GO-TO-MARKET STRATEGY FOR MERSYS EUROPE TO ENTER THE EDUCATIONAL SECTOR IN KAZAKHSTAN

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Abstract

In the rapidly advancing digital era, education and training have transcended the confines of the conventional classroom. The emergence of EdTech platforms, which leverage electronic technologies to deliver educational content beyond traditional classroom boundaries, has revolutionized global learning and skill development. German-based company Mersys offers educational institutions its own solution to ease the process of education with the Campus learning management system (LMS). Mersys focuses on offering worldwide access to top-tier education, with a particular emphasis on emerging markets. Being already present in Kazakhstan, particularly in schools of Astana, Mersys wants to increase its share in other regions of the country too. The main question that arises though is why Mersys is not selling well. If Kazakhstan is an attractive space to operate in, what go-to-market strategy should the company choose for expansion? The aim of this study is to help Mersys identify Campus' competitive advantage, define its customer segment, and determine the pricing strategy to grow across the Kazakhstan educational market. Furthermore, it is necessary to determine whether Mersys should enter the market on its own or through a distributor, whose responsibility is to be in charge of sales and provide servers. Key findings of primary and secondary data showed that Kazakhstan can be considered as a moderately attractive market with high barriers of competition and strong power of

customers, yet relatively moderate obstacles to enter. Also, it is a common practice in schools and other educational centers to use several other EdTech platforms. Analyses of competitors revealed that among local widely used LMS and student information system companies, the admissions module is underserved. Pricing analysis revealed the recommended minimum price and benefits of entering the market with a partner, while also helping to determine the pricing strategy for both short-term and long-term phases.

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1. Introduction of company and project background

Mersys was established in 2018 in the United States. The company created Campus, a cloud-native learning management system that provides services for educators, students, and administrators all in one unified platform. Their objective is to provide global access to high-level education, with a special emphasis on emerging markets. Countries that are referred to as emerging markets are experiencing considerable economic growth and are transitioning from the developing to the developed economy phase. The fundamental value offered by Mersys lies in making online education affordable, easily accessible, and user-friendly for students, instructors, and educational establishments. Their platform is designed to incorporate all types of learning formats, such as online, offline, synchronous, asynchronous, hybrid and blended. Mersys' primary focus involves catering to the B2B sector by collaborating with secondary K-12 schools within both public and private domains, as well as organizations that provide vocational training for their employees.

Teachers can set up and run both classroom and online courses using Campus, while also having freedom to offer stand-alone courses, or courses that are part of a blended learning program. Students may choose to enroll in one or more courses according to the availability of dates. Assignments can be given in a wide range of

formats, including video, audio, and text files, while students can submit their assignments both by uploading files and writing information directly in the platform. Transfer of grades is automated, since the assignment and grading systems are linked. Parents can track the progress of their children and monitor their performance, in addition to conducting administrative operations like making payments or communicating with their child's instructors.

Another important feature of the platform is handling of the admissions process, which can be streamlined through collection, management and storage of student related information. Furthermore, the LMS has a specific module, which allows users to create syllabi, lesson plans, coursework, and assessment tools. Among Campus' other features is an automated creation of timetables using artificial intelligence (AI). The built-in video conferencing includes such features as multi-user whiteboard, chat, polling, breakout rooms, shared notes, hand rise, video share, screen share, and document upload. Campus stores the video recordings directly on its platform.

1. Research question

Currently, Mersys is present in both Pakistan and Kazakhstan markets with a lion's share of revenue streams coming from the private secondary K-12 school

market of Pakistan. In Kazakhstan, the company has some experience working with schools but wants to increase its presence in the region. Mersys employs multiple factors to determine their selection of new markets. First of all, the target market should be both emerging. Furthermore, a crucial criterion involves a substantial level of computer and digital literacy within the populace. The presence of sufficient internet coverage is also essential. Kazakhstan has been identified as a fitting candidate that meets all these requirements. Oman and Qatar are also being contemplated as potential options. Up until now, the best practices of entering new markets were through the power of the network and personal ties of Mersys executives. This system lacked systematic and strategic approach, that is why a central objective is to devise a more structured approach for a comprehensive go-to-market strategy, including pricing strategy. It is also crucial for Mersys to properly assess its resources to determine whether they should operate in the market on its own or through a distributor.

2. Methodology

In order to get a better understanding and analyze the problem, both primary and secondary data collection methods were used. Primary data collection included qualitative research methods. In particular, three in-depth interviews were conducted with principals of schools, who decide which edtech platform to be used and to what

extent. These interviews provided detailed information on the perception and experience of LMS and other EdTech platforms. Among the interviewees were Damir Balmassov, former director of studies in Nurorda, Baurzhan Shaikhin, CEO of Astana Garden School, and Yerzhan Omirkhanov, Republican specialized secondary boarding school named after Abay, with an in-depth study of the Kazakh language and literature for gifted children. Summaries of the conversations are provided in the Appendix B. Another research method to gather information was cold calling while studying potential segments of language learning centers, IT schools, and other preparation centers. In particular, this method was used to get insights on what platforms or software programs are used at supplementary education sectors.

Additional methodological approaches included use of conceptual frameworks such as PESTEL, Porter's Five and VRIO analyses. These frameworks unveiled and highlighted factors that played an important role in data collection, assessment of results, formulating theories and recommendations based on the macroenvironment situation, characteristics and competitiveness of the industry. Furthermore, competitors' analysis was conducted to identify customers' pain points that are successfully addressed by prominent players in the industry. For this purpose, competitive advantages, pricing models, customers and unique features of

other EdTech companies were studied. These findings are summarized in Table 2 and Table 3. Secondary data included articles and reports on the subject. Google Scholar, Statista, World Bank and other websites were of tremendous help in gathering visual and other forms of information.

3. External and Internal Situation Analysis

3.1 PESTEL analysis

To assess macro environment and how political, economic, sociocultural, technological, environmental, and legal factors can impact EdTech businesses, PESTEL framework has been used. The findings are presented in Table 1. This analysis helped to identify potential risks and opportunities from external factors, so Mersys could effectively mitigate the former and capitalize on the latter.

Table 1. PESTEL analysis results.

Factor	Local, National or Global Findings	Implications	Opportunity/Threat
Political	Kazakhstan's government has initiated a state programme to financially support public schools and has taken actions to boost the development of ICT infrastructure.	While government policies and regulations are complex and dependent on the cultural and economic context, all of them are aimed at helping to	Opportunity

		develop the EdTech sector.	
Economic	While the economic growth varies from country to country, Kazakhstan is experiencing GDP growth.	With the growth of economy and GDP, the total government spending on education also increases.	Opportunity
Sociocultural	Post-pandemic online learning trends continue to experience a high demand for digital content and courses.	The demand for online education is higher than ever.	Opportunity
Technological	Artificial intelligence, virtual reality, and adaptive learning algorithms are revolutionizing the EdTech industry, while such concerns as data security and privacy still persist.	While the technological factors create a favorable environment for the EdTech development, it is also important to address the cybersecurity and data protection concerns.	Opportunity
Environmental	There are reports that show both positive and negative impact of the EdTech industry on the environment.	Sustainable solutions are needed to minimize the environmental impact.	Opportunity
Legal	Key legal issues revolve around such topics as data privacy and security, intellectual property, human resources, liability for user-generated content, political risk, and ethical concerns.	The EdTech companies' success is significantly dependent on the legal regulations, which should be closely monitored. Partnerships with government entities must be maintained.	Opportunity

Political

The EdTech industry is directly influenced by government policies and regulations. Strong government policy towards developing the educational sector as

well as the technological environment plays a key role in the sustainable development of a country.

For instance, the government of Kazakhstan has initiated a state programme to financially support public schools. The JSC Financial Center covers the payments of the educational process, e.g. salary fund, utility payments, and purchase of equipment, as well as payments for amortization, e.g. construction of a new school or reconstruction of a building for a school (Vecher.kz, 2023). The growth of public schools increases the need for EdTech platforms and tools to be applied in the learning process.

In 2017, the state program, called "Digital Kazakhstan", was implemented to boost the development of ICT infrastructure, e-government and technological entrepreneurship. Additionally, the government established Astana Hub, an international IT startup hub and center of the innovation ecosystem. Advantages for companies working within Astana Hub, especially from the perspective of foreign investors, include common law jurisdiction, corporate and personal income tax exemption, as well as simplified working visa.

Economic

It is indisputable that the EdTech industry is affected by economic factors such as the availability of funding and the state of the economy. According to data gathered by the World Bank, the economy of Kazakhstan grew by 5.1% in the first half of 2023, primarily due to exports and fiscal stimulus. The influx of Russian migrants also contributed to the growth by bolstering domestic demand. In June 2023, there was an increase of over 20% in the number of new businesses registered (World Bank report, 2023).

With the economic growth and increase of GDP, the total government spending on education increases as well. Therefore, schools may have more money to spend on additional tools and softwares, which can positively impact the industry.

Sociocultural

It is evident that COVID-19 has significantly contributed to online education. As online education remains relevant even after the pandemic, and more students are enrolling in online courses, higher education institutions are expected to increase their online program offerings to meet the growing demand. Additionally, these institutions may shift their focus towards utilizing more online learning solutions.

This factor represents a tremendous opportunity for EdTech companies. However, the resistance to adopting technologies among older generations remains and creates barriers to the use of technological tools.

Technological

Technology makes possible personalized learning experiences that cater to individual student needs and preferences. Technological breakthroughs, such as AI, virtual reality, and adaptive learning algorithms can further revolutionize EdTech offerings. However, the industry also needs to address data security and privacy concerns as more and more education becomes digital.

Kazakhstan is not an exception and its embrace of the rapidly evolving EdTech industry can be illustrated by the third annual EdTech forum "Transition to the Future" that took place from July 1 to 3, 2021 as part of the event called Astana Finance Days. It consisted of six panel sessions, including "The missing middle in the transition to the education of the future," "Life skills in the digital world," and "Innovative schools: How to build schools of the future?". The Kazakh government's focus is on digitization of economic sectors, development of high-

speed and secure communication networks and IT infrastructure across the country, and increasing digital literacy.

It's a universal trend across the world to dedicate a lot of resources to the development of the EdTech industry in light of the continuous advances in technology. As transition towards digital education is becoming more prominent, it is also important to address the challenges that arise with it, first and foremost cybersecurity and data protection. All of this presents an unprecedented opportunity to capitalize on the global demand for innovations in EdTech, which are made possible by many highly favorable technological factors.

Environmental

The relationship between the environment and the EdTech industry has not been extensively researched. However, there are some findings that show a positive impact that EdTech innovations can have on the environment. For example, online learning can reduce fuel usage for campus learning, as students can learn remotely, never leaving the comfort of their home while also avoiding vehicles and local roads. Distance learning courses, including online education, resulted in an 89 percent reduction in travel-related emissions over full-time onsite courses (NWF, 2012).

Conversely, there are also concerns about the negative impact as well, specifically regarding the energy consumption of data centers and servers that support online learning.

As with any new technology, the well-being of the planet is paramount and sustainable solutions must be searched for to reduce the environmental impact. Whether the EdTech's negative impact outweighs the positive one remains to be seen. Since the subject is not well-researched yet, the so-called gray area presents vast opportunities to become pioneers and capture the lucrative market by addressing these problems.

Legal

The EdTech industry is in a state of rapid growth and thus there are multiple legal factors that need to be taken into account. Some of the key legal issues revolve around such topics as data privacy and security, intellectual property, human resources, liability for user-generated content, political risk, and ethical concerns.

Since the industry is constantly evolving, so do the regulations. New market entrants should always keep an eye out for the government's activities pertaining to

the EdTech industry. Although some of the regulations might hinder growth of the EdTech companies, the overwhelming stance on the issue is positive and governments across the world are greatly interested in funding and creating favorable conditions for the industry development.

To summarize the findings across all factors, the EdTech industry is experiencing growth and transformation in Kazakhstan, with government support, economic factors, and technological advancements playing significant roles. Overall, these factors in Kazakhstan represent opportunities for EdTech companies to enter the market. However, there are some barriers which don't allow existing players to grow significantly and may prevent others, including Mersys, from approaching the market. These barriers include challenges such as low-income level, resistance to adopt new technologies or to transition from one platform to another.

3.2 Porter's Five Forces

Industry attractiveness was assessed with the help of Porter's Five Forces framework. In particular, the analysis is aimed to examine forces that drive the industry and affect the level of competition. Mersys can decide whether to enter the

industry and learn how they can enhance and strengthen its competitiveness, based on the findings.

