



MINISTRY  
OF EDUCATION AND  
SCIENCE OF UKRAINE

# Centralized E-Learning Solution for 4.5+ Million Schoolchildren Saves Education in War-torn Ukraine\_

Industry: Public Sector

Location: Ukraine

Employees: 360+

Website: [mon.gov.ua](http://mon.gov.ua)





## Client Background

The Ministry of Education and Science of Ukraine (MES) is one of the central executive bodies responsible for the formation, implementation, and supervision of state policy in the field of education and science. The mission of MES is to enrich the intellectual, economic, creative, and cultural potential of the Ukrainian people through high-quality education and form an inclusive society that fosters the sustainable development of the country. The ministry prioritizes the comprehensive development of science, innovation, and digital transformation of education based on the principles of humanism, academic integrity, freedom, and transparency.

## Business Challenge

In 2022, the entire education process in Ukraine was drastically disrupted by the Russian invasion. Ukraine's critical infrastructure was severely damaged, causing disruptions in the learning process. Millions of families were forced to relocate to safer regions in Ukraine or seek shelter abroad. The lives of children were endangered by brutal warfare, which made conventional on-site learning impossible. Such consequences have made access to e-learning for Ukrainian children vitally important.

As there was no single unified e-learning solution that could support the studies of the Ukrainian primary and secondary schools on a country-wide scale, the **Ministry of Education & Science of Ukraine had to tackle the following challenges:**

- Create a centralized e-learning platform that could maintain the continuity and standardization of the education process amidst the mass relocation of children and teachers, supporting 5+ million users.

- Find an approach that would suit the hierarchical administration model and help central/regional/community-level governmental officials efficiently manage the e-learning process for educational institutions.
- Design a simple and intuitive solution, which would allow teachers to independently manage user (schooler) accounts within their schools and prevent risks of personal data breach amidst the increased external threat.
- Complete the project in short terms (2,5 months) and start distributing the new e-learning approach at the beginning of the new academic year.

The Ministry of Education & Science of Ukraine started collaborating with Microsoft to discuss the possibility of building the required e-learning platform on [Microsoft 365](#).





Infopulse could not stand aside, as we see the support of Ukrainian society and its citizens as our fundamental duty. Moreover, we share Microsoft's commitment to developing safe and inclusive learning for everyone, especially our youth.

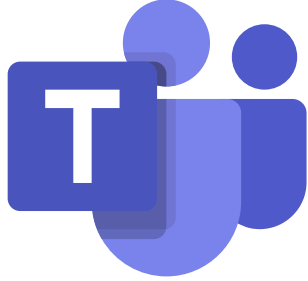





After applying for the project, Microsoft selected Infopulse among three peer Ukrainian IT service providers due to our 18+ years of experience with Microsoft technologies, [Azure Expert MSP status](#), 5 out of 6 possible [Microsoft Solutions Partner designations](#), 430+ certified experts, and the ability to quickly ramp up a development team and embark on the project.



