative results (e.g., "number of computers purchased" or "number of learning platforms") with qualitative impacts and outcomes (e.g., "improved learning practices" or "culture of innovation").

3.2 Main Stages of the Assessment Methodology

The methodology for assessing digitalization in the education system, based on the Six Pillars, covers 4 main stages, as follows:

Stage 1: Identification of projects and programs.
At this stage, a comparison of the projects and programs implemented or approved for implementation under each of the pillars is carried out, and if there is compliance with one or more pillars, the project/program is subject to evaluation and analysis.

Stage 2: Defining key issues and KPIs by pillars.
Key assessment questions and key performance indicators (KPIs) are defined for each pillar and its indicators. The questions can be reduced to two groups: general and specific ones for each of the indicators, namely: Which of the six pillars and indicators does the program/project correspond to? And the second question: At what stage of implementation are they?

Stage 3: Selection of data collection methods.

At this stage, it is determined how they will collect the data necessary for the assessment. Performance indicators can be both quantitative and qualitative:

- Quantitative: Analysis of platform data, reports, and statistical data.
- Qualitative: Surveys (among teachers, students, principals), focus groups, in-class observations, interviews, analysis of case studies from schools undergone renovation of computer labs with modern equipment, including AI software, which improves the quality of education.

Stage 4: Analysis and evaluation (Maturity model).
At the final stage, the evaluation of the implementation of the programs and projects for each of the indicators is carried out. Instead of a "yes/no" score, the PDCA cycle is used. In the 1940s, Edwards Deming modified Walter Shewhart's PDSA cycle (where S stands for study) into the famous PDCA cycle and soon after began applying it to management practices in Japan, [18]. The PDCA cycle, also known as the Deming cycle, contains 4 main stages: Plan (project phase), Do (execution phase), Check (control phase), and Act (action, adoption, and correction phase), through which continuous improvement is ensured. Each stage corresponds to a different level of implementation for a goal, project, program, activity, or task. This makes it easier to identify the current state and identify areas for improvement.
Under the PDCA cycle, it is necessary to periodically review the results and take into account the views of stakeholders. This is a prerequisite for the quality of the expected results, the satisfaction of individual actors in the education system, and effective change management, [19].

4 Results and Comments

4.1 Analysis of Investments under the National Program "ICT in the System of Preschool and School Education"

The analysis covers the period from 2007 to 2024 and includes the budget for each year and the main activities that are funded, as follows:
2007 (23M BGN):
- Provision of basic equipment (desktop, laptop computers, and projectors) for all schools in the country;

2008 (15M BGN):
- Differentiating the budget: paying for internet for schools.
- Introduction of innovative "mobile classes" (laptops for a whole class).
- Pilot introduction of e-gradebooks.

2009 (3.5M BGN):
- Priority completion of the high-speed backbone network of the Ministry of Education and Science (MES).

- Computers are provided only as awards for outstanding students and teachers.

2010 (1.42M BGN):
- 100% focus on the maintenance of the MES backbone network and connectivity to GEANT.
- No funding for computers in schools.

2011 (1.4M BGN):
- Smallest budget for the period under review.
- Investments mainly in helpdesk, internet connectivity, and computers for rewarding talent.

2012 (6.5M BGN):
- Start of hardware renewal: transition to terminal stations.
- At least 10,000 new workplaces built.

2013 (6.5M BGN):
- Continuation of the renewal cycle from 2012.
- Over 7,000 new terminal workplaces implemented.

2014 (21.5M BGN): Significant budget increase.
- Provision of end devices (laptops, tablets, and terminals).
- Building Wi-Fi zones in schools.

2015 (7.5M BGN):
- Investment in the first 40 pilot "smart classrooms."
- Optical connectivity built between all 28 Regional Departments of Education (RDE).
- Expansion of the data center and centralization of educational resources and services.

2016 (7.5M BGN):
- Funds (incl. for hardware) are redirected to other goals of the ministry.
- Only internet access is funded.