Competition in the industry: High.

The industry is highly competitive, with many companies offering similar products and services. The LMS industry in Kazakhstan can be described as an oligopoly market with two leading local players, namely Bilim Land and Kundelik. However, in addition to these platforms, there are several international companies operating in the market. This fierce competition leads to price wars, constant need for frequent product updates, and marketing battles, which, in turn, results in a reduced profitability for the EdTech companies.

Potential of new entrants: Moderate to high.

The entry barrier has been lowered by the increasing ease of creating new digital products. Although there is a need for investments in marketing and continuous service development, new companies seem to only need a small team to successfully start offering their product on the market.

Bargaining power of suppliers: Low to moderate.

Suppliers range from content providers and software developers to cloud service providers. Abundance of choice in suppliers leads to lower bargaining power, although it is also dependent on how unique an offered service is.

Bargaining power of customers: High

Schools, universities, teachers and students have a wide range of products and services available to them, so they can easily choose what company to partner with, often deciding to use combined solutions, offered by many different service providers. Free or open-source educational resources are becoming increasingly available as well, which further adds to their bargaining power. Examples of such platforms include Khan Academy, Coursera, MIT OpenCourseWare, Wikibooks, Project Gutenberg, GitHub, Duolingo, Internet Archive, Harvard Online Courses and others. Also, switching costs are high due to the complicated nature of the process of transition from one platform to another.

Threat of substitute products: Moderate

In the increasingly digital and technologically advanced world, the need for more affordable education is stronger than ever. Which is why a traditional face-to-face education is not a great substitute and does not pose a significant threat. However, the aforementioned free and open educational resources could potentially

deprive LMS and student information system (SIS) platforms of some of their market share.

Overall, it can be said that the industry is moderately attractive. As the EdTech industry in Kazakhstan is relatively new and has a limited number of players, it makes rivalry a bit less intense compared to the world market. The entry barrier is also lower, as a result. Nevertheless, competition in the industry is high, as well as the bargaining power of customers. It is also crucial to note that many users are not particularly tech-savvy and digitally literate to easily adopt EdTech innovations, which leads to a certain level of resistance and creates a need for more user-friendly platforms.

3.3 Overview of the global EdTech industry

The global revenue in the Online Education segment will reach US$166.6 billion in 2023. A global comparison showed that the U.S. is forecasted to generate US$74.8 billion in 2023. The U.S. was followed by China, the generated revenue of which will amount to US$45.7 billion in 2023. As can be seen from Figure 1, EdTech start-up funding rose approximately 3 times that of pre-pandemic levels, with the

U.S. and EU surges compensating the significant EdTech funding shrinkage in China (Statista Digital Market Insights, 2023).

Figure 1. Global education venture capital funding in US$ billion since 2010.
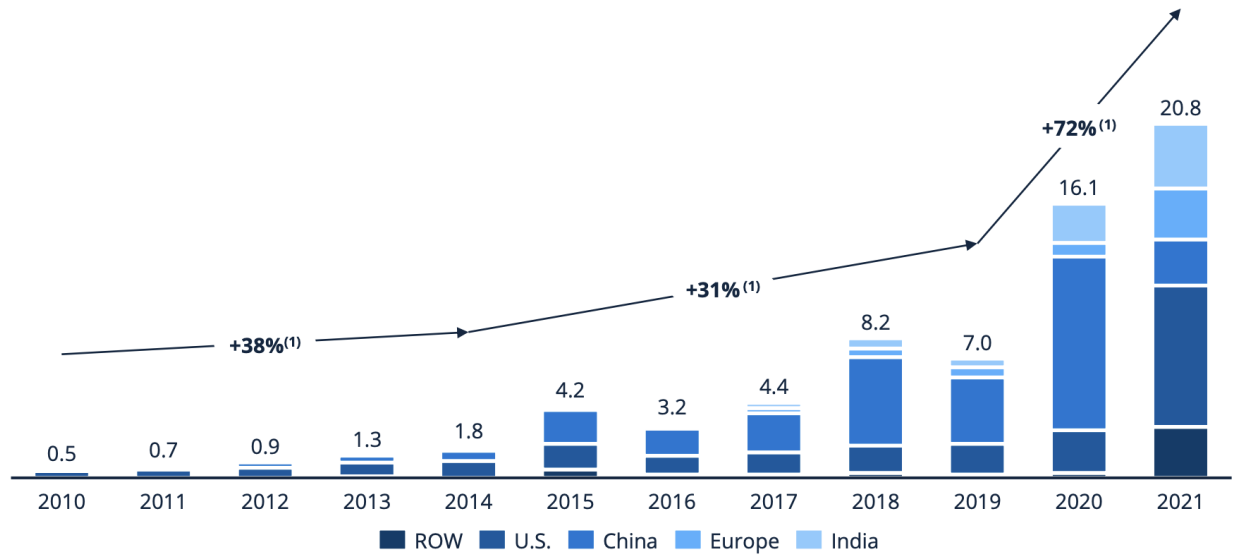
U.S., Canada, Australia, and the UK constitute the lion's share of 80% of the generated revenues in the Online University Education sector, which is likely to be due to high tuition fees. As for the Online Learning platform segment, China dominates the sector with a high number of online tutoring and language learning platforms. With many companies beginning to partner with universities and governments, the rise in popularity of smaller alternative credentials instead of four-year university degrees can further facilitate the global shift to online learning. In addition, the increasing trend in the use of gamification is making online educational platforms more interactive and engaging for learners. Similarly, the growing trend of AI helps to make the learning process more personalized.

One can simply look at the evidence collected by the Assignment Report, which provides a monthly round-up of EdTech deals, investments, acquisitions, and market trends,to see that the EdTech industry is a rapidly developing multibillion dollar global industry. According to HolonIQ, a company that tracks and forecasts the EdTech market, global spending on EdTech will reach US$404 billion by 2025, with venture capital investing at pace to seize the opportunity for future financial returns (HolonIQ, 2021). The same company has also reported that more than 30 private EdTech companies have become 'unicorns', with the majority of them reaching this status after receiving investment just two years ago in 2021 (HolonIQ, 2022).

The global Big Tech companies, such as Google, Microsoft, Apple, and Amazon, began expressing interest in EdTech a long time ago. Google Workspace for Education and Google Classroom has a multimillion reach, and the quickly developing AI features make those products even more impactful on the educational institutions. Amazon Web Services (AWS) acts as the digital backbone to much of the EdTech industry, by ensuring their access to the back-end cloud infrastructure required by the EdTech firms for the purposes of computing power, data storage,

and analytics. Microsoft and Apple products and services are present in classrooms worldwide as well (Williamson, 2022).

LMS platforms that are listed in Table 2 serve diverse clients, including K-12 schools, higher education institutions, corporate training, government organizations, and more. Some focus on specialized niches, such as IB schools. The pricing models offered by these platforms are equally diverse, ranging from open-source options to subscription-based services, catering to institutions with varied budget constraints. All the information was taken from the companies' websites.

Table 2. Global EdTech industry players overview.

LMS	Competitive Advantage	Exact Price	Weakness	Customers
Blackboard	Easy-to-use, connects with SIS and authentication procedures.	Varies by institution size and needs	Complex interface, limited customization, expensive	B2B: K-12, mainly higher education institutions, government
Canvas	Cloud-based, adaptable, connects with Google Apps and other applications, user-friendly	Varies by institution size and needs	Limited reporting, slow updates, glitches	B2B, mainly K-12 and higher education institutions, also corporate/further education

Edupage	Simple, inexpensive, works with Microsoft Teams and Google Classroom	KZT200,000 tenge per year subscription (regardless of number of students)	Limited features, poor customer support, bugs	B2B, mainly K-12 schools, vocational trainings, colleges
ManageBac	Integrates with Turnitin and other tools	US$8-15 per student annually	Expensive, steep learning curve, slow performance	Various international schools
Moodle	Open-source, customizable, scalable, supports SCORM and other standards	Free for self-hosting or US$80-500 per month for MoodleCloud hosting	Complex setup, outdated interface, security issues	K-12, Higher Education, Vocational Training, Workplace Learning, Companies
EdVibe	Easy to use, quick, and intuitive, good technical assistance	-	Limited features, used mostly for language schools and teachers	B2B, B2C

3.3 Overview of the EdTech industry in Kazakhstan

The use of digital technologies in education in Kazakhstan is being fostered by state programs of digitalization. At the international conference Digital Bridge in 2023, the President of the Republic of Kazakhstan emphasized the position of Kazakhstan as a leading digital and fintech hub in Central Asia and outlined the importance of developing AI technology (Satubaldina, 2023). The learning management systems used at schools are in compliance with minimum requirements that are reflected in the Order of the Minister of Education of the Republic of

Kazakhstan dated November 14, 2022, No. 456. Schools and higher educational institutions have already started implementing learning management systems into practice.

The educational institutions at all levels are being equipped with computers and laptops with the relevant software, projectors, and interactive boards. However, in 2021, only 27,3% of all educational institutions had necessary technological devices. The Covid-19 pandemic was one of the factors that forced educational organizations to improve their learning management systems and to switch to online education. This trend is also reflected in the total revenue of EdTech companies in Kazakhstan, which amounted to 27,35 billion tenge in 2022, marking a 1,17% rise in comparison with the previous year (Klimova et al., 2022)

Figure 2. The revenue distribution in 2021 and 2022 by segment in the EdTech industry.
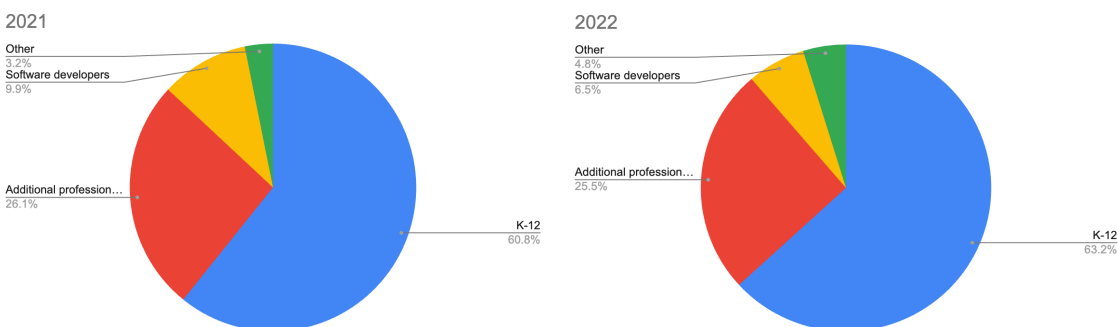
The figure above shows the revenue distribution in the EdTech industry in Kazakhstan by sector and shows that the largest part is occupied by the K-12

education sector. The "Other" segment includes language, IT, soft skills and medical training schools. The data is taken from the report by Smart Ranking (Klimova et al., 2022).

According to the same report, it is a common practice for both private and public schools to use several EdTech platforms, while also choosing to employ services of not only local but international LMS platforms. The main local players in the K-12 education sector are Bilim Land and Kundelik with a 2021-2022 revenue of 11,218 and 1,916 billion tenge, respectively. Both platforms operate on the basis of partnership with the Ministry of Education and Science. In particular, until summer of 2023, Bilim Land and Kundelik were approved and officially recommended by the Ministry of Education.

Language learning and IT schools, as well as exam preparatory institutions represent yet untapped opportunities for EdTech companies. According to Figure 2, this segment has grown up to 50% from 2021 to 2022. There are already local players such as Daryn.Online, Joo.kz, Sabaq Online, and Qlang who operate in that sector, with the total revenue of these companies totalling 3,421 billion tenge. International companies are also trying to enter this segment, including two startups called Kodland and Novakid. The latter is an international online English school for

children aged 4-12. With 17% percent of the population being children aged from 4 to 12 in 2021, and internet penetration rate being at 85.9% in 2022, combined with the general dissatisfaction with quality of education in public schools and given the considerably low competition, Kazakhstan is a very attractive market (Kemp, 2022).

Below is a detailed description of global and local EdTech companies and services that they offer. Table 3 represents comparison analysis on EdTech companies' key features.

Table 3. Key features comparison.

