THE STRATEGIC ROLE OF ITSM IN MODERN EDUCATION SPHERE

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Abstract: *This research analyzes the strategic role of IT Service Management (ITSM) in the context of the modern educational shift toward hybrid and online learning models. It argues that the transition from traditional methods necessitates a fundamental paradigm shift, where IT infrastructure evolves from a reactive support unit into a user-oriented strategic service. By analyzing the implementation of global frameworks such as ITIL 4, this study demonstrates how higher education institutions can effectively align their technological resources with their core academic missions. This research reveals how ITSM optimizes critical workflows, ranging from the initial stages of student enrollment to the complex task of securing sensitive research data. Functioning as a sophisticated orchestration system, ITSM ensures that technical requests are routed efficiently and that critical incidents are prioritized to maintain institutional continuity. This approach allows faculty members to dedicate their efforts to pedagogical delivery and innovation rather than being hindered by technical troubleshooting or connectivity issues. Furthermore, the research shows that ITSM serves as the indispensable backbone of contemporary education, transforming the IT department into a proactive strategic partner. By fostering a culture of continuous improvement and service value, universities can build more resilient and scalable digital environments. Ultimately, the primary beneficiary is the student, who receives a seamless, high-quality digital experience that is essential for achieving academic excellence in today's increasingly digital-first landscape.*

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1. Introduction

Nowadays, significant attention is being paid to the implementation and subsequent effective operation of information systems in educational institutions. The implementation of information systems in education is aimed at the digital transformation of the learning process, the management of schools, colleges, and universities, as well as improving the quality of education. The digitization of education involves all areas of educational institutions operations - from classroom instruction to administrative management - enabling the transition to modern educational standards.

The implementation of ITSM approach in the educational environment transforms the IT department into one of the most active units. It is important to provide educational institutions with 24/7 access to data and to ensure a more personalized and comprehensive learning experience for students. Fostering a culture of continuous service improvement ensures the sustainability of the digital ecosystem of schools, colleges, and universities, which ultimately enhances the quality of service for students.

These systems offer cloud deployment with greater storage and processing capabilities; the number of features built into the system can also increase, making it easier to meet all

requirements, from student enrollment to alumni network support - tasks that would otherwise be tedious and labor-intensive.

The pandemic was the catalyst for the development of this type of system. According to data published by UNESCO, 1.3 billion students worldwide were unable to attend school during the pandemic. Many schools, colleges, and universities were closed worldwide. Since educational institutions were completely closed during the pandemic, demand for solutions such as information systems for students and learners increased sharply around the world.

2. Literature Review

A significant contribution to this field has been elaborated by many researcher from many countries. Since its appearance in the 1980s, ITIL 4 (Information Technology Infrastructure Library) has become the most important methodology for IT service management; its latest version, ITIL 4, was released in 2019. It has been successfully implemented in small, medium, and large enterprises worldwide, enabling the creation of effective IT service management practices. The importance of ITIL lies in its ability to account for the unique infrastructure and requirements of each organization, meeting both business needs and stakeholder expectations. Researchers have recognized its significance and worked to adapt ITIL best practices to various organizations, including higher education institutions, demonstrating its versatility and impact.

The academic discourse surrounding the digital transformation of higher education has increasingly shifted from purely technical implementations to strategic service management. Central to this transition is the adoption of the ITIL framework, which redefines IT as a value-creation engine rather than a support function. For example, researcher Otari Machaladze from the Georgian Technical University (Tbilisi, Georgia) in his research focuses on the optimization of IT infrastructure within complex academic environments (Machaladze, 2025). In his studies, the researcher argues that the effectiveness of modern universities is directly proportional to the maturity of their IT service management processes. He emphasizes that the transition to ITIL 4 allows institutions to move away from "reactive" troubleshooting toward a "proactive" service model that anticipates user needs.

Expanding upon the theoretical foundations, another example of practical ITSM application is provided by Haneen Khalid Ibrahim and Ibrahim Ismael Hamarash (2025). In their study focused on universities within the Kurdistan Region of Iraq, the authors transition from the general philosophy of ITIL to the specific challenge of its technical execution. They address a fundamental problem that many educational institutions face: the fact that while ITIL 4 offers a vast library of 34 practices, it does not provide a "one-size-fits-all" instruction for which ones to implement first.

