

American University Kyiv

A Capstone Project

**USE OF ARTIFICIAL INTELLIGENCE IN THE MANAGEMENT OF
SECONDARY EDUCATION INSTITUTIONS IN UKRAINE**

**ВИКОРИСТАННЯ ШТУЧНОГО ІНТЕЛЕКТУ В УПРАВЛІННІ
ЗАКЛАДАМИ СЕРЕДНЬОЇ ОСВІТИ В УКРАЇНІ**

by Bohdan Vyslynskyi

Presented in Partial Fulfillment of the Requirements

for the Master Degree

APPROVED BY:

Academic advisor: Yuriy Bots, Ph.D.

2025

Table of Contents

LIST OF TABLES	3
LIST OF FIGURES	3
Abstract	4
CHAPTER 1. INTRODUCTION	5
CHAPTER 2. LITERATURE REVIEW	7
2.1 Application of AI in Secondary School Management	7
2.2 Managerial and Governance Aspects of AI Integration.....	10
CHAPTER 3. METHODOLOGY	13
3.1 Research Design.....	13
3.2 Participants.....	13
3.2.1 Quantitative Sample	13
3.2.2 Qualitative Sample	15
3.3 Instruments.....	15
3.3.1 Online Survey (Google Forms).....	15
3.3.2 Semi-Structured Interviews.....	16
3.3.3 Documented List of AI-Related Risks	17
3.4 Data Collection Procedure	18
CHAPTER 4. RESULTS	20
4.1 School Readiness for Artificial Intelligence	20
4.2. Current Use of Artificial Intelligence in School Management	23
4.3. Ethical Risks and Barriers to Artificial Intelligence Adoption in School Management.....	27
4.4. Summary of Key Findings and Additional Insights.....	29
CHAPTER 5. CONCLUSIONS	31
REFERENCES.....	34
APPENDIX A. SURVEY QUESTIONS.....	37
APPENDIX B. EXTENDED QUANTITATIVE RESULTS.....	39
APPENDIX C. INTERVIEW GUIDE.....	41

LIST OF TABLES

Table 1 . Key Risk Categories Identified in AI Implementation.....	17
Table A 1. Survey Instrument Used for Data Collection	36
Table B 1. Interview Questions for School Administrators.....	41

LIST OF FIGURES

Figure 1 .Distribution of respondent positions.....	14
Figure 2 . Years of Experience.....	15
Figure 3 . Distribution of Respondents by AI Readiness Level.	23
Figure 4 . Areas of AI Use in School Management	26
Figure 5 . Perceived Privacy Risks of AI Use in School Management	28
Figure B.1. Digital Transformation Strategy Availability	38
Figure B.2. Teachers' Attitudes Toward New Technologies.....	38
Figure B.3. Technical Infrastructure Readiness.....	38
Figure B.4. Familiarity with AI.....	39
Figure B.5 Current Use of AI in School Management.....	39
Figure B.6. Perceived Usefulness of AI Functions.....	40
Figure B.7. Barriers to AI Implementation.....	40

Abstract

The management of secondary education institutions increasingly relies on digital tools to support administrative decision-making and organizational processes. While Artificial Intelligence (AI) has been widely discussed in the context of teaching and learning, yet its use in secondary school management remains underexplored. This study examines institutional readiness, current patterns of AI use, and perceived risks of AI adoption in the management of secondary education institutions in Ukraine. Using a mixed-methods approach, the study combines data from an online survey of 43 urban school administrators with insights from ten semi-structured interviews.

The findings show a state of moderate readiness, as most schools indicated some level of infrastructure and strategic planning for AI integration. However, only a few cases of systematic use of AI have been reported in administrative practices. In most cases, respondents apply AI in isolated instances or pilot projects. AI applications are therefore most common in relatively simple administrative areas, such as scheduling and resource allocation, while their use remains rare in more complex areas, including decision-making and performance monitoring.

The main barriers to wider AI adoption include concerns related to data protection, regulatory uncertainty, insufficient funding, and limited staff capacity. These findings suggest that effective AI integration in school management requires clear governance frameworks, targeted professional development, and upgrades to digital infrastructure.

CHAPTER 1. INTRODUCTION

The quick evolution of Artificial Intelligence (AI) is changing many areas of society, including educational institutions. The administration of a modern school relies heavily on digital technologies for planning, communication, reporting, monitoring, and decision-making. AI-based instruments, in this case, have the great power to bring significant changes in the efficiency, accuracy, and transparency of the administrative processes. On the other hand, the deployment of AI in school management is causing problems that are worrying, such as the protection of data, cybersecurity (e.g. risks of unauthorized access and data breaches), the ethical use, staff readiness, and the institutional infrastructure (e.g. limitations in digital equipment, system compatibility, and internet connectivity).

The digital transformation of education in Ukraine has been a major focus over the last couple of years, largely as a result of the changes in society at large and the increasing requirement for effective, flexible and resilient school management systems. Nevertheless, secondary schools vary significantly in their degree of digital readiness, availability of technological resources, and leadership capacity for the implementation of innovative solutions. While a few schools have started to experiment with AI-supported tools to simplify their administrative tasks, a large number of institutions still grapple with serious technological, organizational, and human-resource challenges. Consequently, there is an obvious demand for empirical data regarding the readiness of Ukrainian secondary schools for the use of AI in management and the difficulties with which they are confronted in this process.

The purpose of this study is to examine the level of readiness of secondary schools for the implementation of Artificial Intelligence in school management, to identify current patterns of AI use, and to explore the main challenges and risks associated

with its adoption in administrative practice. The study seeks to answer the following research questions: (1) What is the level of readiness of secondary schools for AI implementation in school management? (2) To what extent is AI currently used in the management of secondary education institutions? (3) What are the key perceived benefits, challenges, and risks of AI adoption in school management? and (4) How do school leaders perceive the future role of AI in educational administration?

This research has both theoretical and practical significance. Theoretically, it adds up to a small number of empirical studies which have been done on the use of AI in educational management by showing real-life examples from the Ukrainian secondary education sector. The results, as a matter of fact, can be a source of support for school leaders, policymakers, and educational authorities in crafting wise strategies leading to the usage of AI in school administration in a way that is both efficient and ethical. Moreover, the research, by pinpointing obstacles at the institutional, human, and ethical levels, gives suggestions on ways to enhance teacher training and school change management processes.

The study is focused on the administrative side of the utilization of AI in secondary schools in Lviv and is based on a mixed-methods research design that combines quantitative survey data with the insights from the interviews and open-ended response insights. The results are limited by the sample size and self-reported data, so the findings might not apply to all secondary schools in Lviv. Nevertheless, the survey provides valuable insights into the environment of AI readiness, use, and risk perception in the management of Lviv secondary schools.

CHAPTER 2. LITERATURE REVIEW

The management of secondary education institutions is undergoing a major digital transformation driven by Artificial Intelligence (AI). Current literature demonstrates that AI is not only a technological innovation but also a managerial tool that supports school leadership, decision-making, and organizational improvement. To understand how AI reshapes educational management, this section reviews theoretical foundations of innovation, applications of AI in education, and emerging governance challenges in the context of secondary schools. To explore this transformation in greater detail, recent studies have examined how AI supports core management functions such as planning, coordination, and control.

2.1 Application of AI in Secondary School Management

The management of secondary education institutions is increasingly influenced by artificial intelligence (AI), which supports data-driven decision-making in areas such as school planning, resource allocation, teacher performance evaluation, and student tracking (Göçen & Aydin, 2021).

