

## CHALLENGES AND FUNDING STRATEGIES FOR DIGITAL EDUCATION IN EUROPEAN PRIMARY SCHOOLS

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**Abstract:** *This paper focuses on digital education in European primary schools, examining trends, challenges, and financing strategies. The study uses a combination of research methods, including the comparative method, analysis, synthesis, induction and deduction, statistical data collection, and the monographic method. The paper identifies the current state of digital education in primary schools across Europe and highlights the challenges faced by educators and policymakers in implementing digital education initiatives. It analyzes the different financing strategies adopted by European countries and their effectiveness in promoting digital education in primary schools. The study finds that while many European countries have made significant progress in digital education, there are still challenges to be addressed, including infrastructure and connectivity issues, digital skills gaps, and funding constraints. The paper concludes with recommendations for policymakers and educators to promote digital education in primary schools and ensure that all students have access to quality digital learning opportunities.*

**Keywords:** *digital education, primary schools, financing strategies.*

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### Introduction

In recent years, digital education has become an increasingly important topic in the field of primary education in Europe (Marín & Castaneda, 2023; Ottestad & Gudmundsdottir, 2018). With the rapid development of information and communication technologies (ICT), schools need to adapt to the digital age and provide students with the necessary skills to succeed in a constantly evolving technological landscape (Collins & Halverson, 2018; Wheeler, 2015).

This paper examines the trends and challenges of digital education in European primary schools and explores financing strategies that schools can employ to overcome financial barriers to adopting digital technology.

While there has been significant research on digital education in primary schools, much remains to be learned about the most effective ways to integrate technology into the classroom and how to finance these efforts. This paper will explore the current state of digital education in primary schools across Europe, including the distribution of students, the types of institutions involved, and the technology currently available in these schools.

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The main problem this research addresses is the need for more financial resources available to many primary schools for investing in digital education, which limits their ability to provide students with the necessary digital skills. This research aims to identify financing strategies that primary schools can use to overcome these barriers and provide students with a high-quality digital education.

Overall, this paper aims to provide insights into the current state of digital education in European primary schools and offer practical recommendations for schools looking to invest in this area. By understanding the challenges and opportunities of digital education, schools can better prepare their students for success in the digital age.

This study stands out from other research on the topic due to its focus on primary schools specifically and its emphasis on the financing strategies used to fund digital initiatives. The paper also provides a comparative analysis of the various funding options available to primary schools in Europe, including grants, public-private partnerships, leasing and financing options, community fundraising, and crowdfunding. This analysis offers valuable insights for schools seeking to implement digital initiatives and identifies best practices for financing these initiatives sustainably and effectively.

The paper comprises ten key chapters in addition to the Introduction and Conclusions. These chapters delve into the present status of digital education in primary schools, the obstacles encountered by schools in adopting digital technologies, the financing strategies utilized to support digital initiatives, and case studies of successful digital initiatives in European primary schools.

## 1. Materials and Methods of Research

The research methods used in this study were carefully selected to achieve the research objectives: to examine the trends, challenges, and financing strategies of digital education in European primary schools. The comparative method compares the situation in different countries and identifies similarities and differences in their approaches to digital education. Analysis and synthesis are used to process and organize the information gathered from different sources, while induction and deduction are used to draw conclusions based on the data collected. Statistical data collection was employed to quantify the research findings, while the monographic method was used to study individual cases in more depth.

The data provided by the National Bureau of Statistics of the Republic of Moldova supplements and validates the research findings. By combining these research methods and data sources, the study provides a comprehensive and insightful analysis of the state of digital education in European primary schools.

## 2. Government Funding for Digital Transformation in Primary Schools

Primary schools in Europe are undergoing a digital transformation to keep pace with technological advancements and enhance the quality of education they provide. One of the

most common ways to finance this transformation is through government funding. European primary schools can apply for a range of government funding options, including federal and state grants, loans, and tax incentives. However, each funding program has its eligibility criteria, the application process, and reporting obligations.

