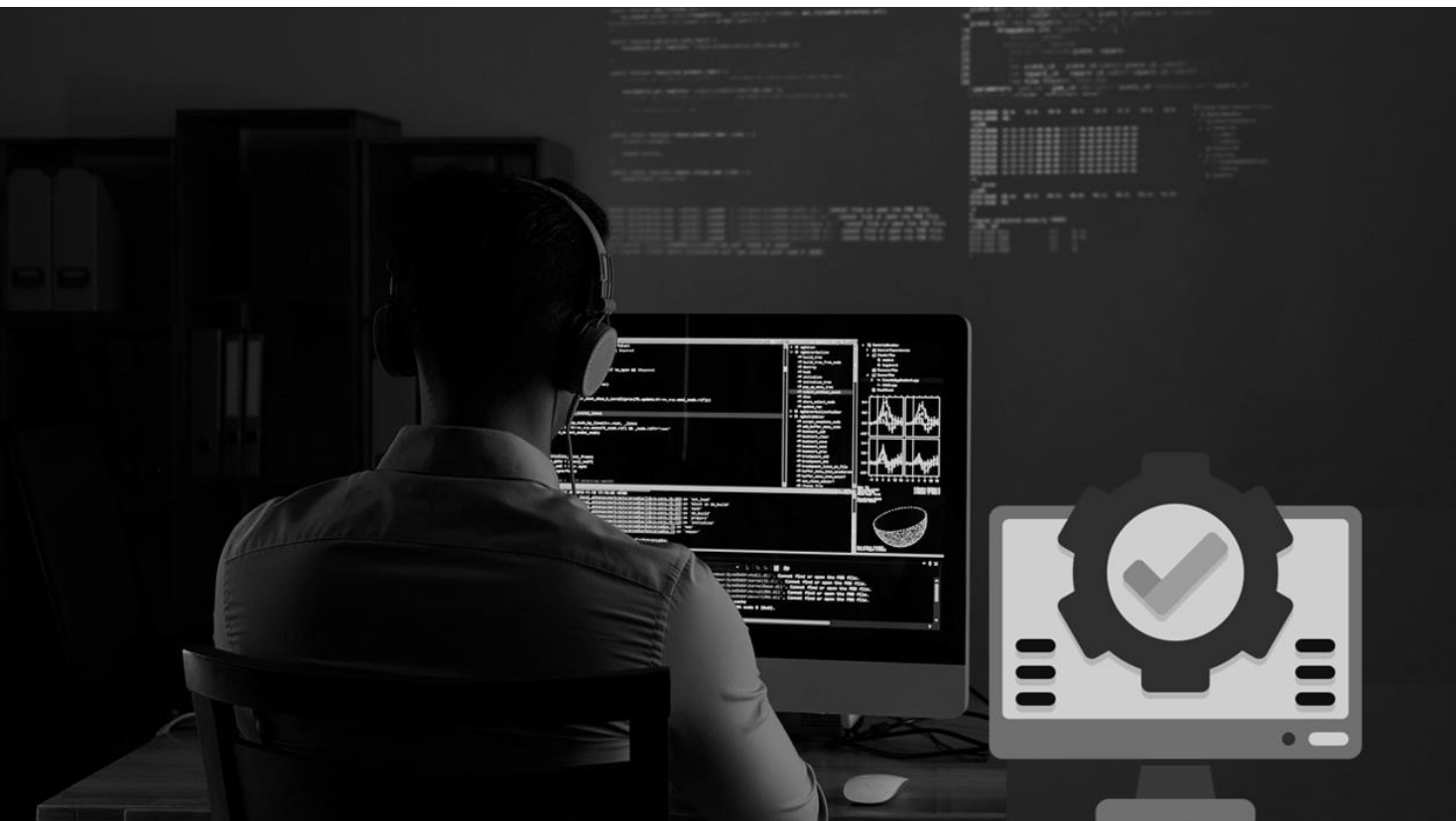


# WP2. Software Requirements report

## R2.4 Specification report for ESL warning tool

Project KALIS

Final version



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## Introduction

Before starting the development of the KALIS ESL warning tool platform, it is important to thoroughly understand the needs, preferences, and constraints of its potential users. This requirement report provides a comprehensive overview of key considerations that will inform the software design and development process.