Company	Innovative Features	Unique Business Model	First mover advantage	Strategic Partnership	Customer Support	Unique Customer Segment
ManageBac	-	-	+	-	+	+
Edupage	-	-	+	+	-	-
Bilim Land	+	-	+	+	+	-
Kundelik	+	+	+	-	+	-
Blackboard	-	-	+	+	+	-
Canvas	-	-	-	+	+	-
Moodle	-	-	+	+	+	-
EdVibe	-	-	-	-	-	+
Campus	+	-	-	-	+	-

Kundelik

Kundelik is a learning management platform that has instruments to facilitate document exchange and creating social network systems. The project has a unique business model: it is positioned as the first large-scale project in Kazakhstan that is free for the government. The project is realized with private investments and is the first project in state-private partnership in the IT industry, which gives them a first mover advantage. While not charging its users, Kundelik makes profit on advertising and selling parents full access to information on mobile applications. Advertisements include promotional banners for events such as Qara Film Forum and news aggregator app Darmen. They are also collaborating with third parties such as local banks and different stores to encourage pupils to achieve good academic results and earn bonuses, which can be subsequently spent in the partner banks and stores.

Kundelik creates value by combining communication, accessibility, time-efficiency, and ensuring involvement of parents into the educational process, as well as providing analytical data and offering collaboration benefits. According to the official document, available on the Online Zakon portal, Kundelik was one of the platforms recommended by the Ministry of Education for online learning during the Covid-19 pandemic. They are also integrated with the Artsport platform that contains information about state-financed sport and creative sections for kids that

parents can access to manage their children's academic and extracurricular activities in one place.

The value proposition of Kundelik is about improving the educational process for all stakeholders. The platform collects analytical data about performance, results, attendance that can be used to make decisions. This data can become a valuable source of information for the Ministry of Education. Moreover, the platform is integrated with a national educational database which makes it a powerful tool for information exchange.

Bilim Land

Bilim Land is an educational ecosystem, which has been developing and forming an e-learning market in Kazakhstan for children of all ages within pre-school, school, and supplementary education since 2011. The company works in cooperation with Kazakhtelecom and this strategic partnership allowed Bilim Land to have an advantage over others to be among the first companies to penetrate the Kazakhstani market, including rural areas. More than 3 million students and about 300,000 teachers are currently registered on the platform.

The key element of the ecosystem – Online Mektep – consists of 24,000 digital lessons and half a million assignments developed by the best NIS teachers. The digital content covers 42 subjects from grades 1 to 11 in Kazakh and Russian languages and complies with the state's compulsory education standards and typical education programs of the Ministry of Education. Furthermore, the automatization and organization of the learning processes empowers teachers, freeing up time for creative and individual work with children. To ease the transition process for schools to adopt the platform, Bilim Land provides special training for subscribed teachers in the use of innovative e-learning resources. The platform also offers teachers professional development opportunities that can advance their career and credentials. In addition, customization of learning experiences by incorporating gaming components enhances the educational process.

Edupage

Edupage offers a comprehensive suite of services that encompass a wide array of functionalities, such as timetable generation, in-app communication, readily available templates for certificates and diplomas, seamless online payment processing, online testing and presentation tools, as well as convenient mobile app access. Moreover, Edupage extends its support to educational institutions by

providing them with tailor-made websites that can host specific content, including detailed information about school activities and even canteen menus.

The company is headquartered in Slovakia and serves a global clientele spanning across 173 countries, thus engaging with 150,000 schools worldwide. This extensive reach affords Edupage significant economies of scale, allowing them to offer their services at a competitive price point while maintaining high quality standards. Despite their lack of comprehensive customer support, users seem to be satisfied with the quality of product provided for such a low price.

Edupage's success can be attributed to two key factors. Firstly, they have strategically partnered with local software distributors, facilitating their penetration into various sectors. Capitalizing on their experience in the Kazakhstani market and the expertise of their distributor, "Edtech Innovation Ltd," Edupage successfully secured partnerships with local schools, colleges, and organizations specializing in vocational training. Additionally, their entry into the educational technology sector coincided with the onset of the pandemic, which further heightened the demand for their services. Simultaneously, the Covid-19 pandemic created a pressing need for alternative solutions to traditional in-person teaching, making Edupage's offerings even more attractive to prospective customers who were compelled to explore

alternative educational platforms in response to the pandemic-related disruptions in offline learning.

Blackboard

Being established in 1997 and offering its initial product as a course management software in 1998, Blackboard had a first mover advantage, developing many partnerships with other companies, such as Macmillan Learning, Cengage Learning, Microsoft, Pearson Education, among others. Its customer support system is also on a high level, with such services as Chatbot, retention coaching and help desk available.

One of the key features that Blackboard emphasizes on their website is the integrated AI tools that the company's website cites as "time-saving and empowering". The AI Design Assistant was created in partnership with Microsoft and it employs generative AI capabilities to benefit customers, especially instructional designers. The AI feature is aimed at simplifying course creation, as it can generate recommendations regarding the course structure, along with titles for modules, descriptions, and even images based on course content. AI-powered algorithms analyze a document's content and create a diverse set of questions, which

the instructor can then revise and use to assess knowledge and understanding. In addition, this feature provides royalty-free image recommendations based on the context of a course or document

Another feature that is to some degree unique to Blackboard is their focus on inclusivity. Although information is not as detailed as it is for the other features, the company's website mentions pronouns and pronunciation, claiming to be a leader in empowering self-expression. This shows their willingness to cater to underrepresented groups, adapting to the ever-changing societal norms and positioning themselves as a progressive company.

Blackboard also proudly displays the information about seamless integrations with more than 200 tech partners, including Microsoft Office. Although not something completely unique, it is certainly not easily imitable and shows serves as an evidence to the financial well-being and prosperity of the company.

Canvas

Canvas has an extensive list of features that they put on their website, including grading system, ability to upload unlimited file sizes, auto-captions

generated in 19 languages and analytics. However, one feature that they put a lot of emphasis on is digital credentialing. Citing the fact that degrees play a large role in job applications and the importance of validated skills and achievements, the company provides data-rich, shareable, and verifiable badges with Canvas Credentials, which would be beneficial both for job recruiters, students and higher education institutions. The company's website states that offering credentials to lifelong learners helps to increase student enrollment and retention rates by empowering learners to share their achievements.

As for the strategic partnerships, the company's website lists Microsoft, Amazon Web Services, Nearpod, Google and Zoom. Customer support services include troubleshooting guide, extensive list of FAQs and an "Ask Our Community" feature.

Moodle

The first version of Moodle was released to the public 21 years ago in 2002. Since then, Moodle has created strong strategic partnerships with such organizations as UN, UNESCO, Vodafone and others. The company also maintains a strong

connection with their customers, with monthly newsletter, Moodle Users Association, and Moodle Academy learning hub.

Moodle LMS has many vital features such as video conferencing, student information systems, plagiarism detection, and other LMS integrations. One feature that they describe in a lot of details is scalability. Being a large company with a lot of customers, traffic surges might be imminent, which is why Moodle architecture has been designed to accommodate auto-scaling based on demand. Larger clients can pay more to ensure that the platform can scale up to withstand sudden bursts of user activity during peak usage times, enabling uninterrupted performance.

EdVibe

EdVibe positions itself as a "linguistic platform of the new generation" catering to those who want to learn foreign languages. There is not much information about the history of the company on its website and the customer support is only presented in the form of an email that users can write to.

The platform's main features are similar to those of other LMS platforms, but one interesting feature that the company also highlights is personal dictionary. They

allow users to select a word to see its translation and have gamified vocabulary drill features. Although it is not quite clear how much value this generates for the users, EdVibe's focus on language learning institutions is something to take note of.

ManageBac

ManageBac was founded in 2006 by three International Baccalaureate (IB) Diploma graduates at the University of Pennsylvania, US. The company has been serving customers on an international scale with a presence in more than 3,000 schools spanning 130 countries. ManageBac's schools serve as both customers and investors, funding the company's development and contributing fresh ideas.

ManageBac is a curriculum-first educational platform. The company's core values revolve around efficiency, affordability, and top-notch service. Their success is quantified by the time saved and paperwork reduced. The company places a premium on transparency, refraining from hidden fees, and takes pride in its rapid email responses and round-the-clock accessibility. What sets ManageBac apart in the competitive landscape is its constant dedication to curriculum-centered learning. Over a decade of experience has been exclusively serving international schools, with a strong focus on the IB education community. ManageBac's track record for

delivering efficiency and affordability has cultivated a loyal customer base, and its reliable software, which doesn't require server infrastructure, ensures accessibility to a wide range of schools.

4. Applying findings to Mersys

Based on all the gathered information, Mersys has several routes to select from in terms of its market strategy. First one would be offering unique educational content. At the moment, a factor that significantly differentiates Mersys from dominant local player Bilim Land is exactly that. Although Campus as an LMS is as functional as Bilim Land, the latter has been able to carve a niche for itself through its core element - large volume of digital lessons. This resource is hard and costly to imitate but following this strategy could give Mersys a much needed competitive advantage.

In order to set itself apart from Bilim Land, Mersys could focus on connection rather than just content. This could involve adaptive algorithms that recommend specific lectures based on a student's progress, learning pace, and interests, while also incorporating interactive elements within the lectures, such as quizzes, polls, or discussion prompts, in this way engaging students and fostering a sense of participation. Mersys could also create virtual spaces where students can interact

with peers, ask questions, and collaborate on projects, in this way emphasizing social interaction. Integrating live Q&A sessions with instructors or facilitating student-led study groups, adding discussion forums, mentorship programs, or virtual events that connect students, educators, and industry professionals is also a good distinguishing feature, which could emphasize a sense of community. That being said, it is very time and resource intensive to build this core capability from the ground up, so this route is not as attractive at the moment.

Another route that Mersys could take is by focusing on forming key strategic partnerships. Identifying such partnerships in specific regions could be a pivotal strategy for successfully penetrating local markets. This is exemplified by Edupage's approach, as its expansive presence spans numerous countries and involves partnering with local distributors who actively promote and sell their products, resulting in a network encompassing 150,000 schools. Kundelik has also established a strong partnership with the government during the pandemic, which allowed them to provide services that are free for the public schools, while getting a very wide customer reach instead. While Mersys has Corvit Networks as their distributor in Pakistan, their short-lived stint of partnering with Transtelecom JSC has proven to be unsuccessful, since Transtelecom has very many ongoing projects and some of

them end up getting less attention than others. We will later explore pros and cons of a partnership in more detail.

The third route is targeting a niche customer segment instead of trying to become a sort of "jack-of-all-trades". Of course, being able to offer an all-in-one platform that covers every customer need might give Mersys a good look but it is widely known that many educational institutions and vocational training programs opt for using several different platforms at once by combining their strongest features. For example, our in-depth interviews revealed that Astana Garden School uses Toddle for primary school and ManageBac for high school. Another local example would be a SEED private school, which uses Bilim Land for its LMS features and Kundelik for its SIS features. This is why it is essential for Mersys to identify a unique or at least strongest feature of their own that they could capitalize on or to cater to a specific customer segment. Like EdVibe, they could target language learners and adapt its platform accordingly. Another potential niche customer segment could be online IT schools, especially given that Mersys has already managed to acquire one of such customers in the past. Combining this with superior customer service could bring more customers from the IT school segment. Another customer segment that can be targeted is lifelong learners, specifically by adopting the credentials feature offered by Canvas. The demand for additional

certifications that would validate newly acquired skills and increase a candidate's appeal in the eyes of future employers seems to be high. Establishing a widely recognized system of digital credentialing could become a differentiating feature of Mersys. While incorporating any of the mentioned features could be beneficial for Mersys, identifying the one feature that is currently missing in the local market and calculating the amount of resources and overall cost that it can potentially save for customers is the next step.

Table 4. Comparison of offered modules among five LMS platforms.