The European Structural and Investment Funds (ESIF) is one such funding program available to EU member states to support economic, social, and territorial development (European Commission, 2015; Staehr & Urke, 2022). Schools can utilize specific funding streams within the ESIF framework to support their digital transformation efforts. For instance, the European Regional Development Fund (ERDF) can finance digital infrastructure development, while the European Social Fund (ESF) can support teacher and student skills development and training.

Another funding program is Horizon Europe, the EU's research and innovation funding program for 2021-2027 (European Commission, 2021b; SPINACI, 2021). This program offers specific funding streams, such as the Digital Innovation Hubs and the European Open Science Cloud, to support digital transformation in education.

The Digital Education Action Plan is a European Commission initiative that provides various funding opportunities, including calls for proposals and tenders, to promote digital innovation and improve digital skills and competencies in education (European Commission, 2021d; Muraille, 2020). Besides EU-level funding opportunities, European primary schools can also apply for grants from their national governments. For instance, the UK government offers the EdTech Demonstrator program, which provides funding and support for schools to adopt and implement technology-based teaching and learning practices (Department of Education, 2022).

Tax incentives are another funding option available to companies that invest in digital education initiatives in primary schools. France, for example, offers tax credits to companies that provide school equipment and training (Invest in France, 2022; Molchanova et al., 2020).

Each funding program has its eligibility criteria, which may include the level of need, type of school, intended use of funds, school's past performance, and collaboration with other schools and stakeholders (European Commission, 2021a). Therefore, schools need to carefully review the eligibility criteria to determine if they qualify for funding.

The application process for government funding can be complex and time-consuming, involving detailed proposals and financial reports. Schools need to carefully review the application requirements and deadlines to ensure their application is complete and timely. For instance, the application process for Erasmus+ funding involves submitting a detailed project proposal that outlines the planned activities, expected outcomes, and budget for the project (European Commission, 2021c). The application deadline varies depending on the specific funding stream and the applicant's country. ESIF funding applications generally involve a competitive bidding process, requiring schools to submit a detailed project proposal that outlines the planned activities, expected outcomes, and budget for the project.

In conclusion, primary schools in Europe can access various government funding programs to finance their digital transformation efforts. However, each funding program has its eligibility criteria, the application process, and reporting obligations that schools need to carefully review before applying. By doing so, schools can improve their chances of qualifying for funding and ensure their application is complete and timely.

### 3. Corporate Sponsorship for Digital Transformation in Primary Schools

Corporate sponsorships can be a valuable source of support for digital initiatives in primary schools (Giroux, 2011). Therefore, primary schools should research companies interested in supporting educational initiatives, particularly those focusing on technology and digital innovation. When researching potential sponsors, primary schools should look for companies with a history of supporting education and digital innovation. Here are some examples of companies in Europe that have a strong focus on education and digital innovation:

- *Apple*: Apple has a long history of supporting education, with programs such as "Everyone Can Code" and "Everyone Can Create" designed to teach students coding and digital creativity skills (Apple, 2018, 2019). The company has also provided funding and support to schools and educational organizations.
- *Google*: Google is another company that strongly focuses on education, with programs like "Google for Education" providing resources and support for educators and students (Google, 2023). The company has also provided funding and support to schools and educational organizations, particularly those focused on digital innovation.
- *Microsoft*: Microsoft has a program called "Microsoft Philanthropies" that provides funding and support for educational organizations and initiatives (Snapp, 2018). The company provides access to technology and digital skills training to underserved communities.
- *Vodafone*: Vodafone strongly focuses on digital innovation in education, with programs such as "Digital Creators" providing funding and support to schools working on digital projects (Manser, 2020). The company has also supported teacher training programs and initiatives to promote digital literacy.
- *Siemens*: Siemens is a company with a strong focus on technology and innovation and has supported various educational initiatives related to digital innovation. The company has provided funding and support for programs related to robotics, coding, and other digital skills (Siemens Stiftung, 2022).

When developing a proposal to secure corporate sponsorship for digital initiatives in primary schools, it is essential to focus on the benefits the initiative will provide students and the community.