2017 (10.23M BGN): Increased scope and budget.
- First funding for hardware in kindergartens.
- Creation of electronic educational content and building of MES data centers.

2018 (10M BGN):
- No hardware is realized for schools.
- Funds are directed towards internet connectivity and Wi-Fi networks.
- Interactive equipment for kindergartens.

2019 (11M BGN):
- Focus on digitalization of administrative processes: implementation of e-gradebooks in over 2/3 of schools.
- Hardware funds: interactive displays for frontal teaching.

2020 (17.9M BGN): Drastic budget over fulfillment due to the pandemic and online learning.
- Complex investments: e-gradebooks, interactive displays, computers, professional software, and specialized cabinets.

2021 (16.3M BGN):
- Broad scope: maintenance of data centers, e-services, and content.
- Interactive equipment for kindergartens and schools (displays with a computer module and Wi-Fi).
- Software for vocational high schools.
- Building a homogeneous SDWAN infrastructure and new Wi-Fi zones.

2022 (12.5M BGN):
- A differentiated approach in the distribution of funds is again observed, but apart from funds for activities similar to those from the previous year, the investment demonstrates technological flexibility - distinguishing between schools that want laptops with Windows operating system and those with Chrome OS.

2023 (12.5M BGN):
- Expanding the capabilities of MES data centers for modern cloud services.
- Laptops and interactive equipment for kindergartens and schools.
- Building new Wi-Fi zones.

2024 (11M BGN):
- First targeted investment in assistive technologies for children with motor disorders and software for dyslexia.
- Funding of Artificial Intelligence (AI) solutions.
- Strict cybersecurity requirements (NGFW hardware firewalls).

4.1.1 Methodology for Ranking Applications for Windows OS Laptops, Chrome OS Laptops, and Desktops

The ranking of schools is carried out according to the following formula:

When schools apply for Windows OS laptops, Chrome OS laptops, and desktops, the following formula is used to rank their application:

$$R_s = \frac{\text{number of students}}{C_t} * C_{fd} \quad (1)$$

where:

R_s – School rating (the highest value ranks first).

C_t – Total coefficient for the requested equipment. It is calculated as the number of requested devices, multiplied by their weight factors:

$C_t = (N_{desktops}*K_1) + (N_{Windows\text{-}laptops}*K_2) + (N_{ChromeOS\text{-}laptops}*K_3)$.

For each type of equipment, the following coefficients of gravity are determined:
Desktop: $K_1 = 1.7$
Windows laptop: $K_2 = 1.6$
Chrome laptop: $K_3 = 1.5$
C_{fd} – A coefficient for fair distribution, where $C_{fd} = 0$ if the school has received equipment in the last 3 years (i.e., the school is not eligible for new funding); otherwise, C_{fd} increases by 0.5 for each year in which the school **did not** receive equipment, and by 1.0 if 3 years ago, it did not.

4.1.2 Methodology for Ranking Applications for Interactive Displays

For the distribution of interactive displays, a formula has been introduced:

$$R_s = \frac{\text{number of students}}{\text{required number of displays}} * C_{fd} \quad (2)$$

where:
R_s – School rating (the highest value ranks first).
C_{fd} - A coefficient for fair distribution. This coefficient gives additional weight to schools that have not received equipment in previous years. For example, $C_{fd} = 1$ if the school received equipment 4 years ago compared to the year in which it applied and increases by 0.3 for each previous year in which no equipment was received.

The following restrictions have been introduced:

- Schools that have received funds for this type of hardware under this program in the three years prior will not be qualified.
- A school with up to 200 students can apply for 1 display, from 201 to 600 students – up to 2 displays, and over 601 students – up to 3 displays.

The ranking is made in order from highest to lowest.

The introduction of formulas for ranking schools and kindergartens ensures full transparency and fairness in data-based decision-making. Schools and kindergartens that have been neglected in the past are given priority through the increase in the fair distribution coefficient. Financial resources, or equipment, are provided to those ranked with the most points until the quantities for the respective year are exhausted.