Company	Admission	Timetable/ scheduling	Video conferencing	Certificates and Badges	Gamification	Reporting	Grading system	Communication channels	Performance analytics	Mobile app	Online testing
Bilim Land	-	+	+	-	+	+	+	+	+	-	-
Kundelik	-	-	+	-	-	+	+	+	+	+	+
EduPage	-	+	+	+	+	+	+	+	+	+	+
BilimAl	+	-	-	-	-	+	+	+	+	+	+
Mersys (Campus)	+	+	+	+	-	+	+	+	+	-	+

Since customers are generally comfortable with using multiple platforms for the different modules that they offer, five leading LMS and SIS offering EdTech companies were compared and analyzed to identify underserved market segments. As can be seen from Table 4, admission, certificates, and gamification are the three most rarely offered modules. Among those, the first two are offered by Campus and

while certificates and badges are certainly helpful for learners to track their progress, set goals for themselves and to eventually stand out in a crowded job market by demonstrating their skills and competencies, they should be used in conjunction with other forms of feedback and assessment to provide a well-rounded learning experience. Admissions, on the other hand, can help streamline the process by providing a centralized location for managing applications, tracking applicant progress, and communicating with applicants, while also helping to attract new students by providing a user-friendly and efficient application experience. According to the survey conducted by OpenApply, from 132 responses, 90% of schools confirmed that the online application form, parent dashboard, supplementary forms, questionnaires and checklists included in the admissions module, had reduced their manual processes and administration time (OpenApply, 2022). Most importantly, this is something that is needed by virtually every customer segment. This is why the next section will be dedicated to pricing strategy and the benefits of a partnership. What is the optimal price to charge for the product with an admissions module offering? Should Mersys act alone or partner up with a distributor? Would the latter result in lower profit margins but a wider reach? Estimation of the total amount of possible revenues, costs, and operational margins for both of those options their comparison is presented in Section 6.2.1.

5. Customers

5.1 Overview of the language-learning centers

Although language schools and IELTS/TOEFL preparation centers may seem like an attractive niche for LMS, it has been identified that online formats are not widely used. For example, out of 300 students that are currently enrolled in Alliance Française in Almaty, only 50 study online. Online classes are usually scheduled during the evening or upon request of students. Most used platforms for studying online are Zoom and Skype. However, some centers offer other interactive tools, the names of which they didn't specify. More detailed information is provided in Table 5.

Table 5. List of language centers

Language school/center	Specialization	Branches	Online format
A-Level	English language courses IELTS, TOEFL ITP, SAT tests preparation, enrollment for NU	2 branches in Almaty and Astana	Individually
Aiplus	Preparation for UNT and NIS, KTL, RFMS enrollment		
Alliance Française	French language courses DELF-DALF, TCF, TEF tests preparation	3 branches located in Almaty, Astana and Qaraghandy	Individually/in groups (up to 10 people) in Zoom, Teams (depends on the instructor)
Edtech	Preparation for UNT and IELTS, TOEFL ITP tests	2 branches in Almaty	N/A
Erudit	Preparation for UNT and NIS, KTL, RFMS enrollment		Individually/in groups (2-12 people) in Google Meet
GSC Study	English language courses IELTS, TOEFL tests preparation	2 branches in Astana, 1 branch in Almaty	Individually in Skype

InterPress	English language courses Kazakh language courses IELTS, TOEFL ITP tests preparation	5 branches in Almaty, 2 branches in Qaraghandy, 1 branch in Astana	English language in groups (6-12 people) in Zoom Kazakh language individually only
Just Speak It	English language courses	8 branches in Almaty	Individually/in groups (up to 8 people) via own interactive platform and video-streaming in Zoom
LTC (Language Training Center)	English language courses IELTS test preparation	5 branches in Astana	In groups (up to 4 people) via own platform
Oxford Astana	English language IELTS, TOEFL ITP tests preparation	3 branches in Astana	N/A
Tamos Education	English language courses	2 branches in Almaty	Individually
Qazaq Study	Kazakh language courses	2 branches in Almaty and Astana	Almaty: individually via Qlang platform Astana: Individually/in groups (up to 4 people) in Zoom
Yes	English language courses	2 branches in Astana	N/A

5.2 Overview of the companies with vocational trainings

According to stat.gov.kz, as of 2023, there are 440890 small, medium and large enterprises in Kazakhstan. Considering the specificity of the market and needs of vocational training, we assume that medium and large enterprises demand more training than other firms, of which there are 2772 and 1147 companies and 3919 companies in total. There are no specific databases of each company with information about vocational training, so data was gathered manually from people who had connections with representatives of those organizations. Even then, some companies refused to share information about their number of employees who had completed training. More detailed information is provided in Table 6.

Table 6. List of local corporations

Company	Specialization	Number of people	Number of courses
NU GSB	2-3 days trainings for staff and top-management (e.g. negotiation, marketing, financial accounting)	5000	Not given
KMG Engineering	Engineering, chemistry, labor protection, soft skills	1229	99
National Cardio Center	Medical training for regional doctors. currently use Moodle, Mentor from the next year	1237	52
Kazakhstan Temir Zholy	Transportation security	16000	Not given
National Center for Advanced Training "Orleu"	Courses for teachers from secondary and primary schools	40000	300

Findings show that employees participate in vocational training annually. However, the HR department claims that they do not need to pass qualification exams to get enrolled in their courses. They employ either paper or Excel, which seems to satisfy their needs. Some of the companies use Moodle to reduce their costs and to share information from their presentations and digital books. To sum up, there is no great need for LMS for courses that last merely a few days.

5.3 Overview of the IT schools in TechOrda

It is undeniable that skills and specializations in Information Technologies (IT) have become integral and highly demanded in recent years. Hence, in 2021, the

president of Kazakhstan K. Tokayev has proposed training 100 thousand IT-specialists by 2025. This is the government's funding initiative, with 80% (80 thousand) distributed among universities as scholarships and 20% (20 thousand) among private schools as vouchers. The latter is called Tech Orda and is being operated by the governmental innovations arm Astana Hub.

Tech Orda was conceived in 2022 with an initial number of vouchers at 3000. It was distributed among 49 IT private schools for a training period of six months. The second batch of 3000 has been distributed among 83 IT schools in September 2023. Among this year's 3000 vouchers, 48% (1,437 vouchers) of training are delivered online mostly using digital communication platforms such as Zoom, Google Meet, Antitreningi, Notion.so, and others. Table 7 shows prices, charged by the platforms. The information was taken directly from the companies' websites. Currently, there are 14 thousand vouchers left to be distributed by 2025 and according to the previous data, it can be estimated that half of them will be delivered online. Moreover, according to several surveys conducted with IT school founders, it has been revealed that about 50% more vouchers are being added to the class and being called as an internal scholarship from the school itself. The main reason behind giving internal scholarships and adding extra students to the class with vouchers is mitigation of risks. The past experience showed that about 50% of students are

dropping out and the government is not paying off the vouchers for those students who do not complete the training. Hence, by having extra students in the batch, IT schools can maneuver by replacing students and therefore being paid for all students. Therefore, it can be estimated that for the remaining 8,000 online vouchers, 4,000 more can be added giving a total Tech Orda market size of 12,000 students by 2025.

Table 7. List and prices of EdTech platforms used by IT schools.

Platform	Pricing
Antitreningi	USD$0.77/month/student
GetCourse	42/month
Notion.so	15/month/student
Zoom	13/month
Google Meet	6/month/student

Figure 3 illustrates the market share of each platform or combination of platforms used by the IT schools. The information was taken from the website of Astana Hub.

Figure 3. Percentage of platforms distributed among all online students.

% of platforms share distributed among all online students

- Zoom
- No Data
- Zoom/Google Meet
- other LMS
- Mentory
- Google Meet
- Discord/Zoom/Youtube
- Antitreningi
- Zoom/other LMS
- Zoom/Clickmeeting
- own platform
- Notion.so
- lms.decode.kz
- Online/other LMS
- school1.kz/discord
- other LMS/Skype
- alabs platform
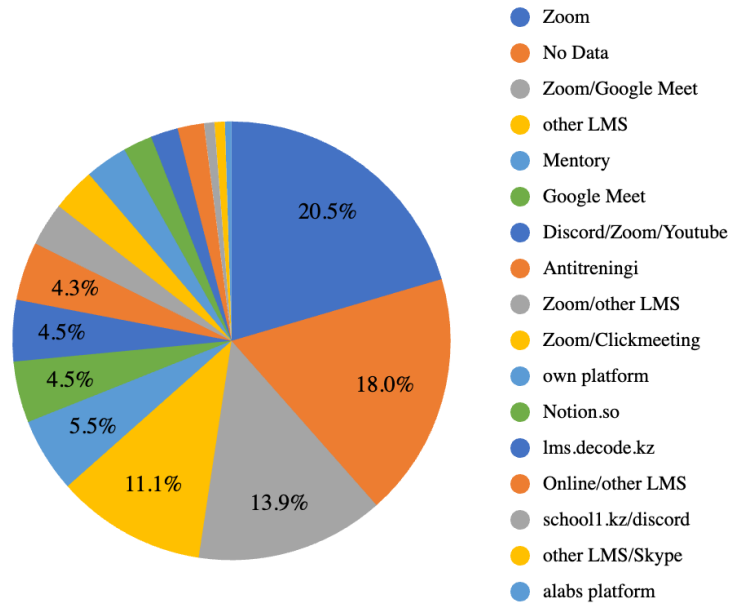
5.4 VRIO analysis

In order to identify competitive advantage that Mersys could possibly gain, VRIO framework has been applied and illustrated in Table 8. This analysis is used to evaluate core competencies based on the company's internal resources and capabilities that could be transformed into potential competitive advantages. Additionally, these competencies could be categorized to evaluate their sustainability and position in the market, focusing on value, rarity, imitability, and organization.

Table 8. VRIO analysis of Mersys' resources and capabilities.

Resources	Capabilities	Core Competencies	Valuable	Rare	Inimitable	Organization

Technical team	Quick implementation	New feature development in short period of time	yes	no	no	yes
Customer success team	Adaptability to client's requests	Better after sales service	yes	yes	no	yes
Sales team	Ability to reach South Asia region markets, cultural capabilities	Better understanding of the target region/insight on cultural specifics Faster lead development around South Asia market	yes	no	no	yes
Financial resources	Ability to generate internal and external funds	Faster scaling opportunities	yes	no	no	yes
Independent consultants (board of directors): ex-minister of education, startup experience	Ability to get clients' credibility	Expertise in the educational sector Experience in raising capital and establishing partnerships.	no	no	no	yes
Networking of the leadership team (founder, CEO, sales manager)	Access to wide range of clients across the world, credibility and trust, future loyalty	Scaling opportunity Fast closure of deals	no	no	no	yes
IT-systems (servers)	Ability to store information on internal server and external servers	Streamlined and efficient processes	yes	yes	no	yes
IT-systems Integration partner	Ability for fast integration of third-party IT-systems with the help of partner's expertise and experience	Fast integration of third-party services	yes	no	no	yes

Technical team consists of five people in the face of developers and testers, and is skilled to quickly implement new processes and features. Agile practices allow Mersys to do it in a short period of time. – ***temporary competitive advantage***

Customer success team is another valuable resource of Mersys. This department is responsible for the increase of customer retention, sales and communication quality. Their work is to satisfy customer's needs by adapting to their requests to customize the product or create demo versions, while also offering face-to-face onboarding training to use the platform, 24/7 support and resolving bug fixes within 24 hours. – ***unused competitive advantage***

Sales team is currently based in Pakistan and due to its geographical location it represents the cultural capabilities and opportunity to reach the South Asia region with competency to better understand this market. Consequently, this may lead to faster lead development. – ***temporary competitive advantage***

Mersys has both internal and external financial support, funded by partners and investors. These financial resources provide the company an opportunity to faster scale its business through ability to generate teams, find resources, and establish offices. – ***competitive parity***

Board of directors of Mersys including leadership team and strategic advisors who are professionals in IT, software development, startups and education sectors. CEO, CSO and CTO have more than 20 years of experience in the tech industry. Strategic consultants are the Former Minister of Education & Research in France and a venture capitalist, who raised three development capital funds. Therefore, the leadership team's solid expertise allows Mersys to gain credibility from potential investors, customers and establish partnerships with them. – ***competitive parity***

Consequently, the leadership team has resources that the company can capitalize on, such as strong connections and networking with international organizations and programmes. For instance, Mersys has access to UNESCO and is an active member of the German AI Association. Most importantly, a tight network allows Mersys to access a wider range of clients, close deals faster and scale the business as a result. – ***competitive parity***

Mersys ensures streamlined and efficient processes of video conferencing, cloud service with a guarantee of uninterrupted and reliable storage of media files through its technological capabilities. Specifically, the company stores information in an internal server, located in Germany, and in an external server – Amazon S3 –

which allows it to store and retrieve any amount of data from anywhere. This server system solution is more reliable as it is not affected by any server crashes that may occur. Additionally, it grants customers an easy deployment of the Campus platform in contrast to its competitors. In particular, Moodle requires web hosting, database management system and IT staff to support the LMS, whereas Campus is a cost effective solution. – ***unused competitive advantage***

Another efficient resource of Mersys is their partnership with Corvit, an IT training institute in Pakistan. Through the supplier, Mersys saves costs for integrating third-party (e.g. Google Calendar, PayPal) services upon request of clients. – ***competitive parity***

6. Key findings and general recommendations

6.1 General recommendations

Participating in local or even international startup accelerator programs fits with the general strategy of Mersys. The company can learn much more about entering international markets and finding VCs. For instance, YCombinator provides not only benefits mentioned above, but also teaches B2B sales, assigns experienced mentors, and most importantly, can considerably help with networking and building

new relationships. Mersys could assume entrance to new markets, which were closed for them before due to some biases, or absence of strong partnerships. Despite the fact that engaging in accelerator programs might be associated with the very first steps of launching a startup, there are many examples of cases when successfully grown companies took part in such programs to increase their professional experience, brand awareness, networking, and potential to attract new investments.

