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| Vision Document |
| Topic: Digital organization system for a high school |
| Authors: Szymon Kasprzycki, Bartosz Sobczak, Szymon Oryńczak |

1. The organization acquiring the IT system

1.1. Name of the organization

AKADEME Private School

1.2. Description of the organization

AKADEME Private School - a private highschool unit established in Warsaw, Poland. Provides the highest quality of secondary education on dedicated educating profiles for its students and allows them to participate in state exams. Pays special attention to the interest groups / clubs such as language classes, sports, art clubs, technological and engineering crews.

The school consists of 99 employees: 42 teachers, 12 office workers, 35 service staff workers, 5 psychologists and 5 main board's representative. The organization takes care of around 500 students.

The academy is financed mostly by tuition fees paid per semester in the amount of 15000 PLN. The other earnings come from canteens, food vending machines and school merch.

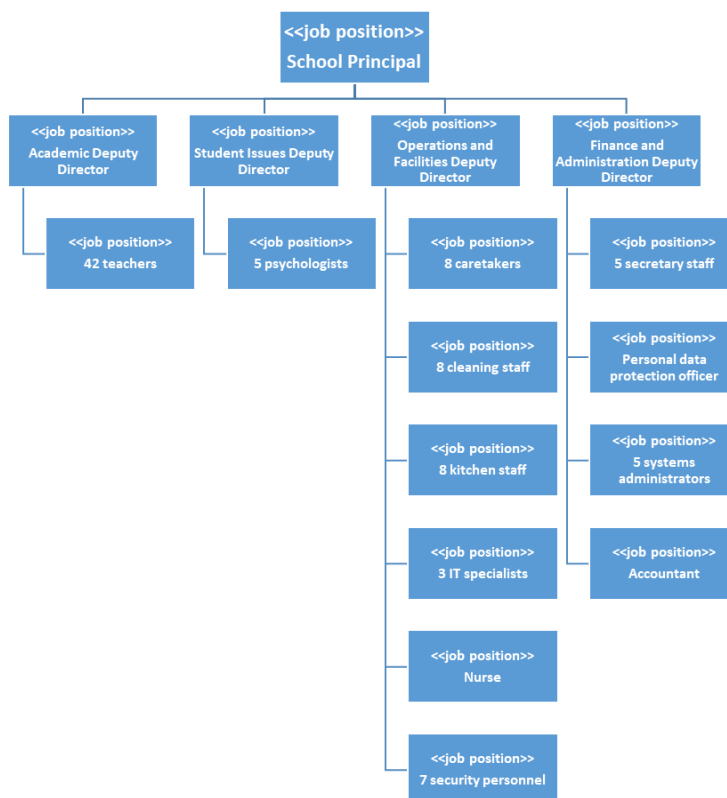
AKADEME provides courses for 23 school subject on basic level that are consistent with the Polish core curriculum: polish, english, german, spanish, italian, mathematics, informatics, music, history of music, art, history of art, history, sports, geography, history and present, civils, biology, chemistry, basics of entrepreneurship, physics, education for safety, religion/ethics and sex education.

The organization distinguishes several key business processes: student recruitment, monitoring state education foundations, developing own scientific and artistic initiatives, monitoring student progress, ensuring the highest quality services, staff management, investment planning, taking care of the best possible relationships with parents, individual reports and statistics.

The school constantly focuses on improving the quality of teaching, developing an approach to teaching, and extracting the features and skills that distinguish individuals. There are also plans to create a second facility - a primary school - in the near future. In the longer term, the management plans to create a teaching system from kindergarten to higher education. The school places great emphasis on technological progress and the implementation of the latest solutions.

So far, the organization has used publicly available tools of the electronic diary type to organize work. Unfortunately, these solutions did not provide the expected stability and quality of work. The school decided to develop an individual solution tailored to its needs.