By gathering detailed insights from various stakeholders, including teachers, school management, and GDPR experts, we can ensure that the final product is user-friendly, legally compliant, and effectively meets the needs of educational institutions. This preparatory step will also help the project to avoid costly redesigns, ensure widespread adoption, and ultimately fit the educational purpose for both students, parents and educators.

## Methodology

Each partner institution was tasked with consulting their management, teachers, and other stakeholders to gather insights and provide one answer from their institution, a consolidated response. This process involved in-depth discussions and consultations, allowing us to capture detailed qualitative data on user preferences, needs, and concerns. Once these insights were collected, each partner submitted a single, summarized response on behalf of their institution, providing a quantitative element to the data collection.

## Rationale

The qualitative-quantitative mixed-method approach was chosen for several reasons:

- Combining qualitative insights with quantitative data allows for a thorough understanding of user needs and preferences, ensuring that the software development is guided by a well-rounded perspective.
- The detailed qualitative data provides context and depth to the quantitative trends, enabling more informed decision-making during the development process.
- By involving management, teachers, and other stakeholders in the data collection process, we ensure that the perspectives of those who will be using the software are adequately represented and considered.

## Integration

*Integration in our context is about seamless operation between the KALIS ESL warning tool and existing student management systems, reducing the need for repetitive data entry and minimizing errors. effective integration can improve efficiency and accuracy in tracking student performance and risk factors.*

The partners did as first investigation to see if there were any possibilities to make integration between KALIS ESL warning tool and the existing students management tool in use in partner countries. Such integration would be at great help to avoid double punching of student's names and critical data of factors for calculation risk for drip out such as grades, absent and behaviour.

## Norway

All Norwegian secondary and VET schools uses a management system named *Visma InSchool* (<https://www.visma.no/skoleadministrasjon/videregaende-skole/>). The system has wide option for integration through their API solution named **Engage**. How ever the decision to transfer data from the system to other solution is a decision to be taken by school owner.

The request to the school owner in region of Trondelag, gave as answer: *"We do not give access to our data to suppliers we do not have agreements with."*

Such agreement is very formal and will as they see it most likely not be approved since KALIS is a temporary project with a German school as data controller and at this stage unclear how the data processors from other partner countries will interact with the Norwegian student data. In addition, there will be an economic aspect, since KALIS as new supplier needs to take costs which the Regional ICT owner have in this process.

## Spain

Research in Spain concludes it is not possible to transfer this data from the academic management system into KALIS platform. It's mostly a legal issue at the state level, since the academic management system does not allow it. Data protection is immutable in that aspect in Spain.

## Bulgaria

The Bulgarian national commission dealing with ESL policy in BG might allow integration if they approve the usefulness of the platform. KALIS project must, when platform is ready, apply and if they say yes, its possible to integrate national school management system.

<https://oidc.mon.bg/interaction/2JZiVFTu3Jbp7s-2VWeEe>, which is linked to the LMS  
<https://www.shkolo.bg/>.

At this stage they are not willing to share any technical data necessary for integration. The representative of the commission said they need to see first what the security control is setting of the platform regarding the GDPR, sensitive data and where it will be archived.

The management system is developed by private company and the representative of the commission stated that all cost related to integrations is cost the project must cover.

## Romania

In Romania the student's management system SIIR is not working at full capacity yet, so schools still keep everything on paper. Of the total plans for SIIR, only few modules are used, but these modules are not related to the grades the students receive, or presence at school. This year (2024) is the first attempt to print the final diplomas from SIIR, for example. SIIR contains only general data of the students and school, but every year they try to make another module active.

The academic performance is taken on the paper catalogue (or online one for those school who chose to use it exclusively or not), but there is no connection to SIIR. Only the minister's platforms (like the one for the final exams) are connected to SIIR, but just to import the students' personal data.

Requests for integration is not a question to be decided by local or regional school owners. Such request has to be sent to the ministry of Education in Bucharest.

## Germany

As school education is a matter of the individual Federal states in Germany, there is no standard system that is used by all states. However, in Brandenburg the schools use two systems called All4schools (operated by a private limited company) and Schulcloud Brandenburg (operated by the Federal State Brandenburg).