Building relationships with potential sponsors is essential to securing corporate sponsorships for digital initiatives in primary schools. Here are some examples of ways that schools in Europe have built relationships with sponsors:

- *Attend industry events:* Primary schools can attend industry events related to education, technology, and digital innovation to meet potential sponsors and build relationships. For example, BETT (the British Educational Training and Technology Show) is a major annual event in London that brings educators, technology providers, and other stakeholders in the education sector (Bett, 2023).
- *Network with local businesses:* Schools can also build relationships with businesses interested in sponsoring their digital initiatives. This could involve attending local business events, contacting local business associations, or inviting local business leaders to school events.
- *Leverage social media:* Schools can use social media platforms like LinkedIn, Twitter, and Facebook to build awareness of their digital initiatives and engage with potential sponsors. By sharing updates on the initiative's progress, highlighting student success stories, and showcasing the initiative's benefits, schools can attract the attention of potential sponsors and build relationships over time.
- *Collaborate with existing partners:* Schools can leverage existing partnerships with other organizations, such as universities or non-profits, to build relationships with potential sponsors. By working together on joint initiatives or events, schools, and their partners can demonstrate the value of their work and attract new sponsors to the cause.

Offering recognition and benefits is essential to securing corporate sponsorships for digital initiatives in primary schools. Here are some examples of ways that schools in Europe have offered recognition and benefits to their sponsors:

- *Naming rights:* Schools can offer sponsors naming rights for their digital initiatives or specific programs or spaces within the school. For example, a school in the Netherlands named its digital classroom after a corporate sponsor in exchange for their support (Kerssens & Dijck, 2021).
- *Brand exposure:* Schools can offer sponsors brand exposure through various channels, such as signage, promotional materials, and social media. For example, a school in the UK worked with a sponsor to create branded materials for a coding club, which were then used to promote the club to students and parents (Dredge, 2014).
- *Exclusive access:* Schools can offer sponsors exclusive access to events or programs, such as workshops or professional development sessions. For example, a school in Germany partnered with a technology company to provide coding workshops for students, and the company was given exclusive access to the workshops (TU Berlin, 2022).
- *Public recognition:* Schools can publicly recognize their sponsors through press releases, newsletters, and other communication channels.

Overall, corporate sponsorships can be a valuable source of support for digital initiatives in primary schools. By researching potential sponsors, developing a compelling

proposal, building relationships, and offering recognition and benefits, schools can increase their chances of securing corporate support for their initiatives.

#### 4. Crowdfunding for Digital Transformation in Primary Schools

Crowdfunding has become a popular alternative financing strategy for primary schools looking to finance their digital initiatives. However, schools should choose a crowdfunding platform that aligns with their fundraising goals and target audience. Here are a few examples of crowdfunding platforms used in Europe:

- *Kickstarter*: Kickstarter is a popular crowdfunding platform used by European schools to raise funds for digital initiatives. For example, the "Micro:bit Educational Foundation" raised over £1 million to provide every Year 7 student in the UK with a Micro:bit, a pocket-sized computer that can be used for coding and other digital projects (micro:bit, 2023).
- *Indiegogo*: Indiegogo is another popular crowdfunding platform used by schools in Europe. One successful campaign was launched by "Code Club Italia," which raised over €16,000 to provide free coding classes for children in Italy (Indiegogo, 2023).
- *GoFundMe*: GoFundMe is a global crowdfunding platform popular with schools in Europe. For example, the "Elsley Primary School" in London raised over £30,000 to purchase new iPads and other digital equipment for their students (Elsley Primary School, 2023).
- *Ulule*: Ulule is a European crowdfunding platform particularly popular in France. One successful campaign was launched by the "Ecole de La Touche" in Nantes, which raised over €15,000 to purchase tablets and other digital equipment for their students (Picard-Gallart, 2019).
- *CrowdRise*: CrowdRise is a global crowdfunding platform popular with schools in Europe. One successful campaign was launched by "St. Francis of Assisi Catholic School" in Ireland, which raised over €16,000 to purchase new computers and other digital equipment for their students (Osili et al., 2021).

When developing a crowdfunding campaign for digital initiatives in primary schools, creating a compelling narrative that resonates with potential donors is essential. Schools can showcase their project's benefits, such as improved learning outcomes and increased access to technology, through engaging visuals and personal stories.