1.3. Organizational structure



Responsibility of the organizational units:

| Organizational unit | Responsibilities |
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| School Principal | Providing leadership for the school community, overseeing the development and implementation of a curriculum, employment decisions, maintaining safe and respectful learning environment, overseeing student activities, building good relations with other stakeholders, financial decision making, main representative role. |
| Academic Deputy Director | Collaborating with the principal and teachers to develop and update school's curriculum, assisting in the teacher recruitment process, organizing trainings for the teachers staff, overseeing student learning process, being a link between the teaching affairs of students and teachers. |
| Student Issues Deputy Director | Assurance of teaching and mental health care for the students, mediating and resolving conflicts among or between students and teaching staff or |

| Organizational unit | Responsibilities |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | managing staff. Monitoring students behavior, hiring psychologists, collecting student's feedback about teachers, other directors, psychologists and service staff. |
| Operations and Facilities Deputy Director | Hiring and overseeing the work of service staff: caretakers, kitchen workers, IT specialists, nurse and security personnel. Gathering raptors about technical and mechanical devices of school, electrical and computer networks. Implementation of safety and hygiene standards. Making plans about developing the school's infrastructure. |
| Finance and Administration Deputy Director | Maintaining the school's financial resources, budgeting, financial planning, allocating resources. Preparing financial reports, overseeing office workers, making administrative and financial suggestions, developing investment strategies. |
| Teacher | Delivering effective instruction, developing lesson plans, assessing student progress, and fostering a positive learning environment in their subject area. |
| Psychologist | Providing mental health support for students. Organizing classes addressing the most common problems of young people. |
| Caretaker | Keeping mechanical equipment, water, heating and electrical systems in good condition. |
| Cleaning staff | Maintaining cleanliness. |
| Kitchen staff | Providing properly balanced meals. |
| IT specialist | Administration of computers, computer networks and IT devices. |
| Nurse | Providing medical care, assessing and treating student health issues. |
| Security personnel | Ensuring safety throughout the site. Responding to dangerous situations. |
| Secretary staff | Performing administrative tasks, managing records, coordinating communication. |
| Personal Data Protection Officer | Ensuring the school's compliance with data protection laws, safeguarding the privacy of students and staff. |
| Systems administrator | Managing the school's database, developing control systems. |
| Accountant | Managing the school's financial records, budgeting, financial reporting, and ensuring compliance with accounting and financial regulations. |

1.4. Problems occurring within the organization:

- System performance from the current supplier (commercial school organization solutions) has not been satisfying and users have been experiencing long loading times and errors. The school is going to be equipped with high quality server hardware which will operate the new digital organization system.
- Personal data of students and employees is at risk of being leaked while kept on the public servers. The risk could be reduced by implementing an internal, high-security database for the new system.
- The system, which is currently used by the school, doesn't allow students to enroll to the interest groups and additional classes as well as viewing information about them, which can only be done via public announcements or emails.

1.5. Generic concept of an IT system

A digital school organization system paired with an internal database (based in the premises of the school), which would consist of several sections such as schedules, grades, additional classes and events. The system would also allow its user for other functionalities like sending messages or fulfilling payments (e.g. tuition fees).

2. Stakeholders

| Stakeholder | Viewpoint |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Principal | Expects a system that will ensure efficient and transparent administration of processes taking place in the organization. He hopes for a system that will satisfy students, parents and staff. |
| Academic Deputy Director | Expects a system that will make contact with teachers more effective. He would like to efficiently verify the compliance of the taught material with the Ministry's standards. |
| Student Issues Deputy Director | Expect a system that will provide him with as much information as possible about students' problems. He hopes that efficient communication will be ensured between him and students, parents and other staff. |
| Operations and Facilities Deputy Director | Requires a system that will easily verify technical standards with the actual condition of school equipment and devices. Checking reports is very important in this case. |
| Finance and Administration Deputy Director | From the point of view of this position, transmitting data without loss of quality is crucial. The director expects quick access to |