According to Göçen and Aydin (2021), the management of secondary education institutions involves several key functional domains that parallel but also differ from business management. These include planning, organizing, directing, coordinating, and controlling educational activities. Unlike in business organizations, the primary objective in educational management is not profit maximization but the development of human capital and the achievement of learning outcomes. The framework proposed by Göçen and Aydin positions AI as a strategic enabler within each of these domains:

- in planning, AI supports forecasting of enrollment and curriculum needs;
- in organizing, it optimizes resource allocation and staff scheduling;
- in directing, it assists principals in performance evaluation and communication;

- in coordinating, it integrates data flows across departments;
- and in controlling, it provides real-time analytics for monitoring school performance.

This framework demonstrates how AI transforms the traditional managerial cycle in education into a data-informed, adaptive system oriented toward continuous improvement rather than financial efficiency.

Building on this framework, AI supports school leaders in several specific management domains, including student performance tracking, teacher evaluation, scheduling, budgeting, and communication with stakeholders. Through these applications, AI enhances evidence-based decision-making and administrative efficiency in secondary education institutions.

AI systems enable school leaders to predict enrollment trends, optimize timetables, and personalize administrative workflows, transforming traditional management models into adaptive and evidence-based processes.

In the context of secondary education management, AI supports school leaders in several domains such as student performance tracking, teacher evaluation, scheduling, budgeting, and communication with stakeholders. Machine learning and predictive analytics enable principals to identify at-risk students, optimize resource allocation, and improve overall institutional performance (Nurcahya et al., 2024; Dnyan Ganga Education Trust, 2024). Furthermore, AI-based administrative tools facilitate evidence-based decision-making and reduce the administrative workload of educators and managers.

Artificial Intelligence (AI) in this research refers to intelligent systems that can autonomously analyze educational data, detect patterns, and generate predictive insights or recommendations. Unlike traditional data analysis tools that depend on

fixed human-defined parameters, AI applies adaptive algorithms and machine learning techniques to support dynamic, data-driven decision-making in school administration.

Core management functions in secondary education supported by AI include:

- Planning and forecasting: predicting enrollment trends, optimizing timetables, and aligning staffing needs.

- Resource and budget management: automating budgeting, expense tracking, and efficient allocation of materials.

- Performance monitoring: using analytics to evaluate student achievement and teacher effectiveness.

- Administrative efficiency: automating attendance, grading, and reporting systems.

- Stakeholder communication: deploying chatbots and digital dashboards for transparent communication with parents, teachers, and authorities.

Together, these applications demonstrate how AI enhances managerial decision-making and transforms traditional school administration into an adaptive, evidence-based process.

According to Karaköse and Tülübaş (2024), school leadership in the AI era requires not only digital literacy but also ethical and strategic competencies. Principals are expected to integrate AI tools responsibly, ensuring transparency and data security while fostering innovation among staff. The study emphasizes that AI-supported decision-making enhances strategic planning, risk assessment, and communication efficiency within schools.

Studies by Kazim Emre(2021) and Jin et al. (2024) highlight that digital governance frameworks are essential for the responsible integration of AI into school management. However, many secondary schools, particularly in developing regions,

still lack the technical and cultural readiness to adopt AI effectively. Therefore, exploring managerial strategies for AI implementation remains a critical research need.

Shamaki et al. (2024) demonstrated that secondary schools adopting AI-based administrative tools achieved improvements in attendance management, academic reporting, and parental engagement. In similar research, Al-Rahbi and Al-Raqeeshi (2024) found that AI utilization by school administrations in Oman contributed to higher operational efficiency and strengthened institutional competitiveness.

2.2 Managerial and Governance Aspects of AI Integration

Contemporary scholarship identifies Generative Artificial Intelligence (GenAI) as one of the most transformative technologies of the digital era, capable of reshaping learning, teaching, and educational management. Its integration into education enables personalized learning, automated content generation, and greater pedagogical efficiency, while simultaneously raising concerns about academic integrity, ethics, and institutional readiness. Beyond teaching and learning, GenAI also redefines how educational institutions are managed and governed, influencing leadership practices, data policies, and decision-making frameworks.

Classical innovation theories provide the conceptual foundation for this research area. Chesbrough's (2003) concept of open innovation, Nonaka and Takeuchi's (1995) model of the knowledge-creating organization, and Lawson and Samson's (2001) framework of innovation capability emphasize collaboration, knowledge sharing, and organizational culture—factors that are essential for the effective adoption of GenAI in education. These classical innovation theories can also inform how secondary school leaders foster a culture of knowledge sharing and innovation when implementing AI-based management tools. Concepts such as psychological

safety (Edmondson, 1999) and innovation-oriented culture (Martins & Terblanche, 2003; Schein, 2010) are equally important for fostering institutional readiness.

Similarly, Dotan, Parker, and Radzilowicz (2024) develop a “Points to Consider” framework for responsible AI adoption in higher education, advocating participatory policymaking and academic freedom. Policy analyses by McDonald et al. (2024) and Jin et al. (2024) demonstrate that universities worldwide promote AI adoption but struggle to maintain up-to-date, comprehensive governance frameworks.

Educators’ perceptions are equally important. Ghimire, Prather, and Edwards (2024) report generally positive attitudes toward GenAI among instructors, though many remain uncertain about detecting AI-generated work. Yusuf (2024) adds a cross-cultural perspective, demonstrating that while GenAI promotes accessibility and learning efficiency, its ethical perception varies significantly across cultures.

At the institutional level, Nurcahya et al. (2024) and Dnyan Ganga Education Trust (2024) stress the role of educational management—planning, organizing, and leading—as a foundation for AI-driven reform in schools and universities.

Boonsathaporn (2024) proposes a six-stage digital management model that incorporates AI into core school functions — including planning, implementation, monitoring, and evaluation. This framework aligns with the broader trend toward “smart school management,” where AI automates routine administrative tasks and allows leaders to focus on strategic improvement and staff development.

Institutional readiness is another challenge, as many universities lack policies or technical expertise for integrating AI effectively (Chaudhry & Kazim (2022).

Governance frameworks are therefore essential for ensuring that the use of GenAI supports, rather than undermines, educational goals.

Overall, the reviewed literature demonstrates that GenAI is reshaping educational management, enhancing decision-making efficiency and data governance, while introducing new challenges related to ethics and institutional accountability. Sustainable and responsible integration of GenAI depends on balancing technological innovation, pedagogical purpose, and ethical responsibility within educational ecosystems. It also shows that the integration of AI in the management of secondary education institutions reshapes the roles of school leaders, enhances administrative efficiency, and fosters a data-informed culture of decision-making. However, it also introduces new ethical and professional challenges that require continuous training and policy adaptation.

Even though AI has been a major topic of discussion in educational research with a focus on the teaching and learning process, its usage in the administrative and managerial division of secondary schools has been somewhat overlooked. Most of the current research has directed the use of AI in instruction, whereas the number of studies based on the views of leadership in schools, readiness of institutions, and difficulties in management is scant. The difference here is that there is a demand for research that investigates the perception, adoption, and handling of AI technologies by school administrators in educational institutions.

CHAPTER 3. METHODOLOGY

3.1 Research Design

This study employed a mixed-methods research design combining quantitative survey data and qualitative interview insights to explore the adoption, use, and perceived challenges of Artificial Intelligence (AI) in the management of secondary education institutions. The rationale for this approach lies in the complexity of AI-driven school management: while quantitative data capture measurable levels of readiness and adoption, qualitative responses provide deeper perspectives on leadership, culture, ethics, and implementation barriers.