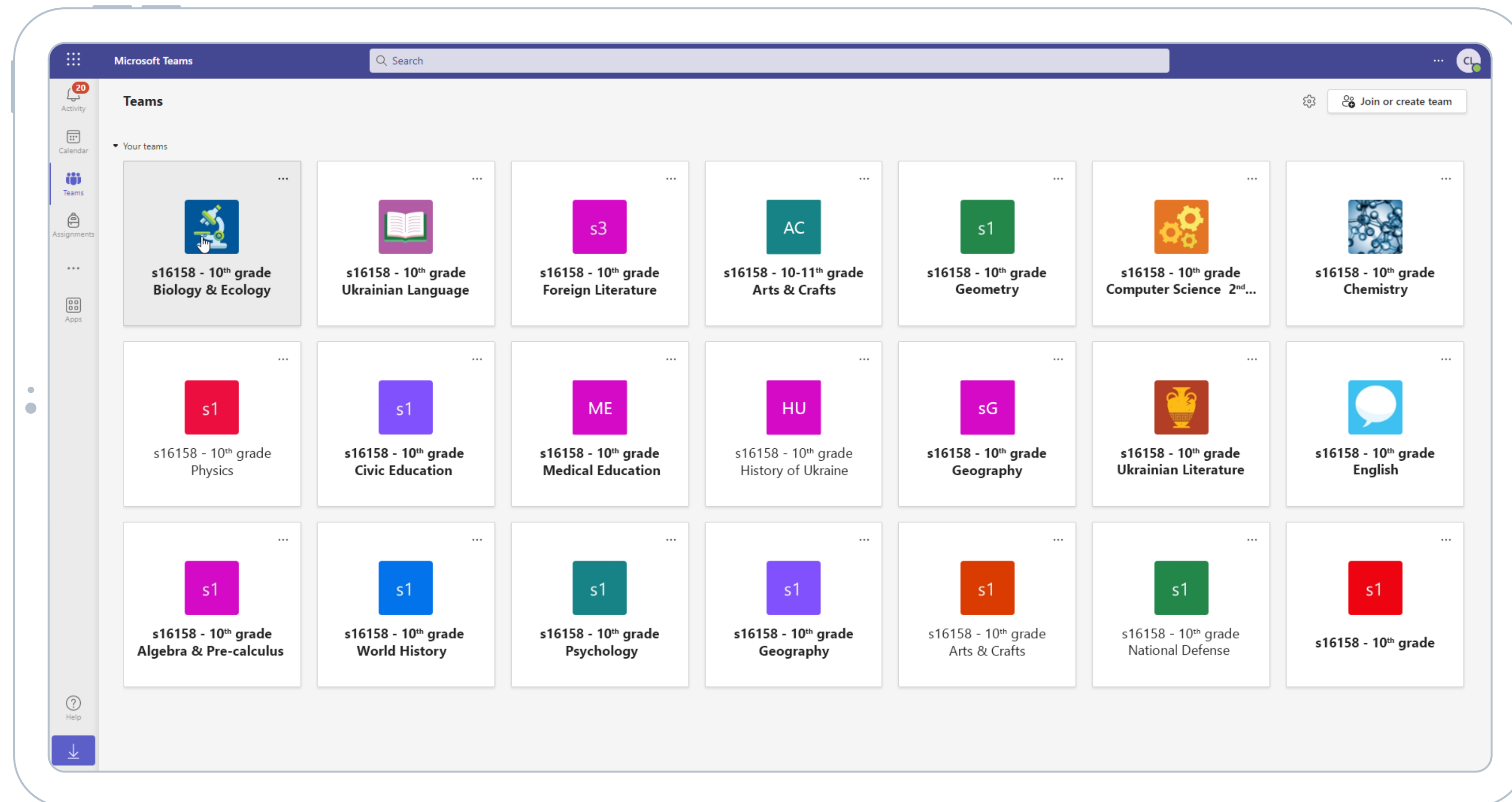
## Solution

Infopulse developed a custom application embedded within the interface of Microsoft Teams, which allows to seamlessly create and manage user accounts according to the existing hierarchical organizational model,