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| | reports and communication with the director and secretariat staff. |
| Parents | Children's education, safety, and well-being, and they often seek transparency, effective communication, and quality educational outcomes from the school. |
| Students | Expects gaining educational experience, personal growth, and high quality of teaching and support they receive. |
| Teachers | They expect an easily accessible and easy-to-use system, maintaining appropriate communication with students, parents and management. |
| Service staff | Receiving clear instructions regarding their responsibilities, informing their superior about progress. |
| Office workers | Administrative efficiency, effective communication, and providing support to various aspects of school operations. |
| Psychologists | Prioritizing the mental and emotional well-being of students, offering counseling and support services to promote their overall health and academic success. |
| Polish education system | Holds a perspective that focuses on monitoring adherence to national educational standards, regulations, and curriculum guidelines to ensure consistency and quality in education delivery. |
| AKADEME system developers | Prioritize the effective implementation of technology solutions to enhance administrative efficiency and being in contact with the main board and potential system users. |
| Universities | Show interest in a partnership because of the source of potential students and members of science teams. |
| Polish Teachers' Union | Want to be an active representation of the teaching staff. |
| School's database | It must be accurately reproduced in the system tools, it plays a key role - decisions are made based on the data. |
| General data protection regulation | Focuses on safeguarding the privacy rights of students and staff, imposing legal obligations on the school to protect personal data and ensure compliance with data protection regulations. |
| School's computer network | To function properly, it must be constantly monitored, as a data carrier it only requires correctness in technical matters. |

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| Student rights advocate | Wants to ensure that students are treated with dignity and that their rights are respected. |
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3. System's context

3.1. System users and their characteristics

| User | Characteristics | |
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| Principal | Profile ¹ | This user has basic knowledge in the field of information technology, and is fluent in the Microsoft 365 package. He knows the basics of SQL and had no problems with using the previous version of the school organization system. |
| | Conditions of use ² | The system is going to be used mainly in the principal's office, as well as remotely (at home or possibly during business trips). The most important aspects for this user are security & privacy for contact with teachers and other employees, and overall system reliability. |
| | User interface requirements ³ | From the user's point of view, the panel should be relatively complex and thus provide quick access to detailed system elements. Finance, teaching and organizational matters, information about students, events and employees should be listed as the most important. |
| Academic Deputy Director | Profile | The user is fluent in basic group management tools. The Microsoft 365 package does not pose any problems in use, but the introduction of the new system will require appropriate training. |
| | Conditions of use | The system is going to be used in the office most of the time. A wide access for data (such as grades or material covered in classes) is needed for this user in order to supervise the teaching progress. |
| | User interface requirements | The user should be provided with efficient access to resources of teaching material, grades, subjects, and results of students and teachers. |
| Student Issues Deputy Director | Profile | The user has no experience with basic IT tools. Training in the 365 package and the newly created system will be needed. |
| | Conditions of use | The system is going to be used in the office most of the time (with the possibility of remote work). Reliable communication with students and psychologists is essential for this user. |
| | User interface requirements | The user should be provided with transparent communication and the ability to create quick reports regarding students' comments or problems. |
| Operations and Facilities Deputy Director | Profile | The user is proficient in using computer systems, but will still require training in using tools for communication within the organization and for managing service employees. |
| | Conditions of use | The system is going to be used in the office most of the time. The most important aspect for this user is the wide access to the technical information (such as the condition of devices) and reporting capabilities. |
| | User interface requirements | The user should be able to manage the calendar of employees subordinated to him. He should have quick access to reports on work and technical status of devices. The user should be provided with a transparent communication system. |

¹ Profile – user's ability of using IT systems, needs of help/support, limitations (impairments, language etc.)

² Conditions of use - specific conditions of using the system, the most important aspects of performed tasks

³ User interface requirements - requirements concerning user interface (derived from profile and conditions of use!)