Quantitative data were collected through an online questionnaire administered to school administrators, while qualitative data were gathered from semi-structured interviews with educational leaders and an additional thematic list of risks identified by respondents. The survey involved 43 administrators from three urban secondary schools in Lviv.

3.2 Participants

3.2.1 Quantitative Sample

A total of 43 school administrators participated in the online survey. Respondents included school principals, deputy principals, supervisor, and other administrative personnel representing secondary education institutions with diverse levels of digital readiness and infrastructure capacity.

The online questionnaire consisted of 36 items covering professional background, familiarity with AI, current and planned use of AI in school management, digital readiness, ethical considerations, and perceived risks. The full list of survey questions is provided in Appendix A.

The sample included only urban secondary schools. This focus reflects the context in which access to digital infrastructure and AI-related tools is currently the most developed. Although the sample does not represent rural or suburban schools, it provides insight into AI adoption within urban school environments.

Participants reported on their position and years of administrative experience, their familiarity with AI concepts, current and planned use of AI in school management, the readiness of school infrastructure, governance and ethical practices related to AI, as well as perceived risks and challenges associated with AI implementation.

The full list of survey questions is provided in Appendix A.

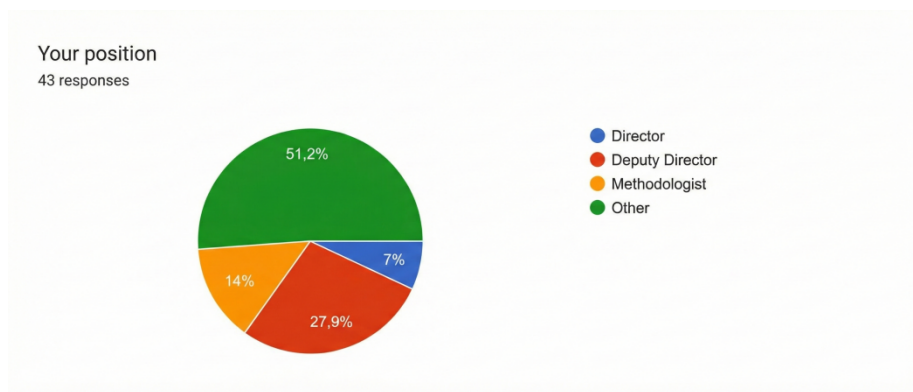


Figure 1. Distribution of respondent positions

In addition to their administrative positions, respondents also varied significantly in terms of professional experience. Notably, approximately one third of the respondents reported more than 20 years of administrative experience, which may influence their attitudes toward AI adoption, as highly experienced school leaders may rely more on established practices when evaluating new digital tools.

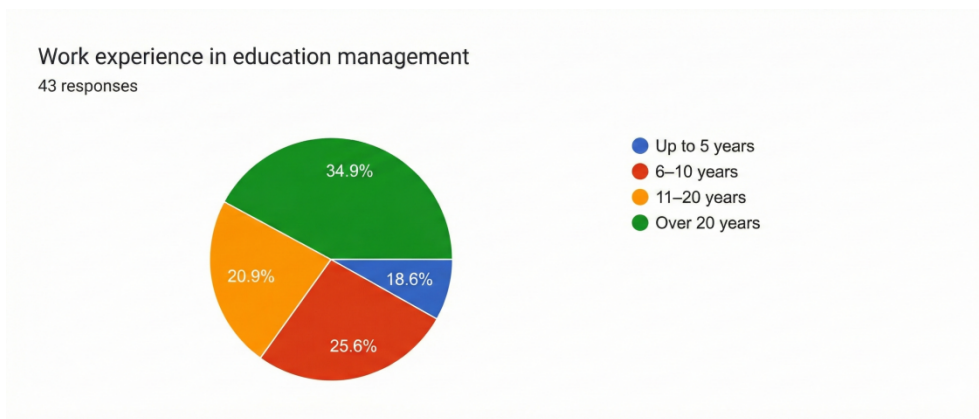


Figure 2. Years of Experience

3.2.2 Qualitative Sample

The qualitative part involved 10 semi-structured interviews with school leaders, such as principals, deputy principals, and supervisors. The sample was used to investigate the deeper views regarding the definition and the understood value of AI for administration in schools, the change of leadership and the use of AI for decision-making, school culture, resistance to innovation, innovation dynamics as well as ethical, legal, and cybersecurity issues related to AI adoption. Besides, the interviews dealt with the expected future changes in AI-supported school management.

The semi-structured interview guide used for data collection is provided in Appendix C.

The interviews were around 10-20 minutes long. Upon the participants agreement, the researcher wrote down detailed notes for every interview and no audio records were kept. The qualitative analysis was done with these notes later.

3.3 Instruments

3.3.1 Online Survey (Google Forms)

The online questionnaire contained 36 items and was structured into the following thematic blocks: (1) professional profile, (2) institutional digital transformation strategy, (3) familiarity with AI concepts, (4) current AI use in school management,

(5) planned AI implementation, (6) evaluation of AI usefulness across management functions, (7) digital readiness and staff attitudes, (8) ethical, legal, and privacy considerations, (9) perceived risks and challenges, and (10) open-ended responses.

In order to enhance the instrument's validity, different survey items were influenced by worldwide methods of digital transformation in education (for example, OECD, UNESCO). Likert-scale items usage helped to standardize the responses and lessen the unclear parts, thus increasing the reliability of the instrument. The availability of open-ended questions ensured that respondents had the freedom to share detailed ideas that go beyond the given structured prompts.

3.3.2 Semi-Structured Interviews

The interview protocol included 10 open-ended questions exploring participants' definitions and conceptual understanding of artificial intelligence, possible areas of AI application in school management, institutional readiness and capacity for implementation, leadership roles in AI-driven environments, organizational culture and teacher attitudes toward technological change, ethical dilemmas and related concerns, as well as expectations regarding the future evolution of AI in education. The full list of interview questions is provided in Appendix C.

Interview data provided rich contextual detail that complemented the survey findings.

Interview questions were drafted prior to the interviews based on the study's objectives and the literature review. Additional follow-up questions were also used during the interviews to get more clarification or expansion of the participants' responses. Thus, the researcher was able to keep a clear framework and at the same time give participants the freedom to elaborate on their views.

3.3.3 Documented List of AI-Related Risks

In addition to the survey and interview instruments, an important qualitative data source in this study was a consolidated list of 16 key challenges and risks related to the implementation of Artificial Intelligence in school management. These risks were derived directly from respondents' answers to the open-ended survey question "Main challenges and risks of AI implementation." The researcher analyzed and grouped similar responses into thematic categories to produce the final list.

This list of 16 risks represents an outcome of the qualitative analysis rather than an input into the research design. The identified risks emerged from respondents' answers to the open-ended survey question "Main challenges and risks of AI implementation" and were subsequently analyzed and grouped by the researcher. They provide direct insight into the perceived vulnerabilities of educational institutions as they consider integrating AI into administrative processes. Moreover, the risk data constitute a qualitative dataset that complements the interview findings and enables triangulation across independent data sources. For analytical purposes, the risks were categorized into four overarching groups: technical, human-factor, organizational, and ethical–legal risks. This classification was later used in Chapter 4 to develop a multidimensional understanding of barriers to AI adoption in Ukrainian secondary schools.