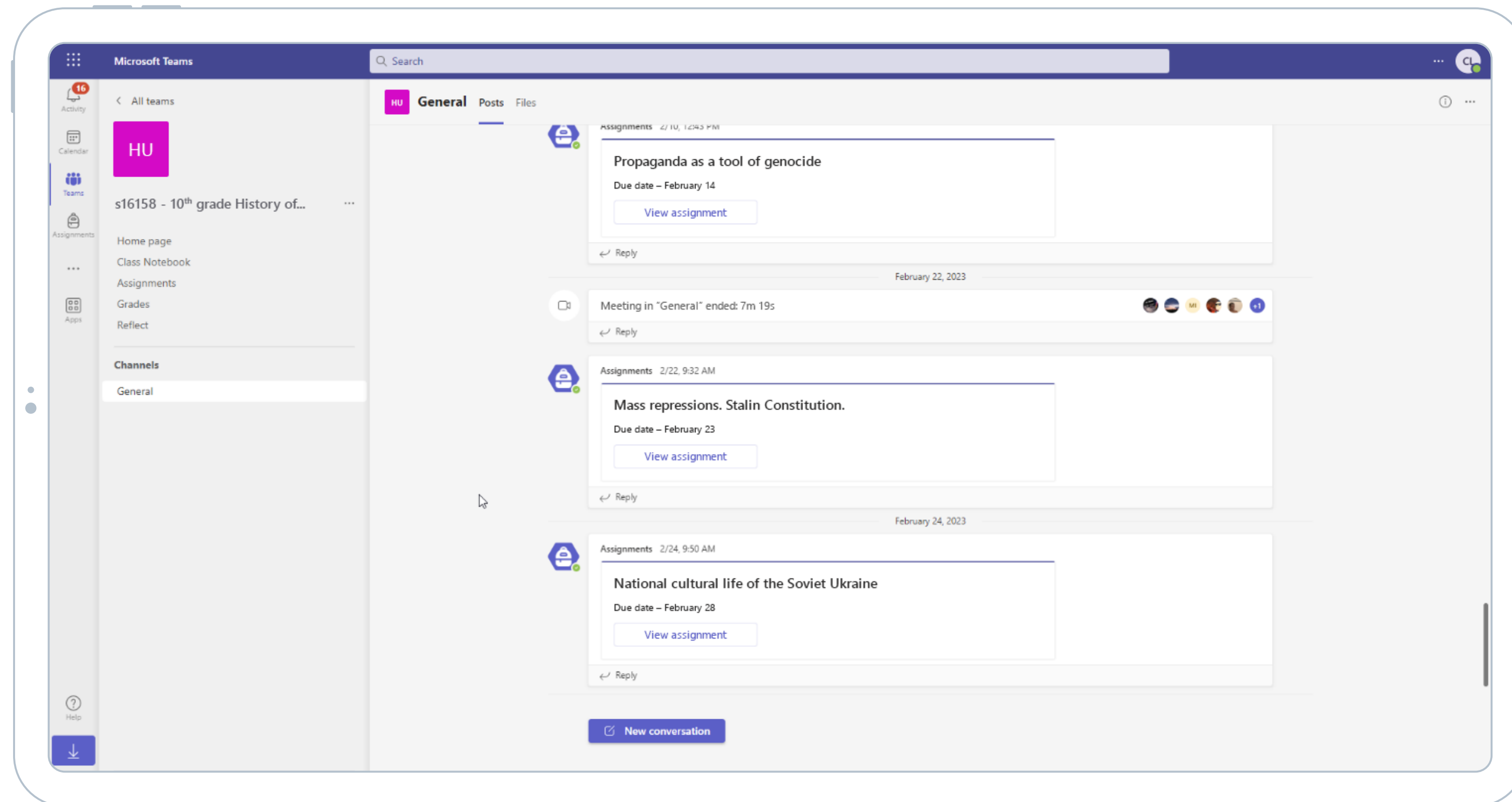
and configured Microsoft 365 to provide access to all the essential e-learning tools offered by Microsoft 365 in a single, unified console:

 <p><b>Microsoft Teams</b> as the main communication tool, which is used for audio/video calls, file sharing, and lesson planning. Teams Assignments were used to assign, monitor, and evaluate homework.</p>	 <p><b>OneDrive</b> – cloud-based file storage, which can be accessed by children without having to use one specific device for learning.</p>	 <p><b>SharePoint Online</b> serves as a consolidated safe storage of personal and educational data in selected formats (audio, video, doc, ppt, pdf, pictures).</p>
 <p><b>OneNote</b> is used as a tool for holding class materials and doing homework (schoolers can write by hand, draw, and enter formulas).</p>	 <p><b>Microsoft Forms</b> enables teachers to easily create academic tests and automatically evaluate the results.</p>	 <p><b>Microsoft Stream</b> – acts as a storage of video content and lesson recordings.</p>