On the national level, this problem is being studied in considerable detail. A further localized perspective on these challenges is offered by Adrian Andronic (2023), who provides a comparative analysis of digital transformation in Moldova and Estonia. While the aforementioned studies focus on the technical and process-oriented aspects of ITIL, Andronic shifts the focus toward the strategic and financial sustainability of these systems. His research evaluates the "Education Strategy 2030" (Ministry of Education and Research, 2023) in Moldova, identifying the effective implementation of digital technologies as the primary vehicle for ensuring the quality and resilience of the national education system.

Despite the diverse geographical and methodological approaches of the analyzed studies - ranging from the strategic comparative analysis of Andronic, the philosophical frameworks of Machaladze, to the empirical process-selection models of Ibrahim and Hamarash - a singular, cohesive scientific consensus emerges: the paradigm shift from "IT as a Support Function" to "IT as a Strategic Value Driver."

This common conceptual thread, which also forms the cornerstone of the current research, posits that the digital maturity of a modern educational institution is no longer defined by the mere presence of technical tools (such as Moodle, SIME, or SIS), but by the integrated orchestration of these tools through an ITSM framework.

By aligning the national strategy of the Republic of Moldova with these international findings, this study confirms that the implementation of ITIL 4 practices is not merely a technical upgrade, but a critical prerequisite for achieving sustainable, high-quality education that meets the demands of the 21st century.

3. The main goal and the methodology

The purpose of this research is to analyze the role of ITSM in the modern education sphere worldwide, inclusive and the Republic of Moldova and analysis of top ITSM companies, as: Ellucian Company LP, PowerSchool Group LLC, Workday Inc., Oracle Corporation, Campus Management Corp.

The following researches methods were used in this research: analysis, synthesis, comparative analysis, logical method, monographic method, statistical data analysis, etc.

The analysis in this study is based on data from the latest Mordor Intelligence™ report - “Student Information Systems Market Size and Share Analysis-Growth Trends and Forecasts (2024-2029)” and on opinion of experts in the education and IT sectors, as well as ITSM companies.

4. Results and Discussion

The student information system offers features such as monitoring relevant student information, streamlining communication between staff and faculty, enabling the tracking of student information during the admissions process, providing registration and reporting tools, and more. Stakeholders at educational institutions benefit from the system because the amount of paperwork is significantly reduced and complex tasks are simplified.

The student information systems market is segmented by type - solutions, services; end user - education levels, higher education; by deployment method - on-premises, cloud; and by geographic region - North America, Europe, Asia-Pacific, Latin America. By type of solutions and services, the three main ITSM categories in education are Assessment Information Systems, Administrative Information Systems, and Learning Management Systems.