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| Finance and Administration Deputy Director | Profile | The user can easily use IT tools and is able to formulate database queries, manipulate data and prepare electronic reports. |
| | Conditions of use | The system is going to be used in the office most of the time. A wide access to all sorts of financial data is most essential for this users' responsibilities. |
| | User interface requirements | The user should be able to easily and quickly view financial settlements, invoices and other sources of financial data. He should be able to observe transactions carried out by the incoming payment system and bank settlements (they are not part of the system, they are carried out by the bank). |
| Teacher | Profile | Usually does not have a lot of experience in using IT systems (also, experience and fluency depends on teacher's age). Training will be obligatory so that the teacher is familiar with all the necessary features for their job. Built-in help should also be provided and be accessible at any moment. |
| | Conditions of use | Software will often be used in the classroom, as well as at home for activities such as grading documentation. The most important factor for this user is efficiency and reliability. |
| | User interface requirements | The interface should not be overwhelming, while providing a selection of tools and actions used for teaching purposes. and should highlight in-class activities such as checking attendance. Editing or undoing actions should be allowed, especially in the grading section. |
| Student | Profile | Students are generally able to use IT systems smoothly. They are also not expected to edit or post content. Nonetheless, a quick guide and / or a help page could be organized for convenience. An English version of the interface might be needed for foreign students. |
| | Conditions of use | Students might access the system using a variety of devices, from a variety of locations. Access to data such as class schedule and announcements should be at priority for this user. |
| | User interface requirements | There should be a possibility for the user to view the content relatively quickly and effortlessly (e.g. information about class being canceled). |
| Parent | Profile | Not expected to be accustomed with IT tools. A concise guide should be provided at an accessible place in the interface. |
| | Conditions of use | The system is going to be used mainly from home. In most cases, the user doesn't use the system on a daily basis. Therefore, the user does not expect any significant features, they only need the system to be safe and reliable. |
| | User interface requirements | Efficient grade and presence monitoring tools as well as accessible contact solutions should be provided in the interface. |
| Worker | Profile | Most of the (non-teacher) employees are not sophisticated users, but their (IT system-wise) needs are the lowest. Thus, only a simple help page might be needed. |
| | Conditions of use | School's employees are going to access the system remotely (with use of mobile devices) or at school. Mostly, they only need from the system to include basic scheduling and informative features, so they expect the system to be simple and reliable. |

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| | User interface requirements | The interface for this user is not going to need any of the educational contents available in the system, and expects the system to only include the essentials such as announcements or work schedules. The features should be limited and simplified. |
| System Administrator | Profile | The System Administrator is expected to possess extensive knowledge about the system and proficient in managing the database. They are explicitly taught by the system developers. |
| | Conditions of use | The user is going to use the system mainly in the office, but they might also access the system remotely. A complete access for various data and functions is essential for this user. |
| | User interface requirements | Every modification feature should be included, with an option for requesting changes to the system (addressing the developers). The database contents should be easily accessible and modifiable through the interface. |

3.2. External cooperating IT systems and their interfaces

| Cooperating IT system | System's interface (provided / expected functions, transmitted data, technical means of cooperation e.g. API, web service, export/import) |
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| Online incoming payment system | Settlement of incoming payments. ID of transfers are transmitted. System is connected through a web API. The app makes requests to the endpoint to obtain the transaction ID, passing on the necessary data such as the payer's email address and the amount of the transaction. Then it checks the status of the transaction to verify that the payment has been made. |
| Digital government services | Processing and protection of personal data. It facilitates the verification of people associated with the organization. The data is provided by the "trusted profile" service. Basic personal data is transferred: name, surname, PESEL, address, date of birth, phone number, e-mail address, ID number. The software connects to government servers using backend software provided by the Prime Minister's Office written in JAVA. It runs on the server as one of the local microservices. |
| Microsoft 365 services and integrated MS Teams | Using Microsoft services dedicated to school organizations to improve remote communication (Microsoft Teams) and expanding knowledge about 365 package programs. Using Excel to create auxiliary information collections. Microsoft Office will be completely available to students for their individual needs. |