According to Mersys, their successful practice of entering the new market is best exemplified by the Pakistani market. One of the integral components, which made the entry successful, was the strategic partnership with a local technology systems integrator, Corvit Networks. Corvit Networks Ltd. was established in 2000 and initially started as a provider of networking products, solutions, services, and human resource training. Over the years, the company has rapidly transformed into a highly trusted business technology advisor and strategic partner, offering comprehensive ICT solutions. Since this partnership played a crucial role in the Pakistani market, it can be hypothesized that extrapolation of this best practice to the Kazakhstani market can help both in acquiring new customers and saving overhead costs for the local sales team.

Beeline, Transtelecom and Kazakhtelecom can be considered as potential local players to partner with. These are major telecom operators and system integrators with a huge customer base and corporate innovations development departments. Their scope of activities is similar to Corvit Networks, which is why it has all perspectives to have a fruitful synergy with EdTech startups like Mersys. Therefore, partnering with those companies is highly recommended.

6.2 Key findings and recommendations for entering public schools

Although the public sector might seem like a red ocean with lots of local competitors, this market is the largest among others and can provide opportunities to significantly increase the customer base. As was described earlier there are approximately 3,7 million pupils in Kazakhstan, majority of which study in public schools, not to mention additional 369 schools that are to be built by 2026 for 740,000 pupils, according to the article in Kazakhstan Today. In fact, the share of the public versus private schools is 93.2% versus 6.8%, with 7550 public schools and 552 private schools, according to stat.gov. database and Online Zakon portal, respectively. This, combined with the fact that not as much information is available for private schools, is why we mostly focus on public schools in our analyses.

As mentioned above, Beeline, Transtelecom and Kazakhtelecom as potential strategic partners could considerably help Mersys acquire 369 new schools. All 369 schools are required to have internet connection and since these strategic partners are both cloud/server and internet service providers, it is most likely that they are going to establish a relationship with these new schools at some point.

Market entrance level might be seen high due to the presence of large EdTech companies such as Kundelik, Bilim Land and other companies, additionally complicated with law restrictions and local financing issues. In addition, the current public school financing system does not imply allocation of money directly to LMS. However, experience of emerging startup CodiPlay that teaches pupils programming via gamification, shows that it is possible to enter the public school market. According to Smart Ranking, it reached 70 million tenge of revenue within the year 2022. That means that despite difficulties in financing there is still a way to attract public schools and to manage budget allocation to finance outside services to fill the gap in schools' needs. Mersys could use that example as well by referring to a loophole in the current school budget distribution system when selling their LMS to new clients.

6.2.1 Pricing and market entrance strategy

This section is concerned with the best pricing strategy as well as whether it is more beneficial for Mersys to enter the public school sector of the Kazakhstan market on its own or in partnership with another company.

6.2.1.1 Option 1. No partnership

The average industry price served as a benchmark for determining an optimal price for Mersys' product and was calculated by taking the average price of the platforms indicated in Table 4. Kundelik was omitted from the calculations despite its considerable market presence, due to their unique free-of-charge business model. BilimAl, although being similar in module offerings to Mersys, has a very limited market share, being present solely in the city of Qaraghandy, and almost no information regarding their financial situation, staff size, pricing models and tax payments on Statsnet database. This is why BilimAl was deemed to be non-representative of the industry and also excluded from calculations. The industry average was calculated to be 390,000 tenge per school by taking the average value of prices offered by Bilim Land and EduPage. The prices themselves were obtained from the commercial offers that we officially requested from the companies and are provided in Appendix D. The next step was to adjust this price for the differences between Campus and other LMS platforms in terms of the offered modules.

Admissions module is not offered by many other competitors, which is why we considered it to be Mersys' competitive advantage and added a 20% premium to account for that. Bilim Land, being an industry leader, offers educational content, which is hard to replicate and the lack of that among Mersys' offerings led to the decision for a 10% discount. High industry concentration was also taken into consideration and given the fact that Mersys has scarce resources and very low presence at this moment, an additional market discount of 83,000 tenge was added for the first period, labeled as Phase 1, to reach the price of 372,000 tenge per school that would allow Mersys to break even, as illustrated in Table 11. It should be kept in mind that this is the price at which Mersys would simply not bear any losses, in other words, the price of 372,000 tenge per school is the minimum recommended price level and it needs to be higher than that.

For break-even calculations, the fixed cost was estimated by adding up office rent, employee salaries and utility spendings, whereas the variable cost component was calculated by taking a price per server, multiplied by the average number of students per school, and combined with the salaries of customer support and sales department, jointly labeled as the account management team, which is placed in the variable cost section due to its size being dependent on the number of customers. The cost of the server per unit was taken from the annual amount that the government

is providing to Kundelik in subsidies, which is 8 million tenge, divided by the total number of students in the country, which is 3.9 million students according to the data from Zakon.kz. Here the assumption was made that Kundelik is used by all schools. The cost was thus found to be approximately 200 tenge per student. The average number of students per school was estimated to be 481 with 3.7 million pupils studying in 7687 schools (Yeskendirova, 2023). The cost of the customer support and sales team per unit was estimated by assuming that one such employee can handle 50 clients per year on average — a number that was confirmed by talking to Mersys representatives – and given the target value of 500 units, it would require 10 employees. HeadHunter, the largest online recruitment company, showed that on average these employees earn in the range from 300 to 500 thousand tenge, which amounted to the mean value of 400,000 tenge.

Fixed Costs	
Office Rent	₸500 000,00
Salaries	₸2 900 000,00
Utilities	₸100 000,00
Total	**₸3 500 000,00**
Variable Costs	
Price per server	₸240 000,00
Customer support team salaries	₸96 000,00
Sales team salaries	₸96 000,00
Total	**₸432 000,00**

Table 9. Fixed and variable cost components.

Phase 1 signifies the short-term development plan and if Mersys will not succeed in acquiring 500 customers in that period of time, which is estimated to span 1-3 years, then the recommendation is to simply exit the Kazakhstan market. Once the threshold number of 500 units is acquired, Phase 1 is completed and Phase 2 begins, where the market discount is either fully eliminated or reduced to a certain extent. The implications of incremental changes in price per unit in relation to the number of units is presented in the sensitivity analysis results, presented in Table 13.

Table 10. List of key assumptions.

Assumptions		
Breakeven customer #	500	1500
Variable cost per unit	288,200.00	288,200.00
Fixed cost	42,000,000.00	42,000,000.00
Revenue sharing %	40%	

Table 11. Price per unit, adjusted for the product difference and market discount.

	Phase 1	Phase 2
Price per unit	Price per unit	Price per unit
Industry	390,000.00 ₸	390,000.00 ₸
Product differential	39,000.00 ₸	39,000.00 ₸
Market discount	-56,800.00 ₸	
Mersys	372,200.00 ₸	429,000.00 ₸

Table 12. Financial model for Phases 1 and 2 (without partnership).

	Phase 1	Phase 2
Financial model	500 units	1500 units
Revenue	186,100,000.00 ₸	643,500,000.00 ₸
Fixed cost	42,000,000.00 ₸	42,000,000.00 ₸
Variable cost	144,100,000.00 ₸	432,300,000.00 ₸
EBIT	0.00 ₸	169,200,000.00 ₸

EBIT%	0.00%	26.29%

Table 13. Sensitivity analysis results.

		Phase 1				Phase 2			
				Number of units					
	0.00%	500	750	1000	1250	1500	1750	2000	2250
	372,200.00 ₸	**0.00%**	7.52%	11.28%	13.54%	15.05%	16.12%	16.93%	17.55%
	396,200.00 ₸	6.06%	13.12%	16.66%	18.78%	20.19%	21.20%	21.96%	22.55%
	416,200.00 ₸	15.45%	21.81%	24.99%	26.90%	28.17%	29.08%	29.76%	30.29%
	436,200.00 ₸	26.18%	31.73%	34.51%	36.18%	37.29%	38.08%	38.68%	39.14%
Price per unit	456,200.00 ₸	36.72%	41.48%	43.86%	45.29%	46.24%	46.92%	47.43%	47.83%
	476,200.00 ₸	46.23%	50.27%	52.30%	53.51%	54.32%	54.90%	55.33%	55.67%
	496,200.00 ₸	54.40%	57.83%	59.54%	60.57%	61.26%	61.75%	62.12%	62.40%
	516,200.00 ₸	61.24%	64.15%	65.61%	66.49%	67.07%	67.49%	67.80%	68.04%
	536,200.00 ₸	66.89%	69.38%	70.63%	71.38%	71.87%	72.23%	72.50%	72.70%
	556,200.00 ₸	71.55%	73.69%	74.76%	75.40%	75.83%	76.14%	76.36%	76.54%

6.2.1.2 Option 2. Partnership.

It would be very difficult for Mersys to attract 500 schools for the Phase 1 to work, so here, the benefit of having a partner comes into the picture. A partner would take a considerable portion of the variable costs, i.e. 33%, by providing its own servers and taking up the sales duties. Once the threshold number of 500 units is reached, Mersys has the option of continuing the partnership or going alone. The advantage of the former option is the absence of the need to raise the price and face the potential loss of clients as a result. Profit margins of different combinations of revenue sharing agreements were considered by using the sensitivity analysis and

the results showed that having anything between 50/50 and 60/40 revenue split would provide the most optimal outcome for both parties, although other scenarios are available for Mersys' consideration and are summarized in Table 17.

To estimate a partner's financials, we performed the following steps:

1. Partner's Revenue. Divide the revenue according to the negotiated sharing agreement, i.e. either 50/50 or 60/40.

2. Partner's Cost. Take Mersys' initial estimated cost and subtract partner's potential markup of 60%

We assumed that it is not reasonable to transfer variable expenses for servers to a partner's variable costs without considering any markup for server costs of a partner. Hence, the adjustments for the costs of goods sold associated with the partner's server provision should be taken into consideration. There is not sufficient financial data available online for the local server providers, so the actual costs of providing servers and cloud services can be estimated by looking at other industry players. According to the publicly available financial statements of Snowflake and Cloudera, it can be concluded they add about 60% of markup on average to the costs of their products and services. The financial statements can be found in Appendix E.

Values of 25 million and 77 million were calculated for the 50/50 revenue share model for Phase 1 and Phase 2, respectively. For a 60/40 sharing agreement, these values are 7 and 21 million for two phases, respectively. While both scenarios have downsides for both parties, the optimal solution can be found somewhere in that range between 40 and 50% of revenue sharing. The decision makers in Mersys can choose from a variety of scenarios, summarized in tables below.

Table 14. Profit earned by Mersys and a partner in two revenue sharing scenarios.

	Mersys' profit in Phase 1	Partner's profit in Phase 1	Mersys' profit in Phase 2	Partner's profit in Phase 2
Mersys 60/40 Partner	₸21 660 000,00	₸7 200 000,00	₸148 980 000,00	₸21 600 000,00
Mersys 50/50 Partner	₸3 050 000,00	₸25 810 000,00	₸93 150 000,00	₸77 430 000,00

Another essential aspect of the partnership deal is the concept of synergy, which states that the value of two companies combined will be greater than the sum of the separate individual parts. So, the variable costs that will be taken up by a partner will not translate into precisely equivalent amounts of costs, since a partner company will already have infrastructure, personnel and other operational resources available to them that were absent for Mersys.

Table 15. Financial model for Phases 1 and 2 (with 60/40 revenue sharing agreement between partners).