For example, the Finnish Association for Nature Conservation (FANC) launched a crowdfunding campaign in 2021 to raise funds for digital nature education in primary schools (Finnish Association for Nature Conservation, 2022). Their campaign included a short video that explained how the project would benefit students and showcased the beauty of Finland's nature. They also offered rewards for donors, such as digital nature guides and FANC memberships.



Similarly, a primary school in the UK launched a crowdfunding campaign on JustGiving to raise funds for iPads (Milligan, 2017). Their campaign included a video that showed students using technology in the classroom and testimonials from teachers and parents about the importance of digital tools for learning. They also offered rewards for donors, such as personal thank-you messages from students and invitations to school events.

Schools should set realistic fundraising goals based on the scope of their digital initiative and the size of their donor base. They should also consider the costs of running a crowdfunding campaign, such as platform fees and marketing expenses. Here are some examples from Europe:

- In 2019, a primary school in the UK called Bayton C of E Primary School launched a crowdfunding campaign on the platform GoFundMe to raise funds for their digital technology program (Busby, 2019). They set a realistic goal of £20,000, which they achieved through donations from parents, community members, and local businesses.
- In Spain, a primary school called CEIP La Palma launched a crowdfunding campaign on the platform Verkami to raise funds to purchase laptops for their students (Verkami, 2023). They set a goal of €3,000, which they achieved with the support of parents, teachers, and local organizations.
- In Germany, a primary school called Grundschule am Mühlenberg launched a crowdfunding campaign on the platform Startnext to raise funds to purchase tablets for their students (Startnext, 2023). They set a goal of €4,000, which they were able to achieve with the help of their local community.
- In France, a primary school called Ecole Saint-Martin launched a crowdfunding campaign on KissKissBankBank to raise funds to purchase interactive whiteboards (KissKissBankBank, 2023). They set a goal of €5,000, which they achieved through the support of parents, teachers, and local businesses.

Marketing the crowdfunding campaign is a crucial aspect of its success. Schools should use multiple channels to reach their target audience and promote their campaign.

Examples of successful crowdfunding campaigns in Europe include the "Digital Birds" project in Austria, which raised over €20,000 on Kickstarter to provide primary school students with interactive digital birdhouses (Kickstarter, 2023), and the "Digitale Lernkisten" project in Germany, which raised over €28,000 on Startnext to provide digital learning kits to schools (Startnext, 2023). Schools can incentivize donations by offering perks, such as exclusive access to events or branded merchandise. They should also offer recognition and benefits to more prominent donors, such as naming rights or sponsorships. Here are some examples from Europe:

- *Name a classroom or facility after a donor:* Schools can offer to name a classroom or other facility after a donor who contributes a certain amount of money. For example, a primary school in the UK offered to name their new science laboratory after donors who gave at least £5,000 to their crowdfunding campaign (Perlstein, 2013).

- *Exclusive access to events:* Schools can offer exclusive access to events such as a student showcase or technology exhibition to donors who contribute a certain amount of money. For example, a primary school in Germany offered donors who contributed €500 or more the opportunity to attend a technology showcase where students demonstrated their digital skills (EACEA National Policies Platform, 2022).
- *Branded merchandise:* Schools can offer branded merchandise such as T-shirts, hats, or water bottles to donors who contribute a certain amount.
- *Sponsorship opportunities:* Schools can offer sponsorship opportunities to more prominent donors.
- *Recognition in school materials:* Schools can recognize donors in school materials such as newsletters or yearbooks.

Crowdfunding can be a powerful tool for primary schools looking to finance their digital initiatives, but it requires careful planning and execution to be successful.

## 6. Grant Funding for Digital Transformation in Primary Schools

Grant funding is a form of financial support provided by governments, private organizations, and philanthropic foundations to support specific projects or initiatives. Grant programs for schools looking to finance digital initiatives are available in many European countries.