4. Functional requirements

| User | Function | Priority |
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| School Principal | F1.1 Be able to send broadcast announcements to all users. | Must |
| | F1.2 Be able to generate and download detailed reports on school operations. | Must |
| | F1.3 Have access to grades and attendance records for all students and teachers. | Must |
| | F1.4 Have access to comprehensive employee records, including teachers and staff. | Must |
| | F1.5 Be capable of accessing and managing financial records and reports. | Must |
| | F1.6 Receive real-time notifications for critical events in the school. | Should |
| | F1.7 Be able to set reminders for important tasks and events. | Should |
| | F1.8 Be able to customize the dashboard for quick access to critical elements | Should |
| | F1.9 Be able to grant or revoke access to specific functionalities for other users. | Should |
| | F1.10 Receive a short introduction into the system along with the documentation. | Should |
| | F1.11 Have a possibility for real-time communication with teachers and staff. | Could |
| | F1.12 Have access to advanced reporting and analytics tools. | Could |
| Academic Deputy Director | F2.1 Have access and be able to review teaching materials used in classes. | Must |
| | F2.2 Have access to student grades and attendance records. | Must |
| | F2.3 Be able to assess and track the progress of teachers. | Must |
| | F2.4 Be able to create reports on teachers' work and academic performance. | Must |
| | F2.5 Be able to schedule and manage curriculum planning within the system. | Should |
| | F2.6 Be able to generate comprehensive reports on academic activities. | Should |
| | F2.7 Have access to a dashboard that highlights teaching progress and student performance. | Could |
| | F2.8 Be able to provide feedback for teachers through the system. | Could |
| | F2.9 Receive training or integrated tutorials for the system. | Could |
| Student Issues Deputy Director | F3.1 Have access to easy-to-use interface for communication with students. | Must |

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| | F3.2 Be able to create and manage quick reports on students' comments or problems. | Must |
| | F3.3 Be capable of accessing and sharing information with psychologists in the department. | Must |
| | F3.4 Be able to schedule and track follow-up actions on reported student issues. | Should |
| | F3.5 Be able to categorize and prioritize student issues for efficient handling. | Should |
| | F3.6 Be able to archive and retrieve past student issue reports. | Could |
| | F3.7 Receive training sessions or tutorials integrated into the system. | Could |
| Operations and Facilities Deputy Director | F4.1 Be able to manage the work schedules of service employees. | Must |
| | F4.2 Be able to create reports on work completed by service employees. | Must |
| | F4.3 Have the capability to control device repairs and maintenance. | Must |
| | F4.4 Have access to training materials. | Must |
| | F4.5 Be able to prioritize and assign tasks to service employees. | Should |
| | F4.6 Have a feature for scheduling routine maintenance tasks. | Should |
| | F4.7 Have access to real-time data on the status of technical equipment. | Should |
| | F4.8 Have the option to archive and retrieve past reports and device status history. | Could |
| | F4.9 Have the ability to set reminders for important tasks and maintenance schedules. | Could |
| Finance and Administration Deputy Director | F5.1 Have quick access to financial summaries. | Must |
| | F5.2 Be able to oversee incoming payment transactions. | Must |
| | F5.3 Have the capability to generate reports on financial matters. | Must |
| | F5.3 Have the capability to set the tasks for secretary office staff. | Must |
| | F5.4 Have an easy way to send financial reports to an accountant. | Must |
| | F5.5 Have access to historical financial data for analysis and comparison. | Should |
| | F5.6 Have a feature to set financial alerts or notifications. | Should |
| | F5.7 Have the option to export financial data for external auditing purposes. | Could |
| | F5.8 Have a secure document management system for storing financial documents. | Could |
| Teacher | F6.1 Have the option for teachers to access the system from home for grading and lesson planning. | Must |
| | F6.2 Be able to grade student assignments and documentation. | Must |