	Phase 1	Phase 2
Financial model	**500 units**	**1500 units**
Revenue	111,660,000.00 ₸	334,980,000.00 ₸
Fixed cost	42,000,000.00 ₸	42,000,000.00 ₸

	Phase 1	Phase 2
Variable cost	48,000,000.00 ₸	144,000,000.00 ₸
EBIT	**21,660,000.00 ₸**	**148,980,000.00 ₸**
EBIT%	**19.40%**	**44.47%**

Table 16. Financial model for Phases 1 and 2 (with 50/50 revenue sharing agreement between partners).

	Phase 1	**Phase 2**
Financial model	**500 units**	**1500 units**
Revenue	93,050,000.00 ₸	279,150,000.00 ₸
Fixed cost	42,000,000.00 ₸	42,000,000.00 ₸
Variable cost	48,000,000.00 ₸	144,000,000.00 ₸
EBIT	**3,050,000.00 ₸**	**93,150,000.00 ₸**
EBIT%	**3.28%**	**33.37%**

Table 17. Sensitivity analysis results.

		Phase 1				Phase 2			
					Number of units				
19.40%		500	750	1000	1250	1500	1750	2000	2250
	10.0%	46.27%	54.62%	58.80%	61.31%	62.98%	64.18%	65.07%	65.77%
	20.0%	39.55%	48.95%	53.65%	56.48%	58.36%	59.70%	60.71%	61.49%
	30.0%	30.91%	41.66%	47.03%	50.26%	52.41%	53.94%	55.09%	55.99%
	40.0%	**19.40%**	31.94%	38.21%	41.97%	**44.47%**	46.27%	47.61%	48.65%
	50.0%	**3.28%**	18.32%	25.85%	30.36%	**33.37%**	35.52%	37.13%	38.38%
Revenue sharing	60.0%	-20.90%	-2.10%	7.31%	12.95%	16.71%	19.40%	21.41%	22.98%
	70.0%	-61.20%	-36.13%	-23.59%	-16.07%	-11.05%	-7.47%	-4.78%	-2.69%
	80.0%	-141.81%	-104.19%	-85.38%	-74.10%	-66.58%	-61.20%	-57.17%	-54.04%
	90.0%	-383.61%	-308.38%	-270.77%	-248.20%	-233.15%	-222.41%	-214.35%	-208.08%
	100.0%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Based on the calculations above, we recommend the route of partnership, as it would make market entrance much more feasible. The price of 372,000, at which

Mersys would break even, if it decides to work without a partner, is not much lower than the price currently offered by Bilim Land, who is a dominant player that fully covers the segment of children's education in Kazakhstan - all schools in the country (more than 7 thousand of them) are connected to the platform. Given the fact that Bilim Land also offers educational content, it will be extremely difficult for Mersys to compete with them with that price.

6.3 Key findings and recommendations for entering private schools

With significant demographic growth in the country, the demand for educational services is increasing, which has led to a shortage of student places in public schools. This explains the positive dynamics of growth in the number of public schools in Kazakhstan - over the last 10 years, the number has grown from 106 schools to 552, according to the article on Online Zakon portal, with an average annual increase of 38%. This has been facilitated by government support programmes. For instance, a new model of co-operation between the state and the business community, which guarantees businesses a stable income through the placement of state educational contracts.

Based on the private schools statistics, it can be concluded that there is a positive growth trend in the private schools sector. Although this sector remains relatively small in scale compared to the public sector, it remains attractive as an opportunity for Mersys to launch Campus and improve the product on a small segment of private schools before entering the public schools sector. In general, public and private schools follow the same procedures and carry out educational activities based on legislation and state standard of education.

Also, considering the limited resources of the company and the barriers of switching from one platform to another, process transformation, the recommendation for Mersys would be to focus on newly opened schools. In this way, Mersys will save resources to attract and persuade businesses to switch to Campus.

6.4 Key findings and recommendations for entering corporate training sector

Corporate training in Kazakhstan is still in the process of development as many companies are trying to advance the education of their staff. According to the EdTech report from Smart Ranking, the proportion of small and medium enterprises increased from 26,8% to 34,7% in the last six years and according to the SME

development plan even about 1,5 million more people will work in this area. Only two out of 40 top-performing companies in EdTech are specialized in business training (Klimova et al., 2022).

This market in Kazakhstan may be considered as promising, since the growth of demand in online education organizations provides opportunities to get knowledge and skills quicker than in traditional institutions. Big corporations began to pay more attention to professional development of their employees as one of the key elements for overall success of the company but the general trend is that most of the organizations in Kazakhstan prefer traditional manual work. There is an evident increase in interest in digital education in Kazakhstan from both stakeholders - customers and service providers. IT specialties are becoming more demanded and loyalty to online education is also rising. Another finding in the area of vocational training is that they are targeted only at the local market and none of vocational training centers are aimed at the international market at the moment.

Private educational centers and individuals that offer professional development courses are also becoming more popular. They have a narrow specialization in professional areas and soft skills but pricing is usually high, which may be not affordable for the general population in Kazakhstan. Moreover,

according to the studies, adults in Kazakhstan are not ready for or willing to continue education, which creates obstacles in the development of EdTech companies.

Based on our analysis and experiences, Mersys can offer the features of learning management systems for big organizations that have their own educational departments. The admissions systems are valuable for facilitating transparent enrollment processes and rational use of resources and effective learning management. Besides that, the option of secure video conferencing is a potential area for development as it provides an opportunity to reach distant regions and increase customer base. Mersys can start to work with the biggest corporations that provide vocational training and have regional offices and later try to acquire the smaller ones.

6.5 Key findings and recommendations for entering language learning schools

The revenue distribution in 2022 by segment (Figure 1) showed that the highest yearly growth of 52.67% was shown by the smallest segment "Other", which included 10 companies and foreign language schools was one of them. The total revenue of the segment amounted to 1,3 billion tenge, 1 billion of which came from the top four leaders - two companies teaching foreign languages, a soft skills school and a medical training school.

There are not many local players in the Republic of Kazakhstan, and some of them have to compete for attention with foreign companies and private tutors. For example, the foreign language teaching segment shows a weak representation of Kazakh startups. This may be due to several factors: firstly, the majority of Kazakhstan citizens speak Russian, and therefore can use Russian educational products instead. According to Smart Ranking, at the language learning school Skyeng, which is based in Russia, the share of revenue in Kazakhstan reaches 10%. Secondly, according to Skyeng managing partner Alexander Laryanovsky, the Kazakhstan market is saturated with English language courses, which are mainly offered by private traders and offline schools, and therefore it is more difficult for local edtech startups to break into this market (Klimova et al., 2022).

As can be seen from Table 5, most language schools use Zoom and Skype for their online sessions. Merely offering its video conferencing feature would probably not be convincing for language schools to go to the trouble of switching everything to another platform. However, if Mersys were to offer its admissions, scheduling and attendance features in a bundle with video conferencing, that would allow language schools to revamp their internal systems by having an easy-to-navigate all-in-one

platform. We recommend trying to partner with the largest players first to build the reputation, so that it would be easier to sell the solution to other smaller schools.

In addition, as was found out by our research, online formats are not widely used at the moment and most foreign language learning centers are located in the biggest cities. Those living in remote rural areas do not have access to the services of Alliance Française and InterPress. Learning English has long become an essential part of any person's skill set and parents are dedicating a lot of resources so that their children can become proficient in English as early as possible. Scarcity of learning opportunities in these underserved areas is both an important concern for the government and a chance for language schools to greatly expand their outreach and hence, revenue streams. Mersys has a solution that would enable language schools to do that and revamp their management system at the same time. The company could also attempt to get government funding, since this would be aligned with the government objectives.

6.6 Key findings and recommendations for entering IT vocational trainings

According to the Tech Orda official page of Astana Hub, the government's Tech Orda program of distributing training vouchers among IT schools, especially

the 48% delivered online, highlights a burgeoning demand for digital education. The total addressable market in terms of Tech Orda program is estimated as 12,000 students by 2025.

To make a successful entry, Mersys should consider the development of robust online learning solutions within its LMS. In doing so, it can cater to the preferences of IT professionals and students seeking flexible training options, positioning itself as a valuable contributor to the dynamic IT training landscape. For example, since the ultimate post training objective of the Tech Orda program is to secure a job for students within the IT industry, Mersys' LMS can bring a value of effectively managing students with introducing analytics of performance, involvement, and participation, as well as offering certification and badges. Offering tailored LMS solutions that align with the curriculum and objectives of these institutions can significantly enhance Mersys' relevance and impact, facilitating a seamless entry into the IT vocational training ecosystem. Flexibility in pricing models, such as tiered options and subscription plans, is vital for accommodating the diverse budgets of IT schools, expanding Mersys' market reach and appeal.

7. Conclusion

The positive dynamics of growth in the number of public schools in Kazakhstan, while there still being a deficit of student places, promises high demand for EdTech solutions. However, the Kazakhstan market is currently dominated by few players and can be characterized as oligopoly, which makes it very difficult for Mersys to enter the market.

Given the fact that the largest customer segment is occupied by the schools in the public domain, we recommend Mersys to try to capture at least 20% of this segment in two Phases, with Phase 1 being the short-term plan of acquiring 500 schools, and Phase 2 being the long-term plan of acquiring 1500 schools. The recommended price is anything above 372,200 tenge, which is the break-even price. However, if Mersys were to enter the market together with a partner that will take up a third of variable costs, then the price could be lowered, depending on the cost structure of a partner. We assume that a partner would provide servers and take up the role of selling the product. The revenue sharing agreement of giving up any portion of revenue from 40% to 50% is acceptable, since any scenario with greater than 50% would put Mersys in a losing position in terms of profit margin for the suggested price range. Another advantage of having a partner is that Mersys can keep the price constant across two phases, while the strategy of entering without a partner entails either complete or partial elimination of the market discount in Phase

2 to increase the profit margin. The recommended price is just slightly lower than the industry average, which might make it difficult for Mersys to compete, taking into account the competitor's offering of educational content. Finally, having service providers as partners can also be beneficial due to the government's plan to open 369 new schools, as was mentioned before. These new schools would require internet connection, requiring services of such companies as Beeline, Transtelecom and Kazakhtelecom. Mersys' partnership with any of these service providers would make acquisition of the new schools as customers a much easier endeavor.

There is limited information regarding other customer segments, such as the number of language learning and vocational training centers, number of students in those segments, and other cost-related data. This makes the price analysis and recommendations supported by real data virtually impossible, which is why we resorted to general recommendations for these segments, such as targeting rural areas and establishing strong relationship with the government for the language learning centers, and targeting newly opened private schools, since those haven't decided which LMS platform to use. As for the IT schools, Tech Orda aims for students to get a job in the IT industry after graduation, so such LMS features as analytics of performance and credentialing could be more in-demand for these customers. Since those schools are generally small and limited in budget, offering

tiered pricing options and subscription plans could be a more suitable approach. Extrapolating the findings from the pricing analysis for public schools, by capturing all of the mentioned customer segments with a partner, seems to be a reasonable strategy.

8. Glossary of Key Terms

Application programming interface (API) – a set of defined rules that enable different applications to communicate with each other. It acts as an intermediary layer that processes data transfers between systems, letting companies open their application data and functionality to external third-party developers, business partners, and internal departments within their companies.

Artificial intelligence (AI) – the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.

Augmented reality (AR) – a system that enhances the real world by superimposing computer-generated information on top of it.

Data dashboarding – an interactive analysis tool used by businesses to track and monitor the performance of their strategies.

Data visualization – the representation of data through use of common graphics, such as charts, plots, infographics, and even animations.

Digital literacy – the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship. It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy.

Digitalization – the use of digital technologies to change a business model and provide new revenue and value-producing opportunities.

EdTech – the technological tools and media that assist in the communication of knowledge, and its development and exchange.

Gamification of education – a developing approach for increasing learners' motivation and engagement by incorporating game design elements in educational environments.

Information and communication technologies (ICT) – a diverse set of technological tools and resources used to transmit, store, create, share or exchange information. These technological tools and resources include computers, the Internet, live broadcasting technologies, recorded broadcasting technologies and telephony.

Information technology (IT) – the hardware and software used to create, store, transmit, manipulate, and display information and data.

Learning management system (LMS) – a software application or web-based technology used to plan, implement and assess a specific learning process.

Machine learning – a branch of artificial intelligence and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy.

PESTEL analysis – a strategic framework commonly used to evaluate the business environment in which a firm operates. Traditionally, the framework was referred to as a PEST analysis, which was an acronym for Political, Economic,

Social, and Technological; in more recent history, the framework was extended to include Environmental and Legal factors as well.