To present these results in a structured and concise form, the identified risks were grouped into four overarching categories and are summarized in Table 1

Table 1. Key Risk Categories Identified in AI Implementation

Risk Category	Description
Technical risks	Technological limitations that may hinder or confuse the proper use of AI, including insufficient hardware and outdated devices, weak or unstable internet connection, incompatibility between AI tools and school platforms, lack of sufficient information security,

Risk Category	Description
	and uncertainty about the long-term reliability of commercial AI solutions. These risks show that schools may aspire to use AI but remain limited by basic digital infrastructure.
Human-factor risks	Human-related challenges frequently mentioned by respondents, such as low levels of digital competence among staff, fear of job loss and reduced professional autonomy, resistance to organizational change, limited time for professional development, and anxiety related to increased monitoring and algorithm-based evaluation. These risks highlight the importance of capacity building, trust, and transparent communication when introducing AI tools into daily administrative practice.
Organizational risks	Structural and administrative barriers to AI adoption, including insufficient funding for technology acquisition and maintenance, absence of a clear digital transformation strategy, weak support from local education authorities, bureaucratic limitations slowing innovation, and lack of defined implementation procedures or roadmaps. These risks indicate that AI integration requires coherent institutional planning and governance, not only technological upgrades.
Ethical and legal risks	Concerns related to privacy violations and data leakage, lack of transparent rules for data collection, processing, and storage, potential bias or unfairness in algorithmic recommendations, unclear accountability when AI produces errors, and increasing dependence on commercial AI systems with opaque internal logic. These risks emphasize the need for clear AI policies, legal guidelines, and ethical standards at school and national levels.

Overall, the documented risk list played an important role in the study. It helped to identify and organize the main challenges related to AI adoption in school management. The categorization of risks was later used in Chapter 4 and supported the consistency between different data sources. This also ensured that the findings reflected the real concerns expressed by school administrators.

3.4 Data Collection Procedure

Data collection took place in November 2025 and followed a three-stage procedure. First, the questionnaire was distributed electronically to school administrators via institutional mailing lists and professional networks on a voluntary and anonymous

basis. Second, the semi-structured interviews were conducted (both in online and face-to-face formats). Participants were informed and consent was obtained before their involvement. During the interviews, the researcher made organized written notes since there were no audio recordings. Third, a list of risks was compiled based on respondents' written reflections on key challenges associated with AI adoption and later categorized through thematic analysis. Information from the study was kept safe and all the processing was done on the data that were combined. The data collection process was conducted in accordance with ethical guidelines, ensuring voluntary participation, confidentiality, and anonymity of the respondents.

CHAPTER 4. RESULTS

Quantitative data from 43 respondents were analyzed using descriptive statistics such as frequencies, distributions, and simple comparisons across categories (e.g. administrative roles, levels of AI readiness, and staff digital competence). The main figures related to AI familiarity, availability of the digital transformation strategy, current and planned AI use, infrastructure readiness, perceived risks, and barriers to implementation were visually represented through bar charts.

The qualitative data consisted of structured written notes taken by the researcher during semi-structured interviews, as well as open-ended survey responses. These data were analyzed through thematic grouping to identify recurring ideas related to leadership practices, institutional readiness, innovation culture, ethical concerns, and resistance to change. The qualitative insights were then used to support and interpret the quantitative patterns, allowing for an integrated mixed-methods perspective on AI adoption in school management.

4.1 School Readiness for Artificial Intelligence

This research question explores the degree of institutional readiness of secondary schools to Artificial Intelligence implementation in management practices. Readiness is considered as the mixture of strategic planning, technical infrastructure, staff digital competence, and the general organizational preparedness. The results reveal that schools' readiness for AI is still at a middle ground and is more of a transition stage, with an average level of preparedness and a notable difference between schools. This assessment is based on indicators from online surveys regarding the availability of a digital transformation strategy, infrastructure readiness, staff digital competence, and the current level of AI use in school management.

The survey data depict that the implementation of a formal strategy for digital transformation is still a matter of concern for different schools. Several institutions declared that they had prepared a strategy. However, roughly half of these establishments disclosed that the plan was merely a draft, and a large number of them also intimated that they did not have any definite plan. Therefore, the statement that the digitization is the most talked-about but still least realized in the majority of schools can be deduced from the findings to be correct. The survey data show that the implementation of a formal digital transformation strategy remains uneven across schools. Only 23.3% of institutions reported having an established strategy, while 46.5% indicated that their strategy was still under development. In contrast, 30.2% of schools reported having no digital transformation strategy at all. Detailed results are presented in Appendix B (Figure B.1).

Teachers' attitudes toward new technologies are an important human-factor aspect of institutional readiness for AI integration. The survey results indicate noticeable differences in how teachers perceive the introduction of new digital tools. Overall, 37.6% of respondents expressed a low level of positivity toward new technologies (ratings 1–2), 34.4% reported a neutral attitude (rating 3), while 28.2% demonstrated a positive or very positive attitude (ratings 4–5). These results suggest that although a portion of schools is open to technological innovation, a considerable share of teaching staff remains cautious or hesitant, which may limit the effective implementation of AI in administrative and managerial processes. Further quantitative details on teachers' attitudes toward new technologies are presented in Appendix B (Figure B.2).

Moreover, institutional readiness is highly influenced by the presence of technical infrastructure. Although some schools report that they have access to modern

equipment and a stable internet connection, many other institutions are still struggling with infrastructural issues such as the use of obsolete hardware, lack of stable internet connection, and inadequate IT support. These differences deepen the internal digital divide between institutions with varying levels of technical preparedness. According to the survey results, 40.6% of respondents reported insufficient or limited technical resources for AI implementation (responses 1–2), while 31.3% expressed agreement that their schools are technically ready (responses 4–5). A further 28.1% provided a neutral assessment, indicating uncertainty about infrastructure readiness. This distribution highlights uneven technical capacity as a significant barrier to AI adoption. Detailed results are presented in Appendix B (Figure B.3).

In order to integrate these dimensions into a single measure of preparedness, an AI Readiness Index was developed based on three indicators: availability of technical resources, administrative readiness to use AI in daily management, and teachers' attitudes toward AI integration. The AI Readiness Index was constructed as an analytical classification rather than a statistical composite score. The three indicators were examined jointly, and respondents were categorized into low, medium, and high readiness levels based on consistent patterns across strategic, technical, and human-factor dimensions, without the use of a formal mathematical formula. The results indicate that the overall level of AI readiness among schools is predominantly moderate. Nearly half of the institutions were classified as having a medium level of readiness, approximately one quarter demonstrated a high level of readiness, and close to one third remained at a low readiness level.

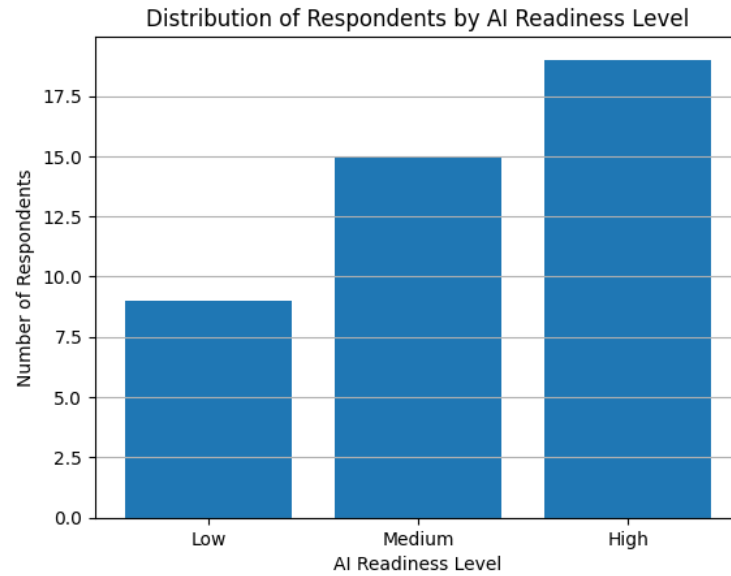


Figure 3. Distribution of Respondents by AI Readiness Level.