### List of School Subjects



### Subject Topics & Tasks





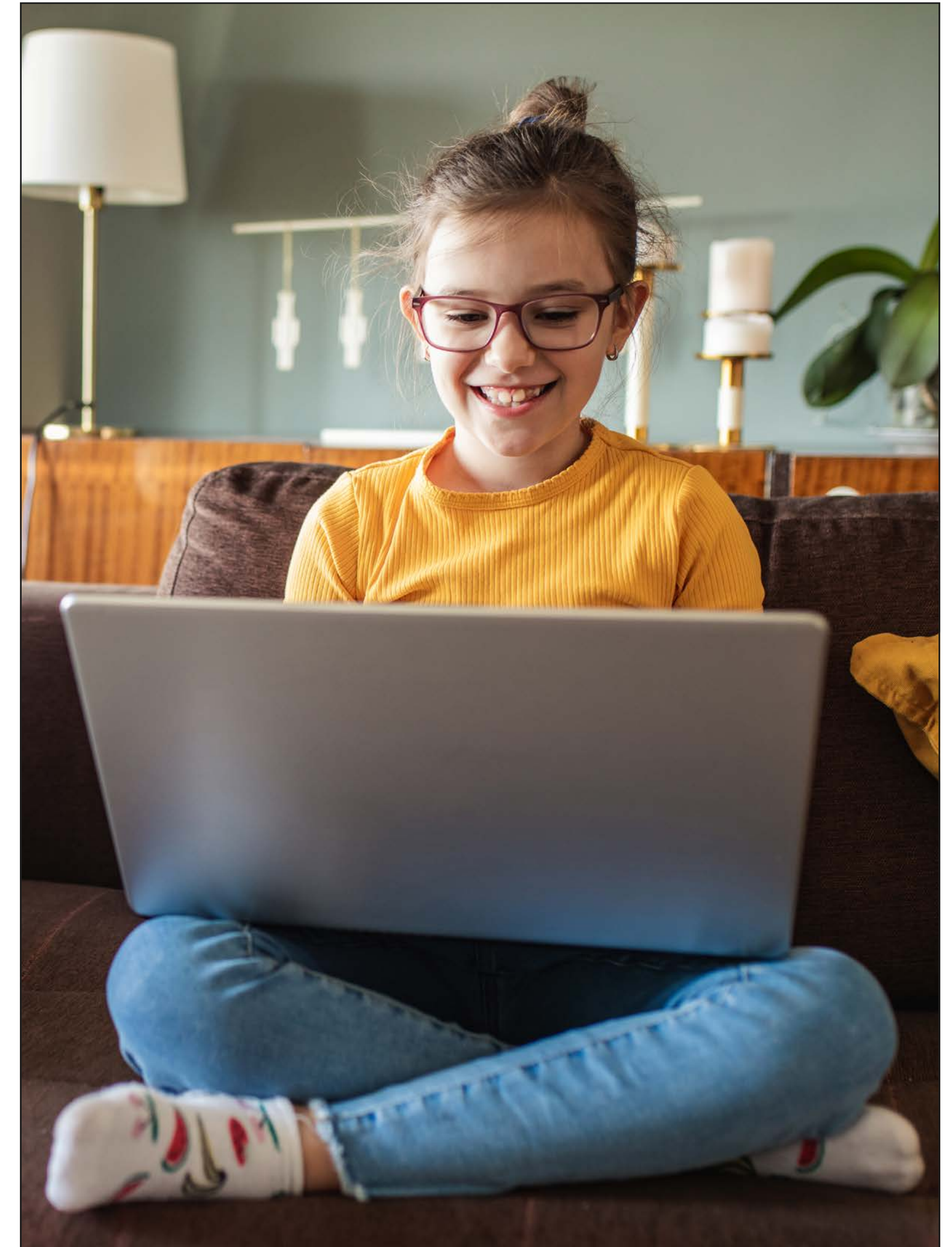
**Infopulse faced two primary challenges during the solution development:**

- The first challenge was to find a way to **make the centralized e-learning solution accessible for 4.5+ million schoolchildren and teachers**, while the Microsoft 365 tenant can only support up to 1 million users. To resolve this, our team designed a multi-tenant architecture with 6 tenants dedicated to specific regions in Ukraine, with one core tenant that processes all requests and makes changes in the other six.
- The second challenge was to develop **an administrative tool** that allows the distribution of user account administrative rights according to the hierarchical organizational model. The key issue was that the mechanisms envisaged by Microsoft (SDS or Azure SD Administrative roles on AU scope) could not be used because of existing restrictions of technologies (requirements to have a centralized