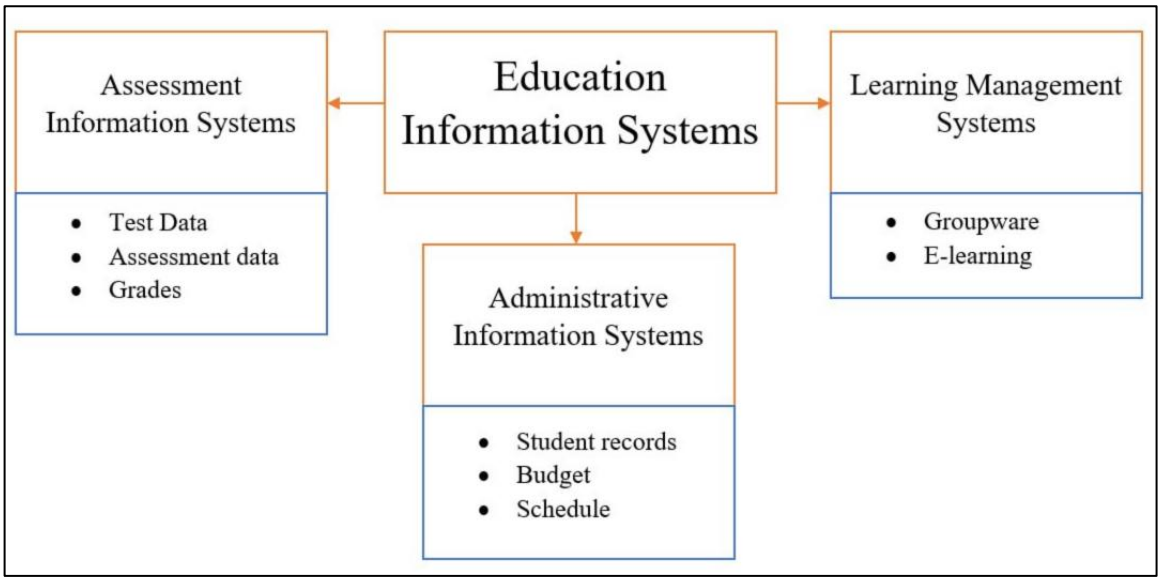

Figure 1. Schematic representation of ITSM in education

***Source**: Elaborated by the author*

According to the Mordor Intelligence™ Industry Report "Student Information Systems Market Size and Share Analysis – Growth Trends and Forecasts (2024–2029)," in 2024, the student information systems market was valued at $11.98 billion and is projected to reach $23.26 billion by 2029, with a compound annual growth rate (CAGR) of 14.19% over the forecast period of 2024-2029.

The demand for this type of product is primarily due to the increasing digitalization of education, the growing trend toward e-learning, and a focus on improving the quality of education (Mordor Intelligence, 2024).

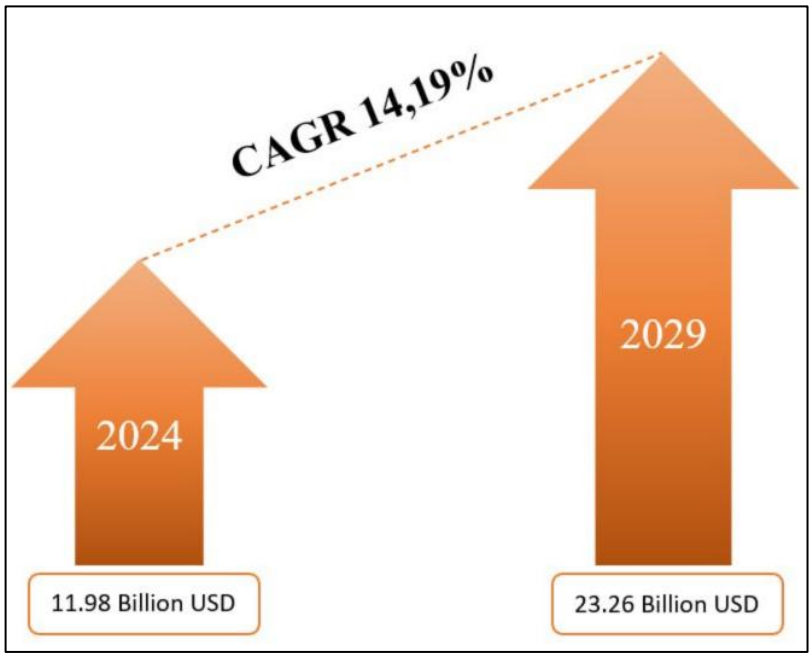

Figure 2. Student Information System Market, Market Size in Billion USD

***Source**: Elaborated by the author using Mordor Intelligence Report (2024)*

For example, the University of Nottingham, which is one of the largest and most complexe organizations, comprising three campuses around the world: in the UK, China, and Malaysia. It is the seventh-largest university in the UK, with 8,000 staff members and 46,000 students. The university has implemented Oracle PeopleSoft Campus Solutions across all three campuses. All three campuses now use a single integrated system, which is expected to increase efficiency, reduce costs, and improve the user experience for both staff and students.

For example, India's school education system is the largest in the world, comprising more than 1.5 million schools, over 8.7 million primary and secondary school teachers, and more than 260 million students. It is home to the world's largest and most complex education system, serving over 260 million young people annually, making it a region with enormous opportunities for student information system providers to penetrate and expand their customer base.

The leading global companies involved in the development of student information systems are: Ellucian Company LP, PowerSchool Group LLC, Workday Inc., Oracle Corporation, and Campus Management Corporation.