Furthermore, qualitative interview data help to explain these quantitative findings. School leaders often mentioned that the administration's motivation to adopt AI usually goes beyond the actual capacity of the institution. Even in schools where leadership is keen on digital innovation, progress is often interrupted by technical issues and the uneven digital culture of the staff. As one participant put it, administrative readiness without the right infrastructure and staff preparation is of no use.

4.2. Current Use of Artificial Intelligence in School Management

This part of the report is concerned with the present degree and types of the use of Artificial Intelligence in secondary school management. The statistics pinpoint that although the knowledge of AI technologies seems to be on the increase, their actual application in the routine administrative processes is still at a very low level and is quite disjointed in nature.

According to the survey, school administrators are in most cases of the opinion that they are moderately or highly familiar with Artificial Intelligence. Although school

administrators seem to be generally aware of AI, they do not appear to be significantly engaged in the practical application of this technology. According to the survey, 51.2% of the participants rated their knowledge of AI as very high, 25.6% considered themselves to be partially familiar, whereas 23.3% stated that they were not familiar with AI at all. This difference between the understanding of the concept and the actual application of AI reveals that most schools have their AI technology at the initial stage or are only conducting experiments, hence it is not being used as a standard practice in administration. More detailed descriptive results are presented in Appendix B (Figure B.4).

When it comes to the usage of AI in education management, research results indicate that only a few schools have decided to apply AI-powered tools in their routine strategic planning. Most schools either completely refrain from AI deployment or make use of very simple digital gadgets that are not capable of machine-learning-based automation or data-driven decision support. The results indicate that AI has not yet become a regular component of school management practices. Based on the survey, a third of the organizations (32.6%) have already used AI into their institutions to manage processes. As a matter of fact, almost half of the organizations (41.9%) indicate that this kind of technological tool is not used but is expected to be implemented. Moreover, a quarter (25.6%) of the educational institutions, according to the survey respondents, are not using AI and have no intention of doing so. The digest reveals that only a handful of schools have actually carried out the management of school operations by means of AI, despite the fact that there is much talk about the use of AI. More detailed results are presented in Appendix B (Figure B.5)

The administrators also rated various AI-supported management functions in terms of their utility on a five-point scale. Overall, the respondents considered AI tools as something positive, which is evident from their average ratings that were above the midpoint of the scale for all the functions listed. The highest level of utility was attributed to the facilitation of scheduling and workload optimization ($M \approx 3.2$) as well as the improvement of data analysis and forecasting of resource needs ($M \approx 3.1$). The respondents gave a little lower but still positive ratings to the optimization of financial and human resources by AI applications ($M \approx 2.8$) and decision-support functions ($M \approx 3.0$). They had these relatively good assessments in mind, but the outcomes indicate that the advantages of AI, as perceived by the respondents, are still mostly hypothetical because the majority of respondents point out that they have had very few direct contacts with such tools. More comprehensive descriptive statistics can be found in Appendix B (Figure B.6).

The overall AI Use Index was created from the reported levels of AI application in key management functions to give a coherent picture of practical AI adoption. The index was developed as an analytical classification rather than a statistical composite score. It was based on respondents' self-reported use of AI across key management functions, including administrative automation, data analysis and reporting, scheduling and planning, communication with stakeholders, and decision-support activities. These indicators were reviewed jointly to categorize respondents into low, medium, and high levels of AI use. Low use refers to occasional or experimental application of AI within a single management area, medium use indicates regular application across two to three management areas, while high use denotes consistent integration of AI tools across multiple administrative functions.

The index results confirm that the implementation of AI in secondary school management remains at a very early stage of development. Most respondents fall into the low-use category, indicating that AI is applied only occasionally or in isolated cases, while only a small number of institutions demonstrate more systematic use of AI-based management tools.

Information on the current areas of AI use in school management is presented in Figure 4.

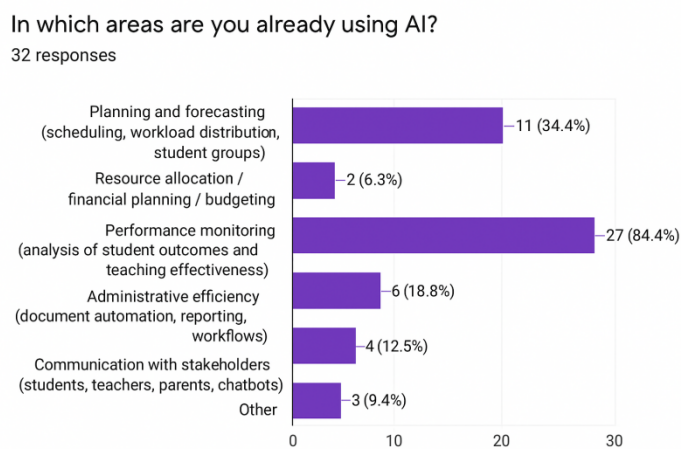


Figure 4. Areas of AI Use in School Management

The qualitative interview data are in line with these results. School leaders often pointed out that AI tools are mostly utilized on a trial basis, and that the personal initiative of one or two administrators rather than institutional policy is what usually drives this process. Some respondents remarked that the absence of well-defined regulatory framework, lack of technical support, and insecurity about data protection issues are the main reasons that prevent implementation on a large scale.

The present research on the usage of AI in education management at the school level uncovers that the acceptance of AI as a concept is relatively high, yet the practical use of AI is still sporadic and at a very low level. These outcomes indicate

that there is a significant implementation gap between the perceived potential and actual application of AI technologies in school administration.

4.3. Ethical Risks and Barriers to Artificial Intelligence Adoption in School Management

This section examines the ethical risks and institutional barriers that hinder the adoption of Artificial Intelligence in secondary school management. The findings indicate that concerns related to data protection, transparency, and organizational capacity represent the most significant obstacles to the wider implementation of AI in educational administration.

Based on the survey findings, moral and legal risks related to data privacy emerged as a notable concern among school administrators. While a substantial share of respondents expressed concern about the use and security of confidential student and staff data in AI-based systems, the distribution of responses indicates that perceptions of privacy risks remain mixed, with neutral responses being the most frequent. Their concerns indicate anxiety about ensuring that data protection laws are followed and about the eventual use of the data inappropriately. The distribution of responses related to privacy risk perception is presented in Figure 5.