The Erasmus+ Programme is a popular funding source for digital initiatives in European primary schools (European Commission, 2021). Here are some examples of schools that have received funding through this program (EU Monitor, 2021):

- *Bambini Montessori School (Netherlands):* This primary school received Erasmus+ funding to develop a digital game that teaches children about the importance of sustainable living. The game was designed to be used in the classroom and at home.
- *St. Michael's School (United Kingdom):* This primary school received Erasmus+ funding to develop a digital learning platform that uses virtual reality to enhance learning in science, technology, engineering, and mathematics (STEM) subjects.
- *Scoil Mhuire gan Smál (Ireland):* This primary school received Erasmus+ funding to establish a digital makerspace where students can learn about coding, robotics, and other digital skills.
- *Ecole des Coteaux (France):* This primary school received Erasmus+ funding to develop a digital literacy curriculum for students with special educational needs. The curriculum includes interactive games, videos, and other resources to engage and motivate students.



These examples demonstrate the diverse range of digital initiatives that can be funded through the Erasmus+ Programme, from sustainable living games to virtual reality learning platforms to makerspaces and digital literacy curricula.

The European Regional Development Fund (ERDF) is a funding program that aims to reduce regional disparities and promote balanced development across the European Union (European Commission, 2023a). The ERDF supports various projects that contribute to regional development, including digital school transformation (European Commission, 2023b).

For example, in Spain, the ERDF has supported the development of digital infrastructure and integration technology into education through various projects. One such project is the Digital Education Plan, which aims to improve the quality of education in the Valencian Community through technology. In addition, the ERDF has provided funding for developing digital learning resources and training teachers in digital competencies.

Similarly, in Romania, the ERDF has supported integrating digital technology in schools through the e-Smart School project. This project aims to develop a smart school network that uses technology to enhance teaching and learning. The ERDF has provided funding for the development of digital infrastructure, the acquisition of digital equipment, and the training of teachers in digital competencies.

In Italy, the ERDF has supported the development of digital skills and competencies in schools through the Digital Schools project. This project aims to equip schools with digital infrastructure and tools to support innovative teaching and learning. The ERDF has provided funding for the development of digital learning resources, the training of teachers in digital competencies, and the acquisition of digital equipment.

The ERDF provides a critical funding source for schools looking to finance digital initiatives and promote regional development through technology.

Digital Schools Award is a program funded by the European Commission that aims to support and promote the integration of digital technologies in primary and secondary schools across Europe (Digital Schools Awards, 2023a). The program offers funding opportunities for schools to develop digital transformation projects and provides support and resources to help teachers and students develop their digital skills.

One example of a school that has received funding from Digital Schools Award is the Pierre et Marie Curie Elementary School in France (Digital Schools Awards, 2023b). The school received a grant to develop a digital literacy program to teach students how to use digital tools and technologies responsibly and safely. The program included training for teachers, the development of educational resources, and the implementation of a digital citizenship curriculum for students.

Another example is the "iClass" project at the Gjøvikregionen Primary and Lower Secondary School in Norway, which received funding from Digital Schools Award (Digital Schools Awards, 2023b). The project aimed to use digital tools and technologies to enhance teaching and learning, improve communication and collaboration between teachers and students, and promote the development of digital skills among students. The

project involved using tablets, interactive whiteboards, and other digital tools in the classroom and training teachers on integrating technology into their teaching practices.

Overall, Digital Schools Award provides a valuable resource for schools looking to finance and implement digital transformation projects. The program offers funding opportunities and support for developing digital skills, helping ensure that students are equipped with the skills and knowledge needed to thrive in the digital age.

Horizon 2020 was the most extensive EU research and innovation program, with a budget of around 80 billion euros over seven years from 2014 to 2020 (European Commission, 2023d). It is open to organizations of all sizes and sectors, including schools, universities, and other educational institutions. Some examples of digital transformation projects that have received funding through Horizon 2020 include the following (European Commission, 2023c):

- *eCraft2Learn*: This project aimed to create an online platform for collaborative learning in digital fabrication and programming. The project received over 3 million euros and involved a consortium of European partners.
- *Smart-AKIS*: This project aimed to create a network of digital innovation hubs to support adopting smart farming technologies in Europe. The project received over 5 million euros in funding and involved a consortium of partners from nine European countries.
- *WeNet*: This project aimed to develop a social media platform using machine learning to help users build more robust, diverse social networks. The project received over 4 million euros in funding and involved a consortium of partners from Italy, Spain, the Netherlands, Germany, and the UK.
- *5G-MEDIA*: This project aimed to develop new media services and applications for 5G networks. The project received funding of over 6 million euros and involved a consortium of partners from across Europe, including academic institutions, technology companies, and broadcasters.