4.2 Assessment of the Compliance of the NP ICT with the UNESCO Six Pillars of Digitalization

After a review of the national programs implemented by the MES in 2024, a total of 22, it was found that the NP ICT complies with the pillars and is subject to assessment and analysis. The program has been developed with the aim of improving accessibility, quality, and training opportunities through the implementation of modern technologies. It is in line with the Strategic Framework for the Development of Education in Bulgaria (2021-2030) [20]. The national program has been executed for more than 15 years, and the main activities, for the most part, remain unchanged. Due to budget constraints, the software and hardware provisioning for institutions in the pre-school and school education system is carried out in stages. Internet has already been introduced to 100% of schools in the country, and MES's data centers have been developed and are actively maintained.

The assessment is carried out by comparing the activities and indicators of the NP ICT with the six relevant pillars' parameters. To assess the degree of implementation of activities across the six pillars (maturity levels, e.g., Beginner, Performer) for each area, the PDCA (Plan-Do-Check-Act) cycle was applied. Different numbers correspond to each stage of the cycle: Plan - 1, Do - 2, Check - 3 and Act - 4. The quantitative data for measuring the indicators under the program were taken from the website of the Ministry for the period 2007 – 2024, and since 2016 the program has been expanded to include pre-school education.

1) Coordination and leadership

This pillar concerns the effectiveness of governance structures and the strategic vision.
Key indicators: vision and goals; governance and regulation; participative change management; evidence-based decision-making; and monitoring and evaluation.

Analysis of the NP ICT: The program was approved in 2007 and has been managed by the Ministry of Education and Science (MES). Its goals are in line with the goals of the "National Strategy for the Introduction of ICT in Bulgarian Schools" (2005-2008), the "Strategy for the Effective Implementation of ICT in Education and Science of the Republic of Bulgaria" (2014-2020), and later with the "Strategic Framework for the Development of Education, Training and Learning in the Republic of Bulgaria" (2021-2030). Representatives from various stakeholders participated in preparing the strategic documents, and public discussions were held. The establishment of a monitoring center of the Ministry of Education and Science with technical support and a help desk shows the availability of a management structure for monitoring and control, ensuring 24/7 operability of

the systems and data center. The presence of an online platform for applications and the appointment of a commission for the evaluation and ranking of projects demonstrates the presence of clear procedures and management of regulation. This corresponds to the indicators "Governance and Regulation" and "Monitoring and Evaluation."

2) Connectivity and Infrastructure

This pillar focuses on the availability, reliability, and accessibility of technical infrastructure.

Key indicators: electricity; internet access; hardware & devices; system software & services; learning spaces.

Analysis of the NP ICT: The program aims to ensure connectivity and internet access for all schools, expand the capabilities of the MES data centers, and construct Wi-Fi access points. It purchases interactive multimedia equipment and innovative hardware and software, such as interactive learning kits and portable/desktop computers. These measures directly address the elements Internet access, Hardware & Devices, and System software & services.

3) Cost and Sustainability

This pillar assesses the financial aspects of the digital transformation, focusing on sustainable financing and resource management models.

Key indicators: sustainable financing models; compliance with results and priorities; ecosystem development and maintenance; operating costs and resource management; and environmental solutions.

Analysis of the NP ICT: The program implementation rules specify specific budgets for individual activities. For example, costs are foreseen for technical support of the data centers and the monitoring center, which refers to the element "Operating costs and resource management." The presence of a "fair distribution" coefficient, which prioritizes schools that have not received funding in recent years, demonstrates a mechanism for sustainable resource allocation.

It should be noted here that the documents do not contain information on environmental solutions.

4) Capacity and Culture

This pillar looks at the skills and attitudes of teachers, students, and educational leaders.

Key indicators: future-ready skills; the competences and mindsets of teachers and leaders; the role of parents and guardians; relationships with local communities; and a culture of innovation and knowledge generation.

Analysis of the NP ICT: The program highlights the importance of developing digital competencies in students, with a focus on providing cybersecurity skills to students, teachers, and management teams. The implementing rules mention support for accompanying activities on the use of equipment as part of the educational process, which is related to capacity building.