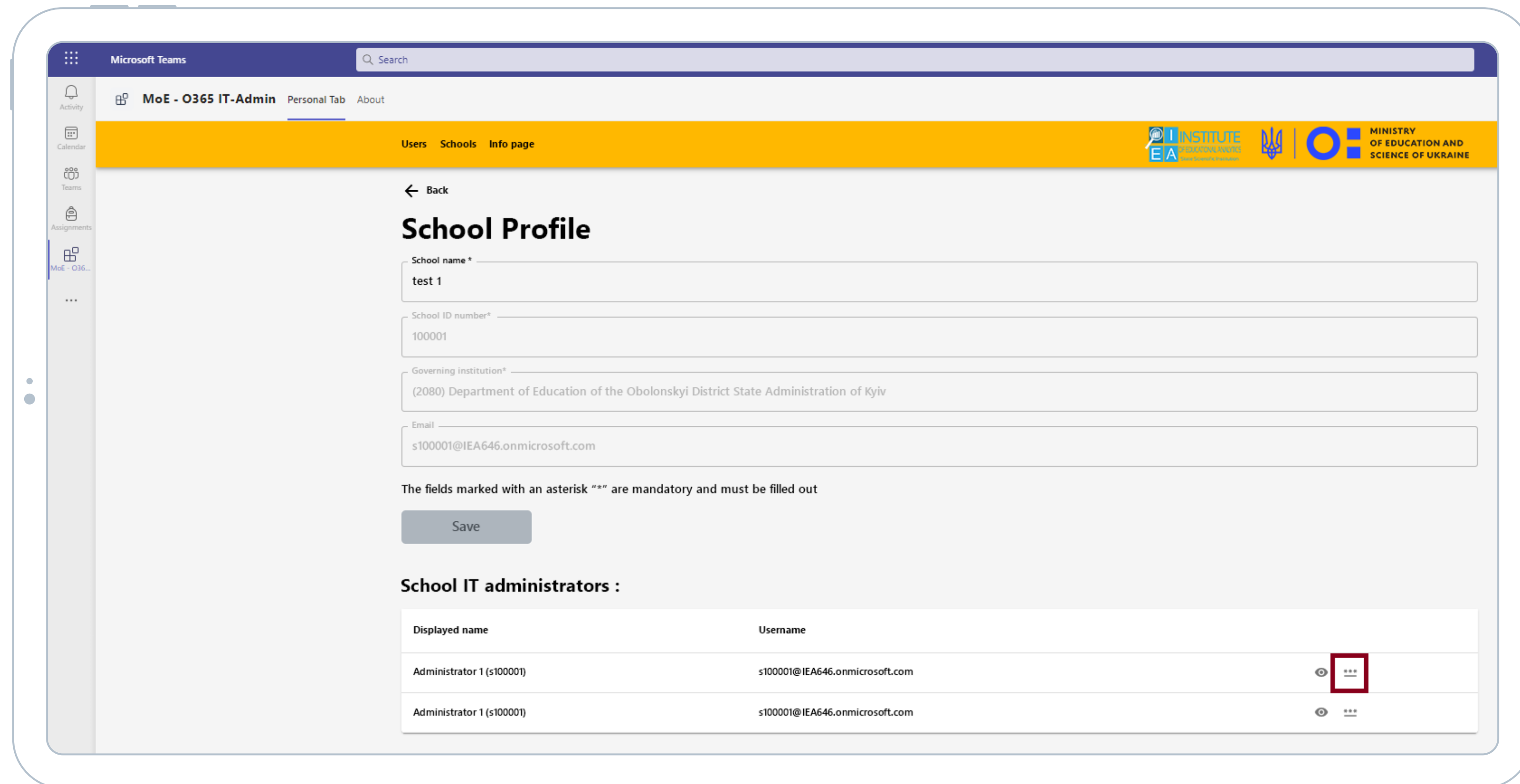
user management database and unavailability of user creation/deletion functionality for admins). To resolve this, our team developed a custom tool that implements a hierarchical user accounts administrative model within Microsoft Teams interface.

As a result, the client received **a convenient hierarchical management model**, which can be operated from a centralized and intuitive Microsoft Teams console:

- Central-level MES administrators who can manage and configure all relevant solution settings
- Regional and community-level administrators who manage the subordinate schools (create institutions, change attributes, switch subordination, etc.)
- School-level administrators who are in charge of user account management (create/delete/edit user accounts and reset passwords)