When applying for grant funding for digital initiatives, schools should carefully review each program's eligibility criteria, the application process, and reporting requirements to ensure that they meet the requirements and can comply with the program's requirements. They should also develop a compelling proposal that clearly outlines their digital initiative and its impact on their students and the community.

## 7. Partnering with Technology Companies for Digital Transformation in Primary Schools

Partnering with technology companies can be an excellent way for schools to access the latest technology and resources for their digital initiatives. Here are a few examples of successful partnerships between schools and technology companies in Europe:

- *Microsoft and the University of Sheffield*: The University of Sheffield partnered with Microsoft to create a digital literacy program for students in the city (Clark

& Simpson, 2020). The program provided students with access to digital tools and resources and training and support for teachers. The partnership also involved the development of a digital skills program for teachers to help them integrate technology into their teaching.

- *Apple and The Netherlands*: In the Netherlands, Apple partnered with a group of primary schools to provide them with iPads and other digital resources (Loohuis, 2020). The program aimed to enhance the learning experience for students by providing them with access to digital tools and resources. The partnership also involved the development of a teacher training program to help educators integrate technology into their teaching.
- *Google and the UK*: Google has partnered with some schools and educational organizations in the UK to provide them with technology and resources (Google for Education, 2023). The company has provided schools with access to Google Classroom, Chromebooks, and other digital tools. The partnership has also involved the development of teacher training programs to help educators integrate technology into their teaching.
- *Samsung and Germany*: Samsung partnered with a school in Germany to provide them with tablets and other digital resources (Google for Education, 2023). The program aimed to improve the learning experience for students by providing them with access to digital tools and resources. The partnership also involved the development of a teacher training program to help educators integrate technology into their teaching.

In each of these examples, the partnerships between the schools and technology companies involved providing digital tools and resources and training and support for teachers. The partnerships were designed to enhance students' learning experience and help teachers integrate technology into their teaching.

## 8. Community Fundraising for Digital Transformation in Primary Schools

Community fundraising can be an effective way for primary schools to raise funds for their digital initiatives while engaging with their local community (Body, 2017). Here are some examples of successful community fundraising campaigns in Europe:

- *Tech4All (Tech4All, 2023)*: A primary school in London launched a Tech4All campaign to raise £10,000 to purchase new iPads and laptops for their students. The school engaged with the local community by hosting a charity auction and raffle and partnering with local businesses to offer incentives for donations. As a result, the campaign raised over £11,000, and the school was able to purchase new technology for their students.
- *EdTech Playground (European Commission, 2022)*: A primary school in Belgium launched an EdTech Playground campaign to raise funds for developing a new digital learning center. The school engaged with parents, local businesses,

and community organizations to promote their campaign and offered rewards for donations, such as personalized thank-you notes and exclusive access to the learning center. As a result, the campaign raised over €25,000, and the school created a state-of-the-art digital learning space for their students.

- *Digital Classroom (O'Reilly, 2022)*: A primary school in Dublin launched a Digital Classroom campaign to raise funds for integrating technology into teaching and learning. The school engaged with the local community by hosting a sponsored walk and partnering with local businesses to offer incentives for donations. As a result, the campaign raised over €10,000, and the school was able to purchase new technology and training resources for their teachers.

In these examples, the schools successfully engaged with their local communities to raise funds for their digital initiatives. In addition, by offering incentives and partnering with local businesses and organizations, they generated support and enthusiasm for their campaigns.

## 9. Public-Private Partnerships for Digital Transformation in Primary Schools

Public-private partnerships (PPPs) can effectively finance the digital transformation of primary schools by leveraging the resources and expertise of both the public and private sectors. PPPs involve the collaboration of public entities such as schools and local governments with private organizations such as technology companies, foundations, and financial institutions.