Porter's Five Forces – a strategic analysis to analyze the competitiveness in an industry, which includes the following five forces: intensity of rivalry, threat of potential new entrants, bargaining power of buyers, bargaining power of suppliers, and threat of substitute goods and/or services.

Sharable Content Object Reference Model (SCORM) – a set of technical standards for eLearning software products, it is an industry standard for eLearning interoperability. Specifically, SCORM governs how online learning content and learning management systems communicate with each other.

Software development kit (SDK) – a set of software-building tools for a specific platform, including the building blocks, debuggers and, often, a framework or group of code libraries such as a set of routines specific to an operating system.

Student Information System (SIS) – a software solution that enables educational institutions to digitize and consequently manage student information more efficiently.

Sustainable Development Goals (SDGs) – a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity adopted by the United Nations in 2015.

Virtual Reality (VR) – the technology that provides almost real and/or believable experiences in a synthetic or virtual way

VRIO analysis – a strategic management framework used to evaluate the internal resources and capabilities of a firm to determine its competitive advantage. The acronym VRIO stands for: value, rarity, imitability and organization.

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10.Appendix A

Table 18. Overview of the IT schools based in Tech Orda.

School name	Course name	Platform used	No of students	Platform share
MAKE IT	PM	no data	45	3,1%
outpeer.kz	Robotics	Zoom	6	0,4%
outpeer.kz	Blockchain	Zoom	6	0,4%
outpeer.kz	Python	Zoom	17	1,2%
outpeer.kz	Data Science	Zoom	17	1,2%
outpeer.kz	Data Analytics	Zoom	21	1,5%
Academica	Data Science	Zoom/other LMS	17	1,2%
Academica	Data Analytics	Zoom/other LMS	29	2,0%
Lerna	1C Developer	other LMS	15	1,0%
Product Bee	PM	other LMS	65	4,5%
TERRICON SCHOOL	Mobile Development	Zoom/Google Meet	58	4,0%
ШАГ	Design	Zoom	1	0,1%
JumpLessons	Design	Google Meet	2	0,1%
JumpLessons	GameDev	Google Meet	3	0,2%
JustCode	Frontend Development	no data	22	1,5%
JustCode	Python	no data	22	1,5%
Everset academy	Design	Online/other LMS	28	1,9%
Alabs.academy	QA Engineering	alabs platform	3	0,2%
Alabs.academy	Business Analysis	alabs platform	4	0,3%
QWANT	Data Science	Discord/Zoom/Youtube	20	1,4%

QWANT	Full Stack Development	Discord/Zoom/Youtube	21	1,5%
QWANT	Software Engineering	Discord/Zoom/Youtube	24	1,7%
Decode	Mobile Development	lms.decode.kz	5	0,3%
Decode	Data Analytics	lms.decode.kz	7	0,5%
Decode	Python	lms.decode.kz	17	1,2%
DataBoom	Data Analytics	Antitreningi	62	4,3%
TEST IT	Backend Development	Google Meet	9	0,6%
TEST IT	Frontend Development	Google Meet	12	0,8%
Арнион	Python	other LMS/Skype	3	0,2%
Арнион	Data Analytics	other LMS/Skype	4	0,3%
Арнион	Web Development	other LMS/Skype	4	0,3%
SkyLearn School	SDE	Zoom	15	1,0%
SkyLearn School	Java	Zoom	16	1,1%
SkyLearn School	Python	Zoom	17	1,2%
ProITivity	Data Analytics	Zoom	11	0,8%
Mentory	QA Engineering	Mentory	16	1,1%
Mentory	Python	Mentory	20	1,4%
Mentory	Frontend Development	Mentory	20	1,4%
Mentory	C# Developer	Mentory	23	1,6%
Тензорфлоу	ML	Zoom/Google Meet	11	0,8%
nFactorial School	Data Science	Zoom/Clickmeeting	12	0,8%
nFactorial School	Mobile Development	Zoom/Clickmeeting	6	0,4%
nFactorial School	Web Development	Zoom/Clickmeeting	28	1,9%

EXTRA	Backend Development	Zoom	36	2,5%
EXTRA	Design	Zoom	27	1,9%
EXTRA	PM	Zoom	32	2,2%
Codeco	Mobile Development	no data	11	0,8%
BrainCode Academy	GameDev	Google Meet	9	0,6%
BrainCode Academy	PHP Development	Google Meet	10	0,7%
IT-incubator	Backend Development	Zoom	4	0,3%
IT-incubator	Frontend Development	Zoom	7	0,5%
Sapsan-code	Backend Development	no data	18	1,3%
Sapsan-code	Frontend Development	no data	20	1,4%
ITechResearch	ML	no data	5	0,3%
ITechResearch	IoT	no data	6	0,4%
Data Science Academy	Full Stack Development	own platform	22	1,5%
Data Science Academy	Backend Development	own platform	23	1,6%
KazHackStan	Cybersecurity	Zoom	35	2,4%
Nimbl Academy	AI	no data	17	1,2%
Nimbl Academy	Blockchain	no data	19	1,3%
ONESOFT	Data Science	no data	16	1,1%
ONESOFT	QA Engineering	no data	18	1,3%
ONESOFT	Business Analysis	no data	18	1,3%
BigData Team	Big Data & Machine Learning	no data	11	0,8%
Interactive Range	Cybersecurity	other LMS	79	5,5%

Sergek Academy	Software Systems Engineering	Zoom	26	1,8%
School1.kz	GameDev	school1.kz/discord	11	0,8%
Dizainger School	Design	Notion.so	31	2,2%
Sanasoft co.	Web Development	no data	5	0,3%
Sanasoft co.	PM	no data	6	0,4%
Alpha Education	Python	Zoom/Google Meet	7	0,5%
Alpha Education	Design	Zoom/Google Meet	14	1,0%
Alpha Education	Web Development	Zoom/Google Meet	16	1,1%
Datanomix Academy	Qlik Sense	Zoom/Google Meet	94	6,5%
BrainCode Academy	GameDev	Google Meet	20	1,4%

11.Appendix B

Interview with Damir Balmassov, Nurorda

Former director of studies

Nurorda school uses the EduPage learning management system. They are mostly satisfied with the platform, it is suitable to fulfill everyday operational needs.

The essential feature of the EduPage that Damir and his colleagues use frequently is scheduling, which is very convenient and the platform offers flexibility as it has a "constructor" type feature. Another popular feature is a messaging system which facilitates contacts between pupils, teachers and parents without exchanging their personal numbers. The introduction of this opportunity at Nurorda was followed by a 30% increase of the EduPage use among the stakeholders (the platform use increased from 40% to 70%). Additional functions offered by EduPage allow to combine groups or find another available teacher if there is a need to replace a teacher, and besides that, there are some motivational tools, such as certificates to pupils and their portfolio, as well as pictures for the younger age group of students.

The interviewee mentioned other widely used features of EduPage, such as maintaining journal records with grades. He also highlighted other options offered

by the platform that could be used more, such as the opportunity to take an online exam in one click, managing assignments, and preparing presentations.

Damir also shared his experience of interaction with Mersys. Nurorda made an inquiry about optimization of the admissions process and did not get a response from Mersys. The admissions became even more complicated, the workload increased and time resources were wasted on making everything manually: parents registered by creating an account for a pupil, then someone from the admissions team had to check the available date and set an exam date. Parents could register for an exact exam date but in some cases the exam day was announced later. All data was entered in Excel and required much effort and resources to keep everything in order. Nurorda asked to customize the admission process so that after registration all candidates were listed on one page with the appointed exam date with opportunity to notify the users automatically whether they are "admitted" or "rejected".

Damir also emphasized admissions and its usefulness. Normally, it took 2-3 people to manage an admission process. This feature was available on EduPage but not used in Nurorda. Additionally, he mentioned an opportunity to customize certificate designs and use of a messaging system as an internal social network.

Damir also did not like the fact that the direct connection of the platform to the website of the school was not developed enough.

Nurorda administration did not ask for feedback about EduPage from the stakeholders as the school did not offer any alternatives. Training and learning about the EduPage was provided via links to tutorials. On the other hand, Damir shared that Nurorda was very satisfied with the pricing model, paying about 200 000 tenge annually.

Nurorda had a positive experience of using EduPage during the Covid-19 pandemic. The platform provides an opportunity to arrange an online lesson in one click just by connecting the teacher's Zoom account to Edupage account, automatically sending notifications to pupils. Damir was surprised to know that other schools did not use the feature of EduPage.

Nurorda has about 1000 pupils, more than 100 teachers, plus an admission team and other supplementary service providers.

Interview with Baurzhan Shaikhin, Astana Garden School

CEO Astana Garden School

The school uses Toddle for primary school and ManageBac for high school. The choice of platform is based on age-specific considerations, with Toddle being more

suitable for younger students. Teacher-parent interaction mostly occurs in the primary school, which is why Toddle is preferred in that context.

The school currently has 700 students, 150 teachers, and approximately 900 users in total. The average age of teachers is 32 years, and they have a good level of proficiency in using software. This suggests that the teaching staff is well-equipped to use digital tools effectively. As a CEO Baurzhan rates their satisfaction with the current platforms as 6 out of 10. The functions used depend on the role within the school. Attendance and assignments are common functions. Administrators often use the platforms for generating reports. Additionally, there is a focus on monitoring time in ManageBac and analyzing assignment completion through analytics.

The interviewee highlighted several areas where the current platforms are lacking:

- The absence of user guides for the app/web version;
- A bit too complex interface, which may make it less user-friendly;
- The need for parent training to effectively use the system;
- A previous experience with Edupage that had outdated functionality.

He mentioned Kundelik, which seems more suitable for public schools.

The interviewee emphasized the importance of providing training for both teachers and parents to use the system effectively. This suggests that feedback from various users has highlighted the need for additional support and training.

CEO of AGS mentioned several features and capabilities they consider important, including:

- Curriculum analysis, specifically aligning the curriculum with the school's plans;
- The potential use of artificial intelligence (AI);
- The convenience of schedule generation, with EduPage being a preferred tool;
- Reference to NOBD, which could be related to specific data or integration needs.

The school used Toddle and ManageBac, with the response indicating that ManageBac offered good support during the setup and adaptation process.

The selection of the LMS/SIS platform involves a collective decision-making process that includes reviewing supplier contracts. However, the main search is made by the IT department, with them proposing some LMS options to the board. The school pays $10,000 per year for ManageBac, 200000₸ for EduPage, and

€4,000-€5,000 for Toddle (subscription for students and teachers). They also pay €10-€15 per year per user. The satisfaction with the pricing model is not explicitly mentioned.

The school uses a cloud service for LMS installation and communicates through the Student Information System (SIS) and chat channels. Priority is given to efficient communication and timing. The International Baccalaureate (IB) curriculum is managed through ManageBac. He also mentioned that ManageBac provides high integration with other platforms, such as Google, YouTube, Zoom etc. and that they and teachers can easily integrate extra APIs to their platform.

Interview with Yerzhan Omirkhanov, Republican specialized secondary boarding school named after Abay, with in-depth study of the Kazakh language and literature for gifted children.

Principal

Yerzhan is a Principal at Republican State Institution "Republican specialized secondary boarding school named after Abay, with in-depth study of the Kazakh language and literature for gifted children" of the Ministry of Education of the Republic of Kazakhstan. Currently they are in the process of integrating Campus LMS of Mersys and the main reason why they have decided to move from

Kundelik to Mersys is the modular functionality of Mersys, meaning that any required module can be easily added to the system, such as timetable generations and homework assignments like in the Google Classroom. Also, Yerzhan mentioned that Mersys also functions as SIS and has the function of posting video lectures.

Kundelik is better suited for monitoring since it has many statistical data including grades and registry logs. However, it is not flexible and hence not suitable for academic needs. Moreover, it has become a common occurrence when servers of Kundelik are down at the rush periods, when all grades are being registered in the system. In addition, since Kundelik was developed in Russia, there are some rumors about concerns of national security because of the personal data of children and parents. Regarding profit generation, Kundelik is offered for free to government schools and the main revenue stream comes from the advertisement banners on the web platform. The costs of the servers are being subsidized by the government, amounting to about 800 million a year. Budget of 600,000 tenge per student at state schools is allocated by the government on a yearly basis.

Also, Yerzhan mentioned the bureaucracy of allocating funds for IT platforms including LMS. Basically, government schools are constrained with the budget and

have specific cost items beyond which it cannot be exceeded. Schools asking to allocate the budget for anything unplanned should apply for approval from the local administrative body of the Ministry or directly from the central body of the Ministry (depending on the school).