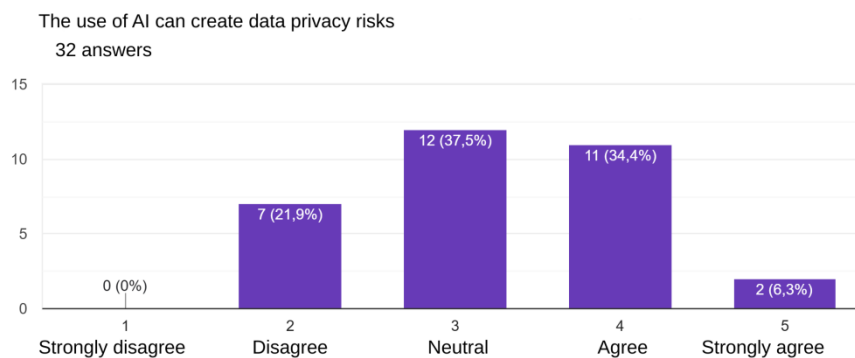


Figure 5. Perceived Privacy Risks of AI Use in School Management

Besides the ethical risks, a variety of structural and organizational barriers were also pinpointed, which hinder the integration of AI. The top four most cited reasons for the situation are limited budget, inadequately developed technical infrastructure, low digital skills of the staff and lack of clear national or institutional regulations for the use of AI in education. These obstacles, which are unavailable to each other, usually have a cumulative effect, which makes the whole process of adoption significantly slower. The results show that the most frequently reported area for future AI implementation in school management is resource allocation and financial planning, indicated by 78.1% of respondents. Communication with stakeholders, including students, teachers, parents, and chatbot-based systems, was identified by 68.8% of respondents. Planning and forecasting tasks, such as scheduling and workload distribution, were mentioned by 65.6% of respondents, while administrative efficiency through document automation and reporting was reported by 59.4%. In contrast, considerably fewer respondents plan to use AI for performance monitoring and analysis of student and teacher outcomes (15.6%), and 9.4% indicated other areas. A more detailed account of the quantitative results of perceived implementation barriers can be found in Appendix B (Figure B.7).

Combined examination of the qualitative and quantitative data has led to the inference that the delay of institutions in the adoption of AI is not so much due to their being unwilling to innovate as it is due to their being unsure of the situation and feeling vulnerable. The use of AI in schools is in general accepted by leaders who see its potential benefits. Still, they are cautious because they see the risks of ethics and regulations being unclear. A number of administrators have declared that if personal

data are leaked or if there are errors in the algorithm, then the mechanisms of accountability will be ill-defined, especially when there is no official legal guidance.

Analysis of qualitative interviews reveal these worries to be even more deeply ingrained in the minds of the respondents. They often suggested that potential legal liability and damage to the reputation caused their organizations to be hesitant in adopting AI. Ethical problems, because of limited transparency of the algorithm and the risk that bias in automated decision-making might increase, were challenging as well. These results point to that the slowness to use AI in school management has mostly to do with the officials being unsure about the regulations and with the ethical side of things rather than with the usefulness of AI not being recognized.

In general, the findings highlight the necessity of well-defined governance frameworks, strong data protection mechanisms, and deliberate capacity-building measures as the main conditions without which the use of Artificial Intelligence (AI) in secondary school management cannot be considered ethical and environmentally friendly.

4.4. Summary of Key Findings and Additional Insights

This section summarizes the key empirical findings of Chapter 4 and highlights patterns observed across both quantitative and qualitative data. Overall, the results indicate that the adoption of Artificial Intelligence in secondary school management is shaped by three interrelated dimensions: institutional readiness, current levels of AI use, and perceived ethical and organizational risks.

The data on institutional readiness depict a scenario where the majority of the schools are situated at the intermediate level in terms of their AI preparedness. Even though the schools have become more aware of the need for digital transformation and show more strategic interest in AI, there are still large gaps in technical

infrastructure, personnel training, and strategic planning. According to the AI Readiness Index, few schools are categorized as highly ready while most are classified as medium or low readiness levels, thus there is a disparity in the ability of institutions to embrace AI.

Findings concerning the present use of AI show a distinct difference between the expected potential and the actual realization. Despite the fact that school administrators on the whole convey their favorable views of AI, the actual usage is still very much restricted and disjointed. In most cases, AI instruments are utilized experimentally and temporarily, and the impetus for them is usually a single individual's rather than the institution's. The AI Use Index is indicative of the majority of schools being in a very early phase of AI implementation. Moreover, the investigation of ethical risks and barriers in institutions elucidates that concerns about data protection, uncertainty of regulations, and limitations of the organization are the main reasons for holding back the wider use of AI. These risks are the most frequently mentioned by the heads of schools and are tightly linked to limited technical capacity and lack of clear guidance. In other words, the findings on the whole reveal that the AI integration in the management of secondary schools is still at a stage where it is neither fully developed nor expanding rapidly but rather, it is going on unevenly and cautiously, which is largely due to the presence of structural limitations as well as perceived risks

CHAPTER 5. CONCLUSIONS

This study investigated the use of Artificial Intelligence (AI) in the management of secondary education institutions in Ukraine, with a focus on institutional readiness, current patterns of AI usage, and perceived ethical and organizational risks. Using a mixed-methods research design that combined a survey of 43 school administrators with 10 semi-structured interviews, the study provides empirical insights into the current stage of AI integration in school administration.

The findings related to the first research question indicate that the overall level of institutional readiness for AI implementation is moderate. Although a few schools show high degrees of readiness, the majority of institutions are still at medium or low levels of readiness. The most significant factors causing this limitation are the lack of adequate technical infrastructure, the scholars' irregular digital skills, and the non-existence of fully elaborated digital transformation strategies in a large number of schools. Such findings reveal that a considerable internal digital divide is still there, even between the secondary schools that have been located in the cities. With regard to the second research question, the study reveals that the actual use of AI in school management remains very limited and fragmented. Most schools either do not use AI at all or apply it only in isolated pilot initiatives. The AI Use Index confirms that systematic and institutionalized AI adoption in administrative processes is still at an early stage. This demonstrates a clear gap between administrators' awareness of AI and its practical implementation in daily management activities.

The third research question addressed the perceived benefits, challenges, and risks of AI adoption. Although school administrators generally recognize the potential benefits of AI in areas such as administrative automation, data analysis, scheduling, and performance monitoring, ethical and organizational concerns significantly

constrain its adoption. The most critical barriers include data privacy and information security risks, lack of clear regulatory frameworks, insufficient funding, and limited staff capacity. These factors create a climate of institutional caution rather than open resistance to innovation.

The fourth research question examined school leaders' perceptions of the future role of AI in education management. The results indicate a generally positive but cautious outlook. Most administrators expect AI to play an increasingly important role in school management over the next 5–10 years; however, they emphasize that successful implementation depends on the establishment of clear governance frameworks, reliable technical infrastructure, and systematic professional development.

The combined analysis of the outcomes reveals that there is a close connection between institutional readiness, AI usage, and risk perception. Digitally ready schools are more AI-oriented and declare that they feel less threatened by the technology, while weaker schools barely use it and are more concerned about the ethics and the organization. This discovery underlines the role of strengthening the capacity as a condition for lessening the feeling of risk and facilitating a lasting AI implementation.

From a practical perspective, the study highlights several implications for educational policy and school leadership in Ukraine. First, there is a critical need for the development of clear national and institutional policies regulating the use of AI in education. Second, targeted investment in digital infrastructure and cybersecurity is required to ensure safe and effective implementation. Third, continuous professional development of school leaders and teachers in AI-related competencies is essential for strengthening institutional readiness.

This research confines itself to a comparison of urban secondary schools and relies on self-reporting data, which is a limitation. The next studies ought to broaden the scope by including the countryside and local areas and using the studies over time to see how the AI adoption changes. Moreover, a research program should be launched to measure the genuine influence of the implementation of AI-powered management tools for school performance and governance.

Future research should prioritize empirical validation of AI-based management systems in secondary schools, the development of governance and policy frameworks for responsible AI use, and strategies for ensuring institutional readiness among school leaders and educators. Addressing these gaps will be crucial for achieving sustainable and ethical adoption of AI in the management of secondary education institutions.