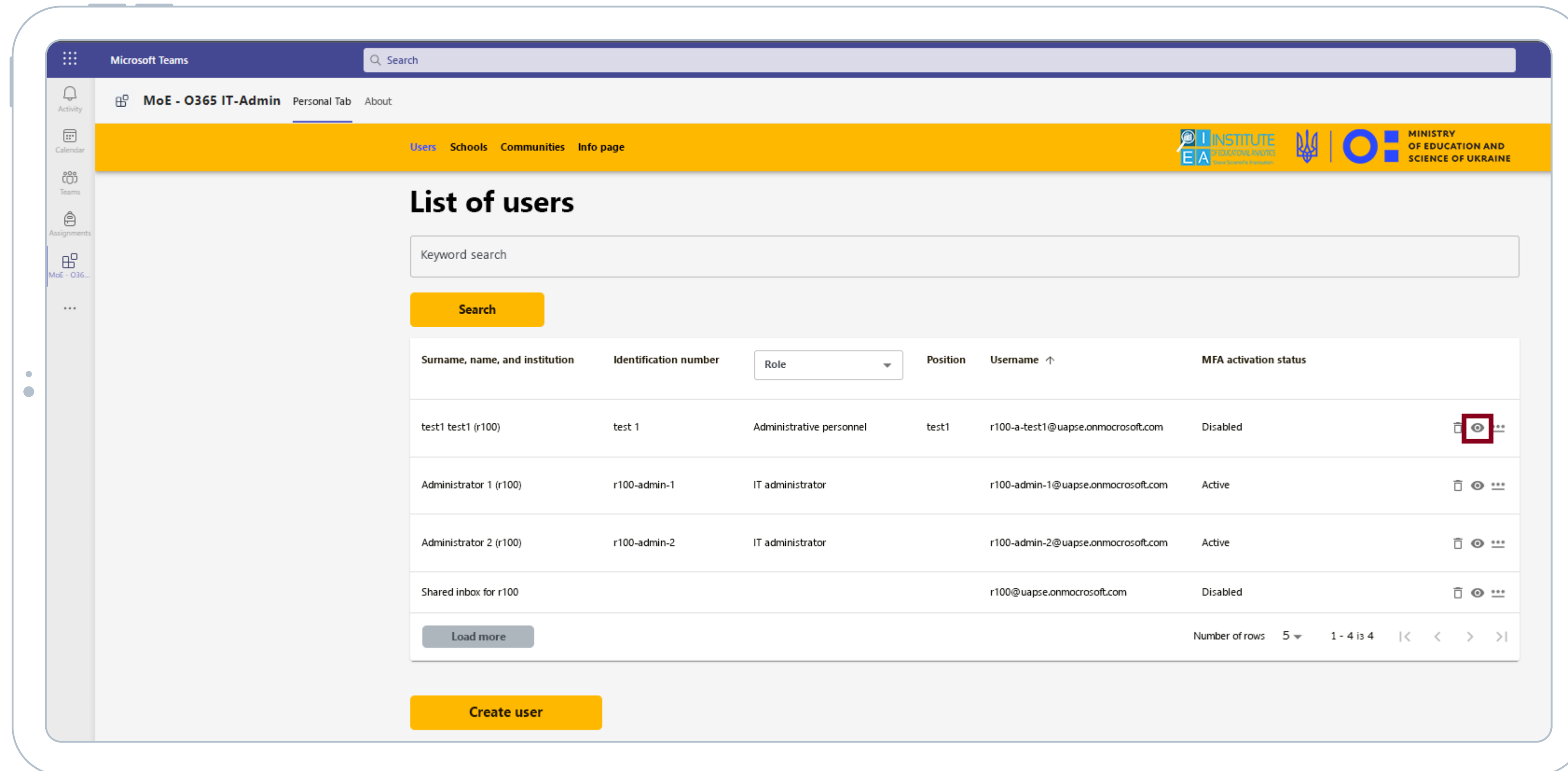


## School Profile Management





## Management of User Accounts



To reduce the risks of sensitive data breaches and leaks, Infopulse stored all sensitive data in the **Azure Active Directory**, enabled **multi-factor authentication (MFA)**, and configured **Conditional Access** policies.

Consequently, our team conducted a series of stress tests to ensure that the solution can handle a high quantity

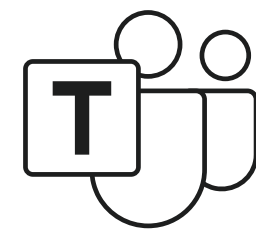
of parallel sessions, user account activations, and active users without disruptions. To maintain balanced and hassle-free performance, Infopulse established an **autoscaling process** to increase or decrease **Azure** resources on-demand, depending on the number of users.

After successfully passing all the tests, the e-learning solution was automatically deployed in the production environment via dedicated **Azure-based CI/CD pipelines** with Azure DevOps, which enabled the swift and error-free distribution of the new software across all six tenants.