Besides, EduPage is the most popular LMS among more or less developed school systems such as BIL, NIS, and other international schools in Kazakhstan. It does its job properly and has relevant functions such as intranet. At first, Yerzhan also planned to introduce EduPage at his school, but, according to him, its UX/UI is old-fashioned. Currently, the overall process of integration of LMS is quite smooth at the school with 52 teachers and 120 administrative staff.

12.Appendix C

Overview of Kazakhstan

I. General information

Kazakhstan is the largest country in Central Asia that accounts for 1,8% of the land in the world that has a very diverse landscape. The history of the country is very rich and the culture is influenced by different stages of historical development and social factors. Kazakhstan is one of the richest countries in mineral resources and therefore the extraction and processing of mineral resources has a large significance for the economy. The country has about 3% of world reserves and is ranked 12th by proven oil reserves in the world. The Economy is oil-dependent as a significant number of economic activities and state revenues are tied to oil production and export. The oil and gas industries accounted for 17% of gross domestic product in 2020. Now the country is trying to focus on diversification of non-oil sectors and development of the private sector.

II. Demographics

The population of Kazakhstan is more than 19,9 million people and this number includes representatives of 130 nationalities. The country has 57th place in the world by the number of inhabitants but the population density is relatively low

due to vast areas of uninhabitable land, including mountainous areas, resource-rich lowlands and weather conditions.

The population is expected to grow to 21,06 million people by 2028. The growth rate significantly increased in 2022 showing 0,322 compared to the average of 0,01376 in 2012-2021. According to the WordBank data, 56.4% of the population is aged between 20 and 64, and more than half of them are women. The fertility rate is also slowly increasing in the last 10 years with the rate of 3,32 in 2021. There is a difference in birth rate in dependence of the region of the country: the southern regions have higher rates of newborns while eastern regions have lower numbers. The median age of the population is also slowly rising with 29,5 years in 2020. According to the report of the United Nations, the median age of the population is expected to grow nearly by 10% in the following eight decades.

The diverse ethnic composition of Kazakhstan does not influence much on religious diversity in the country: 72% of the population are Muslims, Christians constitute 23,1% and 4,9% are representatives of other religions. The state language is Kazakh and the Russian language has an official status. The English language proficiency level in Kazakhstan is very low: in 2022 the country's

English First English Proficiency score was 420, which placed them 99th place among 111 countries.

III. Employment

The distribution of employment by economic sector recorded by the World Bank from 2011 to 2021 shows that the service sector accounted for the largest share of 54,58% in 2011 to 63,77% in 2021. The agricultural sector came second but its share has been steadily shrinking from 26,45% in 2011 to 15,05% in 2021. The proportion of employed population in Kazakhstan is 95,3% in accordance with the data provided by the Bureau of National Statistics of the Republic of Kazakhstan (at the end of II quarter of 2023). Unemployment rate is decreasing with 8,78% in 2012 and 5,01% in 2023. Youth unemployment rate is decreasing from 12,69% in 2005 to 3,85% in 2023.

The government has taken several measures to ensure a stable social situation in the country. The influence of the Covid-19 pandemic on Kazakhstan from the perspective of the working hours was less compared to the regional average numbers: percent of working hours lost was 4.2% in the country as the regional average was 5,6%.

Urbanization level in Kazakhstan is relatively stable in the last 10 years with a slight rise from 56,97% in 2012 to 57,99% in 2022. Poverty headcount ratio is increasing from 4,3% in 2019 with a rise to 1% in 2020 and 5,2% in the following two years. About 3 million people in Kazakhstan belong to the vulnerable group and about 775 400 people have been assigned to targeted social assistance. In the global context, Kazakhstan has a very high level of human development index at 0,825, which emphasizes people and their capabilities not the economic factors. The index is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable, and having a decent standard of living. The country is ranked 51 out of the 189 countries.

IV. Digital literacy

Digitalization is one of the priority directions for development of Kazakhstan and the government is taking active steps to achieve Sustainable Development Goals for a secure, equitable and progressive common future. The country is steadily adopting new technologies to ensure the well-being of society, employment growth, competitive education and efficient health care. In 2018-2021 Kazakhstan invested 1,629.196 billion tenge and attracted 114,8 billion tenge of investments into realization of the Digitalization state program and development of innovative ecosystems. More than 90% of the state services in Kazakhstan are

available online and the country holds 28th place in the UN rankings of Global E-Government Development Index. The general digital literacy rate is 85,3% and 82,2% in rural areas.

Digital literacy rate in the field of education in 2022 was 83% which meets the goal set for that year. The studies of the same year showed that around 82% of the population in Kazakhstan in urban areas had access to the internet, compared to only 45% in rural areas.

V. Education

The government of Kazakhstan is implementing several programs on the development and optimizing of the education system, the country is aiming to provide accessibility and create equal opportunities for children. For example, people can study for free at all levels of education if they get a state grant on a competitive basis. On average every year Kazakhstan spends about 4% of the GDP on education, for example, in 2022 the government allocated 4,5 trillion tenge to this area.

Education system in Kazakhstan consists of several levels: kindergarten, secondary schools, technical and professional education, and higher educational

institutions. Secondary education in Kazakhstan is compulsory. In 2022, the total number of children that are involved in education was 3,589,275.

The total number of schools is 7,550, and 7,173 of them are state schools. In 2021, 23,525 children did not have an opportunity to go to school at their settlements, and had to go to other areas. The tuition fee in private schools varies much from 100 tenge per month up to 1,1 million tenge per month. The number of technical and vocational educational institutions decreased to 7,1% with 724 in 2022 compared to 779 in 2017 but the number of students that study at this level of education is rising.

There are 122 higher educational and postgraduate institutions in Kazakhstan, including 83 universities, 16 academies, 12 institutes, 9 national higher educational institutions and 2 national research universities. Only 23,8% of these institutions are state-owned, 74,6% are private and 1,6% are foreign institutions, accordingly, 66% of students are self-paid and 34% are owners of the state grants. The most popular format of education (97.2% of total number of students) in Kazakhstan is a full-time, 7,3% prefer part-time education and 2,1% are having evening classes. The average tuition fee for students that pay for themselves is about 300,000 - 400,000 tenge annually.

Kazakhstan became the 47th member of the European Higher Education Area when it joined the Bologna Declaration in March 2010. This means that major changes happened in the system of higher education. Kazakhstan is taking a wide range of actions in increasing the quality of education by constant monitoring of institutional licenses and attestations, improving proficiency of faculty members by offering professional development courses, benefit packages, increasing wages, and trying to create an educational ecosystem where institutions of all levels will cooperate to ensure consistency of the system. The state control over the educational process is also in the process of optimization with the change of role of state from controlling authority to incentivizing function. In order to take more effective decisions and ensure proper strategic planning, the ministries that are responsible for education and science are working to improve analytics, which is one of the processes that can potentially be automated in the process of digitization.

Kazakhstan is trying to follow the trend on the labor market and in 2021 Ministry of Labor and Social Protection of Population of the Republic of Kazakhstan presented the Atlas of New Professions and Competencies that includes detailed information about specialties that will be demanded in the nearest

5-10 years and make predictions for the labor market trends and do more accurate strategic planning. The Atlas contains an analysis of the main trends in technology that will significantly change the market in 9 sectors of the economy: mining and metallurgy, oil and gas industry, agriculture, transport and logistics, mechanical engineering, ICT, energy, tourism and construction. Besides that, the Atlas has expectations about changes in professions for the next 5-10 years, identifies 239 new, 95 transforming and 129 professions that are disappearing due to changes in the global work environment and influence of new technologies.

VI. Internet usage

The Internet penetration proportion in Kazakhstan is 82.1% which is on a good level globally. As of January of 2022, there were 16,41 million users of the Internet. The average download speed with fixed Internet connection is 45 Mbps, mobile connections are twice slower with 21 Mbps.

13. Appendix D

Commercial offers of Bilim Land and EduPage.

2021-2022 учебный год

КОММЕРЧЕСКОЕ ПРЕДЛОЖЕНИЕ

BILIM Land

Стоимость предоставления доступа к образовательным цифровым ресурсам (ЦОР)
компании **«Bilim Land»** для юридических лиц (Управления образования, Отделы образования, школы)

ЦИФРОВЫЕ ОБРАЗОВАТЕЛЬНЫЕ РЕСУРСЫ BILIMLAND (www.bilimland.kz)

Онлайн решение

№	Наименование онлайн образовательного ресурса	Цена за одну школу на 1 академ. год без НДС	Цена за одну школу на 1 месяц без НДС
1	Пакет образовательных онлайн-ресурсов www.bilimland.kz, www.itest.kz, www.twig-bilim.kz, www.imektep.kz и www.onlinemektep.org – для педагогов и учащихся малокомплектной школы (контингент до 180)	**390 000 тг.** **без НДС**	**43 333 тг.** **без НДС**
2	Пакет образовательных онлайн-ресурсов www.bilimland.kz, www.itest.kz, www.twig-bilim.kz, www.imektep.kz и www.onlinemektep.org – для педагогов и учащихся полнокомплектной школы (контингент до 2 000)	**580 000 тг.** **без НДС**	**64 444 тг.** **без НДС**
3	Пакет образовательных онлайн-ресурсов www.bilimland.kz, www.itest.kz, www.twig-bilim.kz, www.imektep.kz и www.onlinemektep.org – для педагогов и учащихся полнокомплектной школы (контингент более 2 000)	**870 000 тг.** **без НДС**	**96 666 тг.** **без НДС**

Figure 4. Commercial offer of Bilim Land.

Ценовое предложение

Наименование	Ед. изм.	Количество	Цена за единицу (тенге) в том числе ндс	Общая сумма (тенге)
Услуги по установке и обслуживанию aSc TimeTables и aSc Edupage на календарный год	услуга	1	200 000	200 000

С уважением, генеральный директор
ТОО"EdTech lnnovation"

Асембеков А.А.

Figure 5. Commercial offer of EduPage.

14. Appendix E

Fiscal year is February-January. All values USD Millions.	2023	2022	2021	2020	2019	5-year trend
Sales/Revenue	2,066	1,219	592	265	97	
Sales Growth	69.41%	105.95%	123.63%	173.88%	-	
Cost of Goods Sold (COGS) incl. D&A	752	464	244	117	52	
COGS excluding D&A	688	407	200	85	47	
Depreciation & Amortization Expense	64	57	43	31	5	
Depreciation	25	49	41	-	-	
Amortization of Intangibles	39	8	3	-	-	
COGS Growth	61.98%	90.42%	109.06%	125.22%	-	

Figure 6. Snowflake income statement. (https://www.wsj.com/market-data/quotes/SNOW/financials/annual/income-statement)

Cloudera, Inc.
Condensed Consolidated Statements of Operations
(in thousands, except per share data)
(unaudited)

	Three Months Ended July 31,		Six Months Ended July 31,	
	2021	2020	2021	2020
Revenue:				
Subscription	$ 213,300	$ 191,522	$ 413,956	$ 378,607
Services	22,757	22,814	46,384	46,189
Total revenue	236,057	214,336	460,340	424,796
Cost of revenue:(1) (2)				
Subscription	25,457	27,929	49,049	56,565
Services	19,516	21,710	39,042	47,315
Total cost of revenue	44,973	49,639	88,091	103,880
Gross profit	191,084	164,697	372,249	320,916
Operating expenses:(1) (2)				
Research and development	70,785	62,304	136,610	126,520
Sales and marketing	110,257	105,760	218,085	218,895
General and administrative	42,895	33,167	84,159	67,842
Total operating expenses	223,937	201,231	438,854	413,257
Loss from operations	(32,853)	(36,534)	(66,605)	(92,341)
Interest (expense) income, net	(3,621)	1,444	(7,104)	3,685
Other income (expense), net	26	980	(674)	(1,517)
Loss before provision for income taxes	(36,448)	(34,110)	(74,383)	(90,173)
Benefit (provision) for income taxes	3,243	(1,887)	777	(3,838)
Net loss	$ (33,205)	$ (35,997)	$ (73,606)	$ (94,011)
Net loss per share, basic and diluted	$ (0.11)	$ (0.12)	$ (0.25)	$ (0.32)
Weighted-average shares used in computing net loss per share, basic and diluted	294,330	300,103	293,447	297,724

Figure 7. Cloudera income statement (https://www.wsj.com/market-data/quotes/SNOW/financials/annual/income-statement)