In conclusion, while Artificial Intelligence is widely perceived as a promising instrument for improving the management of secondary education institutions in Ukraine, its practical implementation remains constrained by institutional, technical, and ethical barriers. The transition from experimental use to systematic integration of AI in school management requires coordinated efforts at the policy, institutional, and professional levels.

REFERENCES

- Gindert, M., & Müller, M. L. (2024). The impact of generative artificial intelligence on ideation and the performance of innovation teams (preprint). arXiv. <https://arxiv.org/abs/2410.18357>
- Dotan, R., Parker, L. S., & Radzilowicz, J. G. (2024). Responsible adoption of generative AI in higher education: Developing a “Points to Consider” approach based on faculty perspectives. arXiv. <https://arxiv.org/abs/2406.01930>
- McDonald, N., Johri, A., Ali, A., & Hingle, A. (2024). Generative artificial intelligence in higher education: Evidence from an analysis of institutional policies and guidelines. arXiv. <https://arxiv.org/abs/2402.01659>
- Jin, Y., Yan, L., Echeverria, V., Gašević, D., & Martinez-Maldonado, R. (2024). Generative AI in higher education: A global perspective of institutional adoption policies and guidelines. arXiv. <https://arxiv.org/abs/2405.11800>
- Chesbrough, H. W. (2003). Open innovation: The new imperative for creating and profiting from technology. Harvard Business School Press. <https://www.sustanciainfinita.com/wp-content/uploads/2017/03/LIBRO-Henry-Chesbrough-Open-Innovation.pdf>
- Nonaka, I., & Takeuchi, H. (1995). The knowledge-creating company: How Japanese companies create the dynamics of innovation. Oxford University Press. https://www.academia.edu/1599074/The_knowledge_creating_company_how_japanese_companies_create_the_dynamics_of_innovation
- Lawson, B., & Samson, D. (2001). Developing innovation capability in organisations: A dynamic capabilities approach. *International Journal of Innovation Management*, 5(3), 377–400. <https://doi.org/10.1142/S1363919601000427>

Edmondson, A. C. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*, 44(2), 350–383. https://www.researchgate.net/publication/243774322_Psychological_Safety_and_Learning_Behavior_in_Work_Teams

Schein, E. H. (2010). *Organizational culture and leadership* (4th ed.). Jossey-Bass. https://ia600805.us.archive.org/9/items/EdgarHScheinOrganizationalCultureAndLeadership/Edgar_H_Schein_Organizational_culture_and_leadership.pdf

Martins, E. C., & Terblanche, F. (2003). Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management*, 6(1), 64–74. <https://doi.org/10.1108/14601060310456337>

Ghimire, A., Prather, J., & Edwards, J. (2024). Generative AI in education: A study of instructors' experiences and attitudes. *arXiv*. <https://arxiv.org/abs/2403.15586>

Yusuf, A. (2024). Generative AI and the future of higher education: A threat to academic integrity or reformation? *International Journal of Educational Technology in Higher Education*, 21(14). <https://doi.org/10.1186/s41239-024-00453-6>

Chaudhry, M. A., & Kazim, E. (2022). Artificial Intelligence in Education (AIED): a high-level academic and industry note 2021. *AI and Ethics*, 2, 157-165. <https://doi.org/10.1007/s43681-021-00074-z>

Göçen, A., & Aydın, S. (2021). Artificial Intelligence in Education and Schools. *Educational Policy Analysis and Strategic Research*, 16(1), 158–173. https://reference-global.com/article/10.2478/rem-2020-0003?utm_source

Karaköse, T., & Tülübaş, T. (2024). School Leadership and Management in the Age of Artificial Intelligence (AI): Recent Developments and Future Prospects. *Sustainability*, 16(3). <https://edupij.com/index/arsiv/63/323/school-leadership-and->

management-in-the-age-of-artificial-intelligence-ai-recent-developments-and-future-prospects?utm_source

Boonsathaporn, P. (2024). The Digital Era School Management: Decoding AI for Future Skills. *International Journal of Education and Development*, 48(2).https://so06.tci-thaijo.org/index.php/jber/article/view/284778?utm_source

Shamaki, E. B., et al. (2024). Application of Artificial Intelligence in Secondary Schools' Administration in Nigeria. *Journal of Educational Management*, 10(1).https://journals.aemapp.org/index.php/JAEMAPP/article/view/222?utm_source

Al-Rahbi, H., & Al-Raqeeshi, A. (2024). The Utilization of Artificial Intelligence by School Administration and Its Relationship to Achieving Competitive Advantage in the Sultanate of Oman. *Journal of Educational Leadership*, 7(2).https://journals.aemapp.org/index.php/JAEMAPP/article/view/222?utm_source

APPENDIX A. SURVEY QUESTIONS

Table A1. Survey Instrument Used for Data Collection

Question No.	Section	Question (English)	Response Type / Scale
1	General Information	Your position	Single choice
2	General Information	Years of experience in educational management	Single choice
3	General Information	Does your institution have a digital transformation strategy?	Single choice
4	General Information	How familiar are you with the concept of artificial intelligence?	Single choice
5	AI Usage	Does your institution use AI in any management processes?	Single choice
6	Current AI Use	In which management areas do you currently use AI?	Multiple choice
7	Current AI Use	Overall level of AI use in your institution	5-point Likert scale
8	Future Plans	In which areas do you plan to implement AI?	Multiple choice
9	Future Plans	Planned timeline for AI implementation	Single choice
10	Impact Assessment	AI helps create schedules and optimize workload	5-point Likert scale
11	Impact Assessment	AI improves forecasting accuracy for groups and resources	5-point Likert scale
12	Impact Assessment	AI helps optimize allocation of financial and human resources	5-point Likert scale
13	Impact Assessment	AI supports informed financial decision-making	5-point Likert scale
14	Impact Assessment	AI supports institutional performance monitoring	5-point Likert scale
15	Impact Assessment	AI improves analytics of pedagogical and student performance	5-point Likert scale
16	Impact Assessment	AI reduces administrative workload	5-point Likert scale
17	Impact Assessment	AI speeds up administrative procedures	5-point Likert scale
18	Communication	AI improves communication with stakeholders	5-point Likert scale
19	Communication	AI ensures timely information and feedback	5-point Likert scale
20	Leadership & Culture	AI supports innovation in the institution	5-point Likert scale
21	Leadership & Culture	Teachers have a positive attitude toward new technologies	5-point Likert scale
22	Leadership & Culture	Leadership encourages AI use	5-point Likert scale
23	Leadership & Culture	AI helps identify strategic priorities	5-point Likert scale
24	Ethics & Policy	The institution has AI ethics policies	5-point Likert scale
25	Ethics & Policy	The institution has an AI implementation plan	5-point Likert scale
26	Ethics & Policy	Staff are aware of data protection policies	5-point Likert scale
27	Ethics & Policy	AI poses risks to data privacy	5-point Likert scale
28	Ethics & Policy	The school has resources for safe AI use	5-point Likert scale
29	Readiness & Risks	AI risks are considered in decision-making	5-point Likert scale
30	Readiness & Risks	The school has technical resources for AI	5-point Likert scale
31	Readiness & Risks	School administration is ready to use AI daily	5-point Likert scale

32	Readiness & Risks	Teaching staff supports AI implementation	5-point Likert scale
33	Future Outlook	AI will play a key role in education management over the next 5–10 years	5-point Likert scale
34	Open-ended	Main challenges and risks of AI implementation	Open-ended
35	Closing	Would you like to receive the study results by email?	Yes/No
36	Closing	If yes, please provide your email (optional)	Short text

APPENDIX B. EXTENDED QUANTITATIVE RESULTS

Does your institution have a digital transformation strategy?