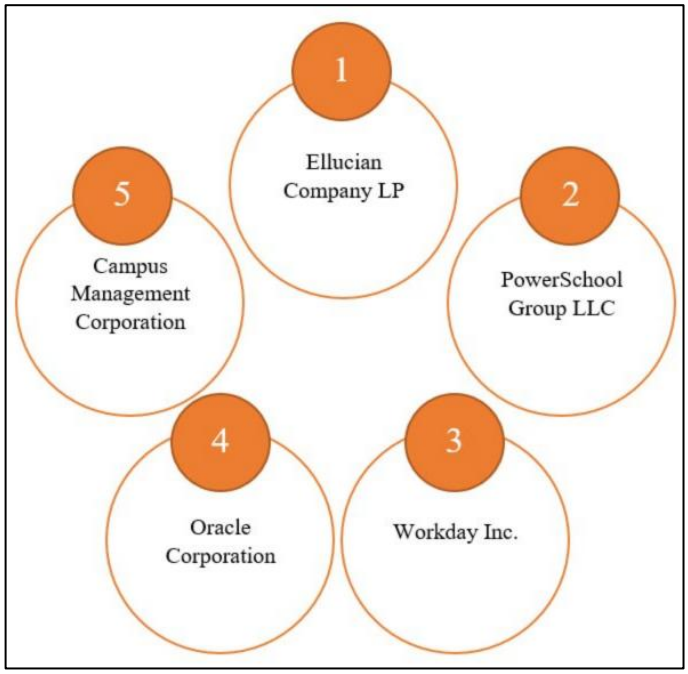

Figure 3. Market leaders in student information systems (SIS)

***Source**: Elaborated by the author using Mordor Intelligence Report (2024)*

- **Ellucian Company L.P**. is a leading global provider of technology solutions for higher education. The company develops software and provides services that help educational institutions manage the entire student lifecycle: from recruitment and enrollment to graduation and fundraising. The modern Ellucian was formed in 2012 through the merger of Datatel and SunGard Higher Education. Ellucian offers a comprehensive AI-powered SaaS platform that includes: its flagship ERP systems, Banner and Colleague, used for managing academic records, enrollment, and course schedules; solutions for automating accounting, budgeting, and human resources management at universities; tools for managing scholarships and financial aid (e.g.,

following the acquisition of CampusLogic); and systems for recruiting and engaging prospective students and alumni. The company's clients include more than 3,000 higher education institutions in 50 countries worldwide. More than 21 million students use the company's services. In 2026, Ellucian was named one of Fast Company's most innovative companies in the "Education" category (Ellucian, n.d.).

- **PowerSchool Group LLC** - is the world's leading technology platform for K-12 education. The company provides cloud-based software that integrates administrative processes, classroom instruction, and family engagement. PowerSchool offers a comprehensive ecosystem of solutions divided into several "clouds": its flagship student information system (PowerSchool SIS), as well as enrollment and reporting tools; learning management systems (Schoology Learning) and a performance assessment platform (Performance Matters); PowerBuddy - an AI assistant - integrated into various products to support teachers in lesson planning, assist students with learning, and provide analytics to parents; tools for staffing (Unified Talent), financial planning (Allovue), and teacher professional development (PowerSchool, n.d.).
- **Workday Inc.** - is a leading U.S.-based provider of cloud-based enterprise applications (SaaS) for financial management, human capital management (HCM), and planning. Founded in 2005, the platform serves thousands of organizations worldwide, including more than 45% of Fortune 500 companies, enabling the digital transformation of HR and financial processes.
- **Oracle Corporation** - is one of the world's largest American technology companies, founded in 1977. It ranks second in revenue among software manufacturers, behind Microsoft, and specializes in database management systems (DBMS), cloud services, enterprise applications (ERP, CRM), and server hardware.
- **Campus Management Corp.** (now part of Anthology) is an American company specializing in the development of software for higher and secondary education. It provides cloud-based ERP systems (CampusNexus Student Information Systems, CRM, and financial management), helping educational institutions manage the student lifecycle from admission to graduation.

In the Republic of Moldova, the two main IT systems being implemented in universities are Moodle, and in schools and colleges - SIME (the "Sistemul Informațional de Management în Educație"), which serves as the central pillar of educational ITSM. The integration of SIME and Moodle transforms the national education system from a reactive model to a proactive, strategic one. SIME and Moodle optimize and enhance the quality of teaching and learning, administrative efficiency, and data-driven decision-making.

Moodle - is a software product that allows users to create online courses and websites. It is an ongoing project. The first version of the system was launched in 1999 by Martin Dougiamas, a student from Australia. The word "Moodle" is an acronym for Modular Object-Oriented Dynamic Learning Environment, a term most useful to programmers and theorists. Moodle competes on equal footing with the global leaders in the e-learning market. An international team of developers has been working on the system for over 10 years, under the leadership of the Moodle Foundation in Australia.