The program does not directly address the role of parents, relations with local communities, or a culture of innovation, except through its general focus on implementing innovation.

5) Content and Solutions

This pillar covers learning platforms, content quality, and its relevance to the curriculum and pedagogical models.

Key indicators: learning platforms; content quality and openness; curricular alignment; pedagogical models; assessment and certification; and learning pathways.

Analysis of the NP ICT: One of the program's main goals is to provide access to electronic educational resources, content, and software. It supports the implementation of cloud services and software products for the administration of the educational process. The program also aims to create a specialized environment for students with specific learning disabilities, such as dyslexia, dysgraphia, and dyscalculia, which shows a focus on adapting content and solutions.

6) Data and Evidence

This pillar concerns the use of data for decision-making, as well as for monitoring and evaluating results.

Key indicators: actionable insights, system integration, quality & coverage, security & privacy, and Artificial Intelligence.

Analysis of the NP ICT: The program provides for the use of video surveillance and video control during Bulgaria's standardized examinations after 7^{th} and 12^{th} grade to ensure objectivity and prevent violations. The implemented rules include monitoring, which covers eligibility, administrative compliance, and financial justification of project proposals, as well as on-the-spot checks. These measures directly relate to the indicators "System Integration" and "Quality & Coverage," using data for monitoring and evaluation of processes.

The analysis of the results shows that some of the indicators have been implemented to varying degrees, while others, such as ensuring connectivity and access to cloud infrastructure, are at the "improvement" stage. At the same time, some are

not clearly covered by the activities implemented so far, such as "Environmental Solutions" and "Capacity and Culture." Therefore, the analysis needs to cover all implemented programs and projects in the field of digitalization to track the maturity level of each. It is important to note that for the analyses to be transparent, high-quality, and reliable, a necessary condition is not only the availability of high-quality data [21] but also their traceable (transparent) management at all stages of their life cycle.

The analysis of the rules and reports of the NP ICT shows a clear managerial evolution in the conditions for the provision of hardware and software. The development of these conditions can be divided into three main stages, progressing from a subjective, centralized approach to an objective, data-driven distribution. The average Pillar scores by Year (2007 – 2024) are shown in Figure 2.

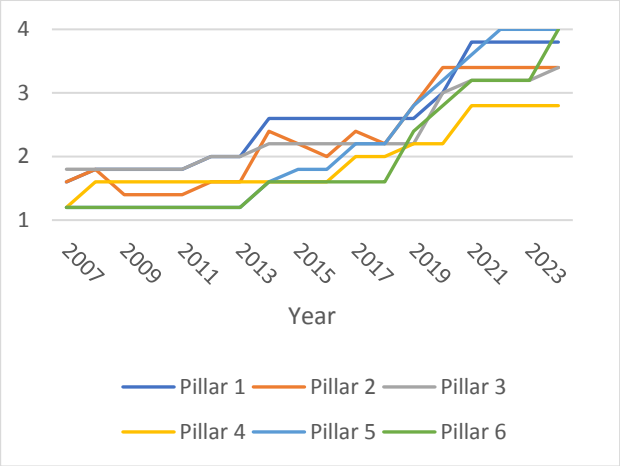

Fig. 2: Average Pillar Scores by Year (2007 – 2024).
Source: created by the author

First stage (2007 – 2013): It is characterized by a large-scale and centralized purchase of basic computer equipment, which is provided en masse without competitive procedures or strict formulas for ranking individual schools.

Second stage (2014 – 2019): Subjective selection and co-financing requirements. The program switched to a decentralized approach, in which schools applied for funding themselves, but the selection criteria created inequities and favored larger, richer educational institutions. In 2012, the main criterion for obtaining terminal solutions was the stated percentage of co-financing by the school itself – those who could have paid more received the technique first. Subsequently (in 2014 – 2015), this financial criterion was replaced by highly subjective requirements – schools had to submit "modernization plans" and were evaluated based on "reasoned vision" or "expressed interest." This stage deprived smaller schools (especially those in remote regions) of equal access to technology, as they lacked the necessary co-financing or administrative capacity to implement complex visions.