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| | F6.3 Be able to support in-class activities like taking attendance. | Must |
| | F6.4 Have a gradebook with the ability to calculate weighted grades. | Must |
| | F6.5 Have tools for creating and sharing digital course materials. | Should |
| | F6.6 Have a feature for teachers to track student attendance history. | Should |
| | F6.7 Be able to set reminders for upcoming tasks and deadlines. | Could |
| | F6.8 Have a mobile app for easy access to essential functions. | Could |
| Student | F7.1 Have prioritized class schedules and announcements for easy access. | Must |
| | F7.2 Have a quick guide or help page. | Must |
| | F7.3 Allow to access course materials and assignments. | Must |
| | F7.4 Allow to submit assignments and view their grades. | Must |
| | F7.5 Have a calendar view of class schedules and important dates. | Should |
| | F7.6 Ensure accessibility from a variety of devices and locations. | Should |
| | F7.7 Have a discussion forum for student interaction and questions. | Could |
| Parent | F8.1 Be able to monitor their child's results and excuse absences easily. | Must |
| | F8.2 Have accessible contact solutions for communication with teachers or school staff. | Must |
| | F8.3 Have notifications for important updates, such as grades or attendance. | Should |
| | F8.4 Have a quick guide. | Should |
| | F8.5 Have access to educational resources for parents who wish to assist their child's learning. | Could |
| | F8.6 Have a calendar view of important school events and deadlines. | Could |
| Worker | F9.1 Include a basic help page. | Must |
| | F9.2 Receive essential features like announcements and work schedules. | Must |
| | F9.3 Have a possibility to view and download work-related documents. | Should |
| | F9.4 Receive notifications for work-related announcements. | Should |
| | F9.5 Get a simplified task management system for work-related tasks. | Could |
| System Administrator | F10.1 Get access to comprehensive documentation and training for system management. | Must |
| | F10.2 Oversee support requests for potential changes to the system. | Must |
| | F10.3 Have tools for managing user access and permissions. | Must |

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| | F10.4 Have a system backup and recovery mechanism. | Should |
| | F10.5 Have integration with system monitoring and reporting tools. | Should |
| | F10.6 Be capable of the customization of system settings and configurations. | Should |
| | F10.7 Have access to log analysis tools for analysis of system events. | Could |

5. Quality requirements

| Attribute | Requirement regarding that attribute (expressed in a way that enables objective verification whether the system complies to such requirement) | Priority |
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| performance | The system is able to serve 1000 concurrent users. Its database has a capacity of 10 TB, with a symmetric bandwidth of 1 Gb/s. Response time of under 200 milliseconds for most operations is targeted. | SHOULD |
| reliability | The system should not exceed 1 failure on a two-monthly basis. Problems with specific modules should not enforce shutdown of the entire system, just only a related module. | SHOULD |
| availability | The system achieves 23 hours and 40 minutes of uptime in a 24-hour period, for working days (Monday - Friday). During weekends and holidays it is 20 hours of uptime out of 24. | MUST |
| security | Firewalls and Network Security: Employ firewalls and network security measures to filter and control incoming and outgoing traffic, protecting against various types of attacks. Regular Security Audits: Conduct routine security audits and penetration testing to identify vulnerabilities and address them proactively. Access Monitoring: Continuously monitor user activities and system logs to detect any unusual or suspicious behavior. Data Availability: Essential to prevent Denial of Service (DoS) attacks. Implement redundancy and load balancing to mitigate service disruptions. | MUST |
| safety | N/A | WON'T |
| portability | The system runs on standard desktop browsers: <ul style="list-style-type: none"> Google Chrome ver. 118.0.5993.70 Microsoft Edge ver. 117.0.2045.60 Safari ver. 17 Mozilla Firefox ver. 118.0.2 Opera ver. 103.0.4928.16 An Android and iOS app for the system is available. | COULD |
| flexibility | There is a possibility to add more educational features i.e. quizzes, online lessons etc. in the future but we focus on | COULD |

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| | providing the basic needs for school organization purposes. | |
| configurability | Grading scales, curriculum, structure of the organization, financial parameters are possible to configure, because they can change over time. | SHOULD |

6. Constraints

- Deadline: 01.07.2024
- Project budget: 800 000 zł
- Client imposes use of JAVA programming language to create microservice dedicated for authenticating users in mObywatel system.
- Data should be exchanged in JSON format between mentioned IT systems.
- Technical documentation describing modules included in the system is required for developers and system administrators
- Particular types of training should be delivered to every group that will use the system
- Deployments that require more than 20 minutes will be announced in advance. Every group of users must be informed about the updates and changes.