As a result, Moodle combines a wealth of features, flexibility, reliability, and ease of use. The system is widely known around the world, has over 60,000 installations in more than 100 countries, and has been translated into dozens of languages. The system scales well: there are installations serving up to a million users. The Moodle LMS is designed for creating and delivering high-quality distance learning courses. Moodle is focused on collaboration. The system provides a wide range of tools for this purpose: wikis, glossaries, blogs, forums, and workshops. At the same time, learning can take place both asynchronously, when each student studies the material at their own pace, and in real time, by organizing online lectures and seminars. The system supports the exchange of files in any format - both between instructors and students and among students themselves.

The Education Management Information System (SIME) was launched in 2017 by the Ministry of Education, Culture, and Research of the Republic of Moldova and is the first national online platform providing access to education data. The Education Management Information System is a project initiated by the Ministry of Education in collaboration with the Center for Information and Communication Technologies in Education, district education departments, and schools across the country, and was implemented thanks to a grant from the World Bank.

Figure 4. Open Data Portal: Information Management System in Education
***Source**: Screenshot of the home page SIME*

The program was developed to automate the processes of collecting, updating, and storing data related to the country's general education system. SIME data are used by officials at the institutional, district/municipal, and national levels for strategic planning, monitoring education, and identifying children who have dropped out of school, children at risk, and children with special educational needs.

5. Conclusions

The SIS market growth reflects a fundamental shift in the educational sphere where data driven decision making and administrative efficiency are no longer optional luxuries but institutional necessities. As the Student Information System market matures, several key takeaways emerge regarding the future of academic management.

The projected valuation of $23.26 billion is largely driven by the migration from legacy on-premise hardware to scalable cloud environments. This shift allows institutions to reduce capital expenditure while gaining the agility needed to support remote and hybrid learning models. Furthermore, modern systems are evolving beyond simple record keeping. By integrating predictive analytics and artificial intelligence, these platforms now offer early intervention triggers for at-risk students and automated workflows that reduce administrative burnout.

As the ecosystem expands, the focus is shifting toward seamless interoperability between information systems and learning management platforms. With the rise in cyber threats targeting educational data, market growth will be contingent on the implementation of robust security frameworks.

In conclusion, the anticipated 14.19 % compound annual growth rate underscores a global commitment to the digital transformation of education. For institutions to remain competitive through 2029, they must view these systems as the central nervous system of the academic enterprise, capable of fostering student success and ensuring long-term institutional resilience.

6. References

Andronic, A. (2023). Digital transformation in education: A comparative analysis of Moldova and Estonia and recommendations for sustainable financing. *Eastern European Journal for Regional Studies*, *9*(2), 96–107. https://csei.ase.md/journal/files/issue_92/7_EEJRS_Issue92_96-107.pdf

Bond, M., Marín, V. I., Dolch, C., Bedenlier, S., & Zawacki-Richter, O. (2018). Digital transformation in German higher education: Student and teacher perceptions and usage of digital media. *International Journal of Educational Technology in Higher Education*, *15*(1). https://doi.org/10.1186/s41239-018-0130-1

Chnani, S. J. H., & Alahmed, S. (2023). The role of technology in the process of education: A systematic review study. *Innovational Research in ELT*, *4*(1), 73–79. https://doi.org/10.29329/irelt.2023.558.6

Ellucian. (n.d.). *Why Ellucian*. https://www.ellucian.com/why-ellucian

Ibrahim, H. K., & Hamarash, I. I. (2025). Developing IT service management in higher education institutions: A case study of ITIL implementation in universities in the Kurdistan Region of Iraq [Conference paper]. 3rd International Conference on Engineering and Innovative Technology (ICEIT2024), Salahaddin University-Erbil, Iraq. https://doi.org/10.31972/iceti2024.008

Machaladze, O. (2025). IT infrastructure management in educational institutions using ITIL framework and Atlassian products. *American Journal of Engineering Research (AJER)*, *14*(3), 59–63. https://www.ajer.org/papers/Vol-14-issue-3/14035963.pdf

Ministry of Education and Research of the Republic of Moldova. (2023). *Guvernul a aprobat Strategia de dezvoltare „Educația 2030”* [The Government approved the development strategy “Education 2030”]. https://mecc.gov.md/ro/content/guvernul-aprobat-strategia-de-dezvoltare-educatia-2030

Mordor Intelligence. (2024). *Student information systems market size and share analysis: Growth trends and forecasts (2024–2029)*. https://www.mordorintelligence.com/industry-reports/student-information-system-market

PowerSchool. (n.d.). *PowerSchool*. https://www.powerschool.com/