Stage Three (2020 – 2024): This is the stage of highest managerial maturity, in which the subjective human factor in ranking is eliminated.

Accurate mathematical through ranking algorithms introduced, with each school applying via an online platform.

5 Conclusion and Recommendations

This study applies the Six Pillars of Digitalization as an analytical framework for assessing the state of digitalization in Bulgarian education, using the National Program "Information and Communication Technologies in Preschool and School Education" as an empirical case. The results of the analysis show that, to a large extent, the program's objectives align with the six pillars. Both strengths and areas for improvement are identified.

The methodological study highlights the usefulness of applying the "Six Pillars" as a tool for structuring and evaluating educational projects and programs, which conducts a maturity-based assessment. The study focuses entirely on the national program assessment, but the approach can also be applied to other national and international projects. The results obtained can be used on planning and implementing new technological solutions in education across all pillars, to achieve successful and effective management of the digital transformation in the Bulgarian education system. This study applies the Six Pillars of Digitalization as an analytical framework for assessing the state of digitalization in Bulgarian education, using the NP ICT as an empirical case. The results of the analysis show that, to a large extent, the objectives of the program correspond to the six pillars. Both strengths and areas for improvement have been identified.

The methodological study highlights the usefulness of implementing the "Six Pillars" as a tool for structuring and evaluating educational projects and programs, conducting an assessment based on maturity. The study focuses entirely on evaluating national programs, but the approach can also be applied to other national and international projects. Therefore, a structured and comprehensive approach to assessing the digital transformation in the Bulgarian education system should be provided. The results obtained can be used to plan and implement new technological solutions in education

across all pillars to achieve successful and effective management of digital transformation in the Bulgarian education system.

The results of the survey clearly show that digital and managerial maturity in the Bulgarian education system has reached maturity. Based on the analysed data, the following main conclusions can be drawn: In the management of the program, there is a transition from subjective criteria in the primary years (stage 1) to completely objective algorithms in the third stage, where mathematical formulas for prioritizing and ranking schools containing a coefficient of fair distribution have been introduced.

The period under study is transformative and reaches the maximum level of maturity (level 4) in key indicators, which include artificial intelligence (AI) software, assistive technologies for students with special educational needs (pillar 5), and training for teachers and students on cybersecurity and dealing with risks in an online environment.

At the same time, there is a significant lag in other areas, such as the management of environmental safety requirements (3.4 Green / Environmental solutions), 4.4 Relationships with local communities, and 2.1 Electricity, but it does not fall within the scope of this program.

In order to achieve full compliance of NP ICT with the Six Pillars of Digitalization, it is recommended that measures be taken to alleviate the identified deficiency, such as the introduction of Green IT Policies, the transformation of schools into local "Community Digital Hubs" and their use to educate parents of students outside of school hours, etc. Given the rapid penetration of AI, to maintain the trend of NP ICT as fundamental for the development of digital education in Bulgaria, it is necessary to periodically adapt mathematical algorithms in the direction of new technologies. Also, it is necessary to measure the effect of technology (software and hardware) on stakeholders in the pre-school and school education system to make effective decisions based on data and information.

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References:

[1] OECD, *Digital Education Outlook* 2023*: Towards an Effective Digital Education Ecosystem*, 2023, 20-21. ISBN 978-92-3-100612-8. https://doi.org/10.1787/c74f03de-en.

[2] EDEH, *Digital Assessment in Education*, 2024, 5-7, [Online]. https://www.daad-brussels.eu/files/2025/02/Digital-Assesment.pdf (Accessed Date: February 2, 2026).

[3] UNESCO, *Six pillars for the digital transformation of education: a common framework*, 2024, 5-7, [Online]. https://unesdoc.unesco.org/ark:/48223/pf0000391299 (Accessed Date: February 2, 2026).

[4] EC, *Proposal for a Regulation laying down harmonised rules on artificial intelligence (Artificial Intelligence Act)*, 2021, 12-18, [Online]. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206 (Accessed Date: February 2, 2026).