The Dutch Ministry of Education and Cisco partnership is a successful example of a PPP for school digital transformation (CISCO, 2017). The partnership began in 2012 to create a digital learning environment for primary and secondary schools in the Netherlands. The partnership is part of the broader Dutch education strategy to promote digital learning and improve the quality of education.

Cisco provides the technology and expertise needed to create the digital learning platform, which includes tools for digital collaboration, e-learning, and data analysis. The platform is designed to be flexible and scalable, allowing schools to customize it to meet their specific needs. In addition to providing technology, Cisco also offers training and support to teachers and school administrators to help them effectively use the platform.

The Ministry of Education provides funding and guidance to ensure that the platform meets the needs of Dutch schools. In addition, the ministry works closely with Cisco and other stakeholders to develop a vision for digital learning in the Netherlands and to set priorities for the platform. The ministry also ensures that the platform is accessible to all schools, regardless of size or location.

The partnership has been successful in improving digital learning in Dutch schools. The platform is currently used by over 80% of primary and secondary schools in the Netherlands. As a result, teachers and students have access to a wide range of digital tools and resources, which have helped to improve teaching and learning outcomes. The partnership has also helped to build a strong community of educators and technology

experts who work together to continuously improve the platform and promote digital learning in the Netherlands.

PPPs can take many different forms and can be structured in various ways depending on the needs and goals of the stakeholders involved. By leveraging the resources and expertise of both the public and private sectors, PPPs can provide a sustainable and effective way to finance the digital transformation of primary schools.

## 10. Leasing and Financing Options for Digital Transformation in Primary Schools

Leasing and financing options are popular ways for schools to acquire technology and other resources without paying the full cost upfront. For example, equipment leasing allows primary schools to acquire the necessary technology without paying the full cost upfront. Instead, the school pays a monthly or annual fee to lease the equipment for a fixed period. At the end of the lease term, the school can return the equipment, renew the lease, or purchase the equipment at a discounted price. The advantage of equipment leasing is that it allows schools to acquire the technology they need without paying the full cost upfront, and they can upgrade to newer technology at the end of the lease term. The disadvantage is that the school will pay more in the long run due to interest and fees. Here are some examples of equipment leasing options available in Europe:

- *Dell Financial Services (DELL Technologies, 2023)*: Dell Financial Services offers equipment leasing options for schools and other European organizations. They provide flexible payment terms and customized leasing options to meet the specific needs of schools.
- *Grenke (GRENKE, 2023)*: Grenke is a European leasing company that provides solutions for technology equipment, including laptops, tablets, and other devices needed for digital transformation in schools. They offer flexible payment terms and customized leasing solutions to meet the needs of schools.

Financing allows schools to borrow money to purchase the technology they need. The school will make monthly or annual payments to repay the loan, typically with interest. The advantage of financing is that the school owns the technology outright and can use it as they see fit. The disadvantage is that financing can be expensive, especially if the school needs better credit.

One example of financing for primary school digital transformation in Europe is the "EdTech Innovation Fund" in the UK (Nesta, 2023). This is a financing program designed explicitly for education technology companies and schools. The program provides funding to schools to purchase technology and software from EdTech companies to promote the use of technology in teaching and learning. The UK government and private investors fund the program.

Another example is the "EIB Education and Digitalization Facility" in the European Union. This financing program funds schools and other educational institutions to invest in



digital infrastructure, software, and hardware. The program is funded by the European Investment Bank (EIB) and aims to support the digital transformation of education across the EU (European Investment Bank, 2023). Schools can apply for loans at favorable interest rates and flexible repayment terms.

Lease-purchase agreements allow schools to lease equipment with the option to purchase it at the end of the lease term. The advantage of lease-purchase agreements is that they allow schools to acquire the technology they need without paying the full cost upfront, and they can own the equipment at the end of the lease term. The disadvantage is that the school will pay more in the long run due to interest and fees.