43 answers

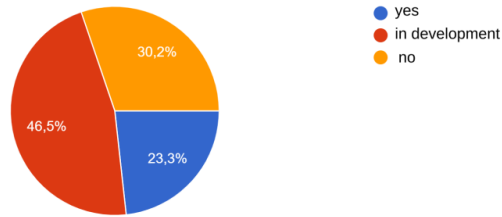


Figure B.1. Digital Transformation Strategy Availability

Teachers are positive about the introduction of new technologies

32 answers

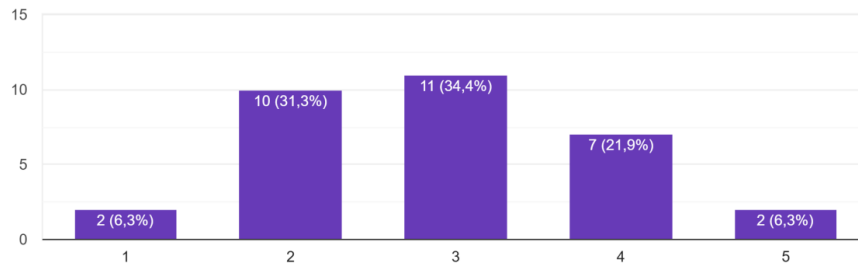


Figure B.2. Teachers' Attitudes Toward New Technologies

The school has the technical resources to implement AI

32 answers

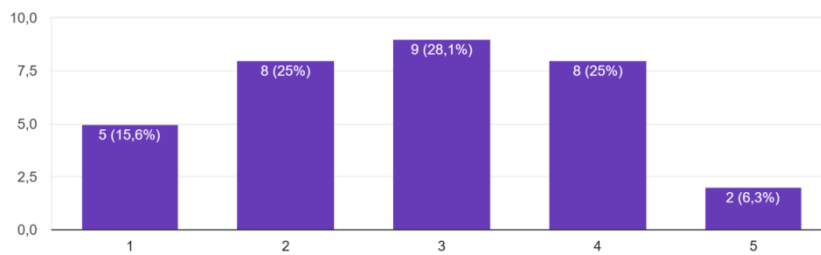


Figure B.3. Technical Infrastructure Readiness

How familiar are you with the concept of artificial intelligence (AI)?

43 responses

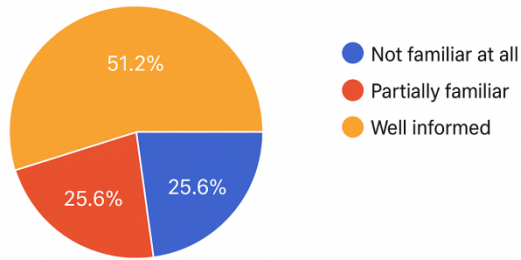


Figure B.4. Familiarity with AI

Does your institution use AI in any management processes?

43 responses

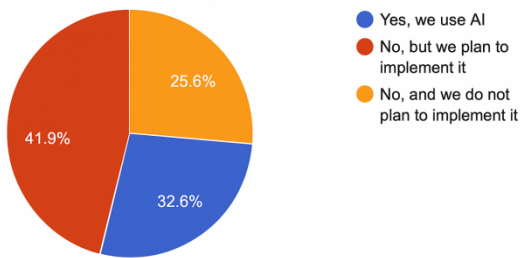
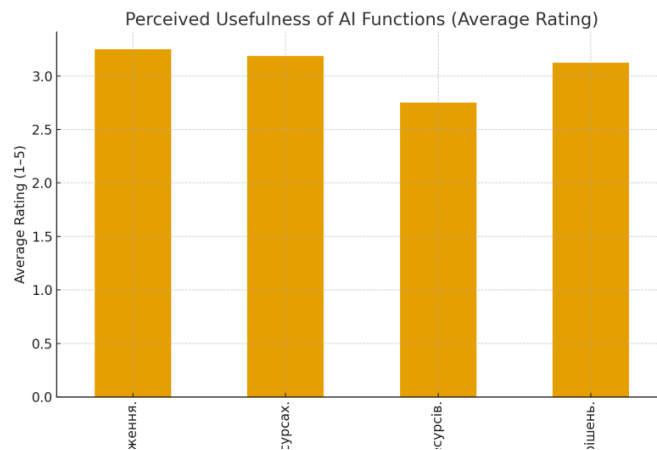


Figure B.5 – Current Use of AI in School Management



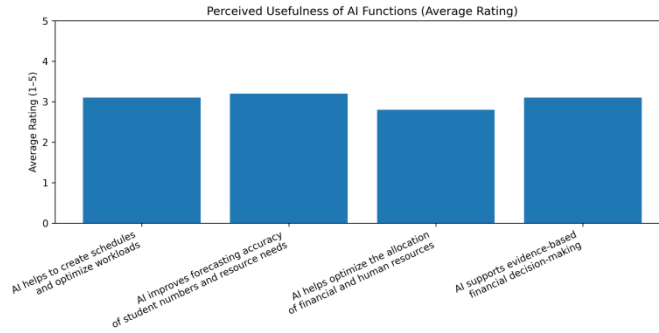


Figure B.6. Perceived Usefulness of AI Functions

In which areas of school management do you plan to implement AI over the next 1–3 years?

32 answers

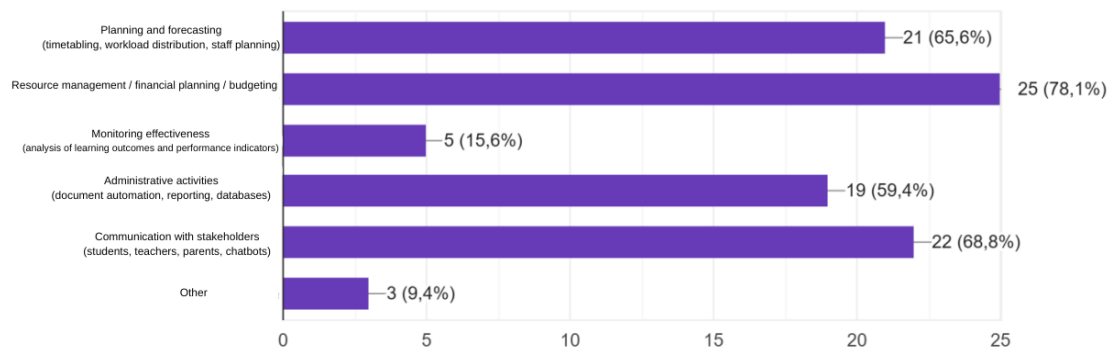


Figure B.7. Barriers to AI Implementation

APPENDIX C. INTERVIEW GUIDE

Table B1. Interview Questions for School Administrators

No.	Interview Question (English)
1	How do you understand the concept of artificial intelligence in the context of school management?
2	In which management processes do you see the greatest potential for the use of AI?
3	What experience with digital technologies or AI does your institution currently have?
4	How do you assess your school's readiness for AI implementation?
5	Does AI implementation change the role of the school leader as a leader? If yes, how?
6	Does AI contribute to the development of an innovation culture in your school?
7	What risks and ethical dilemmas do you see in AI implementation?
8	Are there any policies or regulations in your school regarding the use of AI?
9	What skills and competencies are needed for school leaders to work effectively with AI?
10	How do you see the future of schools in the context of digital transformation and AI development?