[5] UNESCO, *Recommendation on the Ethics of Artificial Intelligence*, 2021, 10-28. ISBN: 978-92-3-100447-6. https://doi.org/10.54675/PCSP7350.

[6] OECD, *Recommendation of the Council on Artificial Intelligence*, 2024, 2-4, [Online]. https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449 (Accessed Date: February 2, 2026).

[7] EU, *Ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for educators*, 2022, 9-18. ISBN: 978-92-76-54179-0. https://doi.org/10.2766/65087.

[8] Digital Schools, *Digital Wellbeing framework*, 2025, [Online]. https://www.digitalschoolsawards.eu/digital-wellbeing-awards (Accessed Date: February 2, 2026).

[9] OECD, *Digital Well-being Hub*, 2026, [Online]. https://www.oecd.org/en/data/tools/digital-well-being-hub.html (Accessed Date: February 2, 2026).

[10] UNICEF, *Mental health and well-being: How to support your children and yourself*, 2026, [Online]. https://www.unicef.org/parenting/mental-health-and-well-being (Accessed Date: February 2, 2026).

[11] DWS, *The European Report of Framework for Digital Wellbeing at School, Project 'Digital Wellbeing @ School*,' 2021, 9-12, [Online]. https://digitalwellbeingatschools.eu/wp-

content/uploads/2023/10/PR1.pdf (Accessed Date: February 2, 2026).
[12] EC, *The Digital Education Action Plan (2021-2027)*, 2020, 1-2, [Online]. https://cdn-assets.inwink.com/b0269dea-af7b-4460-b29a-c40b9941c4c5/598de8a6-969e-496c-b595-6d056c0d58d6 (Accessed Date: February 2, 2026).
[13] MES, *Report on the Ex-Post Impact Assessment of the Results of the Implementation of the Preschool and School Education Act for the period 2017 – 2022*, 2023, 45-60, [Online]. https://www.mon.bg/nfs/2024/02/doklad-ob-zpuo_260124-v0502.pdf (Accessed Date: February 2, 2026).
[14] OECD, *Education and Skills in Bulgaria*, 2025, 12-45. https://doi.org/10.1787/ac0229da-en.
[15] EC, *Education and training monitor 2025*, 2025, 3-5. ISBN 978-92-68-29187-0. https://doi.org/10.2766/2221794.
[16] World Bank, *GEPD: Reference Guide*, 2026, 18-24, [Online]. https://www.educationpolicydashboard.org/sites/default/files/2021-04/GEPD%20Reference%20Guide.pdf (Accessed Date: February 2, 2026).
[17] OECD, *Digital Education Outlook 2026: Exploring Effective Uses of Generative AI in Education*, 2026, 15-28, [Online]. https://www.oecd.org/en/publications/oecd-digital-education-outlook-2026_062a7394-en.html (Accessed Date: February 2, 2026).
[18] The Deming Institute, *The PDCA Cycle*, 2026, [Online]. https://deming.org/explore/pdsa/ (Accessed Date: February 2, 2026).
[19] EIPA, *Common Assessment Framework*, 2020, 60-70, [Online]. https://www.eupan.eu/wp-content/uploads/2023/03/CAF-2020-English.pdf (Accessed Date: February 2, 2026).
[20] MES, *The Strategic Framework for the Development of Education, Training and Learning in the Republic of Bulgaria (2021 – 2030)*, 2021, 5-12, [Online]. https://www.mon.bg/nfs/2021/03/strategicheska-ramka_obrobuuchene_110321.pdf (Accessed Date: February 2, 2026).
[21] EU, *Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act)*, 2022, 1-44, [Online]. https://eur-lex.europa.eu/eli/reg/2022/868/oj/eng (Accessed Date: February 2, 2026).

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I am the sole author of this scientific article and have independently carried out all stages of the research, including the formulation of the research problem, the study design, data collection and analysis, interpretation of the results, and the preparation and finalization of the manuscript.

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