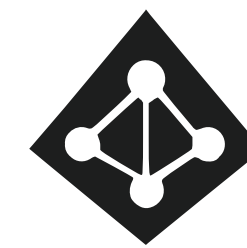
## Technologies



Microsoft 365



Microsoft Teams



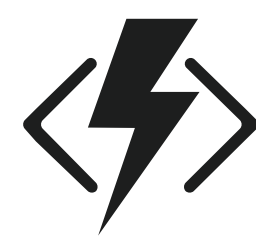
Azure Active Directory



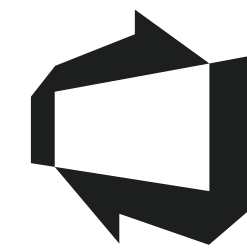
Azure Service Bus



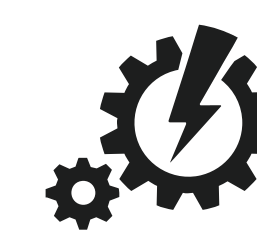
Azure Key Vault



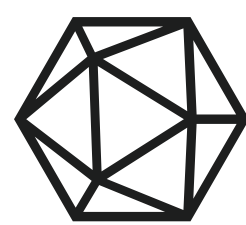
Azure Functions



Azure DevOps



Azure Automation



Microsoft Graph



Application Insights



## Business Value

On a nationwide scale, the joint efforts of Infopulse and Microsoft have helped to sustain the education process for millions of children in war-torn Ukraine.

By implementing the new e-learning platform, the Ministry of Education & Science of Ukraine enabled a **resilient, centralized, and flexible education process for 100,000+ schoolchildren** and teachers across public, private, and specialized Ukrainian educational institutions when it was physically impossible, while still having the capacity to support up to 5 million users.

Besides perfectly serving its purpose, **the Microsoft 365-based e-learning platform developed by Infopulse provides a full spectrum of additional valuable benefits for the client:**

- **Increased collaboration:** with Microsoft Teams, pupils can work together on lessons and assignments, even when they are not in the same physical location. This can help facilitate collaborative learning, which has been shown to improve schoolers' engagement and outcomes.
- Microsoft Teams provides **a platform for educators** to create and deliver online classes, which can be

accessed by pupils at any time. This can provide **greater flexibility and mobility** for pupils who have other commitments or prefer to learn at their own pace. Schoolchildren can easily access and use an all-in-one digital e-learning platform from any device (laptop/PC, smartphone, tablet).

- An **intuitive solution with simple onboarding** for educational institutions, as well as teachers and pupils.
- **Data loss prevention and backup** that mitigate the accidental or intentional deletion of educational materials and documentation.
- **Robust protection against unauthorized access and data leaks** with Azure Active Directory, multi-factor authentication, and Conditional Access that blocks access attempts from hostile countries (russia, belarus).
- **Minimized probability of cyberbullying** with built-in communication policies that can limit direct contact of schoolers, restricts the creation of groups without teachers, and prohibits communication between pupils from different schools via an information barrier.

- **Possibility to extend the solution with new capabilities** and integrations that facilitate the learning process ([Power BI reports](#), Microsoft Viva Learning, [AI recommendations](#), interactive education games in Minecraft, etc.).

Just as importantly, the solution promotes overall **learning transparency and honesty** for the pupils with digitized academic testing, reporting, attendance monitoring, homework control, and an option to gather statistics about the education process. As for the teachers, the solution contributes to the development of teacher unions by allowing them to work and collaborate in a unified environment.

This engagement has become the second nationwide project for Infopulse, focused on improving education in Ukraine. Previously, Infopulse contributed to saving the nationwide university admission campaign by [updating the External Testing system for UCEQA](#), a national Ukrainian testing agency.

Now the developed Microsoft 365-based e-learning platform has the potential to be **scaled across the entire country**, thus driving the digital transformation of Ukraine's education as a part of ongoing nationwide digitalization processes.



## About Infopulse

Infopulse, part of the leading Nordic digital services company Tietoevry, is an international vendor of services in the areas of Software R&D, Application Management, Cloud & IT Operations, and Cybersecurity to SMEs and Fortune 100 companies across the globe.

As a Microsoft certified partner since 2004, Microsoft CSP Direct Partner for EU and CEE, and an [Azure Expert MSP](#) with 5 Designations, Infopulse meets the highest demands in implementing Microsoft technologies and solutions. We offer the broadest range of [Microsoft-based services](#) (Azure, Microsoft 365, Teams, Viva, SharePoint, Power Platform, Dynamics 365, etc.), as well as dedicated [digital workplace](#) and [remote work](#) solutions.

For more information, please visit [www.infopulse.com](http://www.infopulse.com)

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