## 11. Recommendations for Moldovan Primary Schools

In the academic year 2022-23, primary and general secondary education enrolled 334.5 thousand students, a decrease of 0.6% compared to the previous academic year (Mazur, 2022). Regarding gender and place of residence, 51% of students are male, and 55.1% of students study in urban areas. Regarding the distribution of the number of students by territorial profile, at the regional level, 30.2% of the total students were enrolled in primary and general secondary education institutions in Chisinau, 27.6% in the Center region, 24.4% in the North region, 12.6% in the South region, 4.7% in Gagauzia, 0.5% in Transnistria and Bender municipality, under the Ministry of Education and Research.

In the academic year 2022-23, there were 1218 primary and general secondary education institutions (13 less than in the previous year), including 92 primary schools, 781 secondary schools, 336 high schools, seven schools for children with intellectual or physical disabilities, and two evening schools.

Primary and general secondary education institutions have 40.5 thousand computers used for educational purposes (an increase of 9.5% compared to the academic year 2021/22), of which 18.6 thousand (45.9%) are connected to a common school network, and 35.0 thousand (86.4%) have an internet connection. At the same time, 22.2 thousand computers are used by students, 17.2 thousand by teaching staff, and 1.1 thousand computers are used in libraries. Compared to the academic year 2021/22, the number of computers used by both students (10.4% increase) and teaching staff (8.2% increase) has increased.

According to a report by the European Training Foundation, the Republic of Moldova has made progress in integrating digital technologies into education (Rajasekaran, 2022). However, the report also notes that significant challenges still need to be addressed.

One of the main challenges identified in the report is the need for more infrastructure and equipment in schools. Many schools in the Republic of Moldova need access to modern technology or the internet, which limits their ability to incorporate digital technologies into teaching and learning.



Another challenge is the need to improve digital competencies among teachers. For example, the report notes that many teachers in the Republic of Moldova need more skills and knowledge to integrate digital technologies into their teaching effectively.

Despite these challenges, there are some positive developments in digital education in the Republic of Moldova. The government has introduced several initiatives to support digital education, including the Digital Curriculum project, which aims to integrate digital technologies into all subjects in the national curriculum. Additionally, the country has received support from international organizations, such as the European Union, to improve digital infrastructure and promote digital skills among teachers and students.

In this paper, we put forward some recommendations for primary schools in Moldova regarding their financing strategies:

- *Explore government funding opportunities:* Moldova's Ministry of Education offers school funding opportunities. Schools should explore these options and apply for funding that can be used to finance their digital transformation.
- *Look for partnerships with technology companies:* Schools should look for partnerships with companies that can provide them with the necessary technology. For example, they can partner with local technology companies or global technology giants such as Microsoft, Google, or Apple.
- *Community fundraising:* Community fundraising can also be an effective way for schools to finance their digital transformation. Schools can organize fundraising events involving parents, local businesses, and other community members to donate to digital transformation.
- *Leasing and financing options:* Schools can also explore leasing and financing options to acquire the necessary technology without paying the full cost upfront. They should compare the options available and choose the one that works best for them.
- *PPPs:* Public-private partnerships can be another way for schools to finance their digital transformation. Schools can explore partnerships with private companies or organizations to develop digital solutions and infrastructure that benefit both parties.

Overall, schools should develop a comprehensive financing strategy combining different options to ensure they can acquire the technology they need to provide high-quality education to their students.

## Conclusions

Integrating digital technology in primary schools is becoming increasingly important today, where technology is an integral part of daily life. The Republic of Moldova has made significant progress in this area, with most primary schools having access to computers and internet connectivity. However, there is still a need for further investment in

digital infrastructure and teacher training to ensure that students receive high-quality digital education.

Various financing strategies are available for schools to acquire digital equipment, including grants, leasing, financing, and lease-purchase agreements. Each option has advantages and disadvantages, and schools must carefully consider their financial situation and goals before deciding.

Furthermore, it is essential to consider the distribution of digital infrastructure across different regions and school types and the gender and urban-rural disparities in student enrollment. Addressing these inequalities is crucial to ensure that all students have equal access to digital education and can benefit from its opportunities.

Overall, the successful implementation of digital education in primary schools requires a multi-faceted approach, including investment in infrastructure, teacher training, and careful consideration of financing strategies. By prioritizing these areas, the Republic of Moldova can continue to make progress in providing high-quality digital education to its primary school students.

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