While All4schools (<https://www.all4schools.de/>) manages participant and student administration, class and course management, lesson and course planning, grade management/ report card program, absence management, electronic class register, invoicing tool and room booking tool, the second system Schulcloud Brandenburg (<https://brandenburg.cloud/>) is being used for exchange of digital,

self-created materials, for digital education beyond separate computer rooms, and for the provision of specially designed learning opportunities.

Transfer of data is difficult, since both system owners would need to give their permission and generally protect personal data by very high GDPR standards. So it is highly unlikely they would agree to a data transfer. Furthermore, the parents of the students would need to give their permission to use their children's data in another system.

### Conclusion integration

The report from all partner countries indicated there is no technical challenges to create integration, but in most countries, there are legal barriers related to allowance to share data, GDPR issues and also a question about costs.

Based on this the KALIS platform will be developed without having integration in mind. However, the KALIS platform will be able share its data to other system in case the owners of school managements system like to have such integration.

## User-Friendliness and accessibility

*User-friendliness and accessibility are crucial to ensure that teachers can easily navigate and use the platform, minimizing time spent on administrative tasks. A user-friendly interface encourages regular use and makes it easier for teachers to update and access important information.*

The partners were asked to organise a data collection about user-friendliness and accessibility. This is important to make the platform relevant for teachers and respect their limited time to deal with administrative work.

To get real answers based on the project context, partners answered a survey after consulting with stakeholders and teachers. The answer from each partner is to be seen as a summarized answer from the country.

### How often is it necessary to update data and information about grades, behaviour, and absence in order be updated of risk as you see it?

*Frequent updates of data related to grades, behavior, and absence are essential for accurately assessing and responding to students' risk of dropping out. Regular data entry ensures that the platform provides timely and relevant insights, enabling proactive interventions. At the same time, there needs to be a balance of time used by teachers for filling in data and the benefits. Basically, a cost-benefit assessment.*

How often should registration happen			
Grades	Once a semester (80%)	Once a month (20%)	
Behaviour	Once a semester (40%)	Only after incidents (40%)	Once a month (25%)
Absence	Once a month (60%)	After every class (20%)	Once a semester (20%)

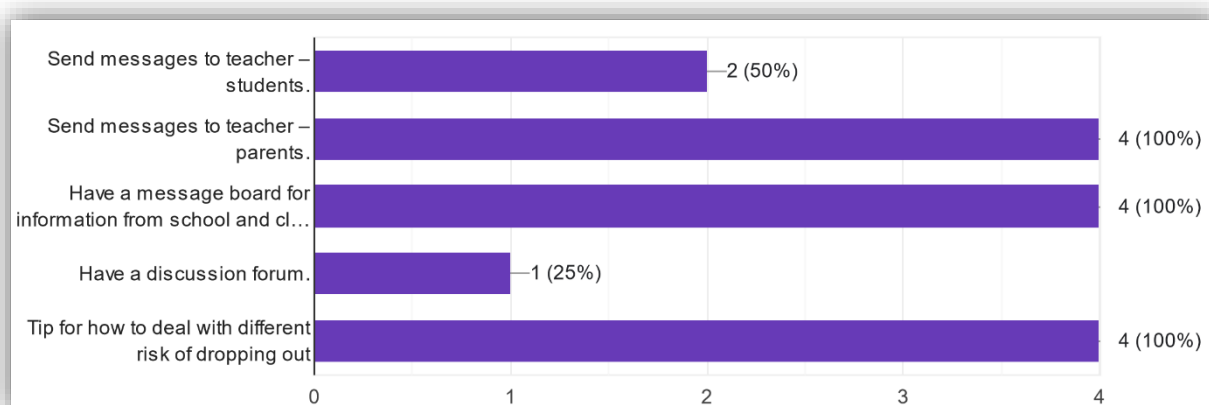
The registration of new data will only have as purpose to recalculate the score of algorithms, meaning its mainly necessary for teachers to give input if there is a change in situation.

How could the registration look like for different information		
Grades	Behaviour	Absence
The grads are developing: - Very good - Good - Lower than average - Critical lower, danger of not passing	The behaviour last period is: - Very good - Good - Worse than average - Very bad, serious incidents.	The absence is - little - Medium - Above average - Very high

### Which other offers would you like on the platform.

*Its important to consider if any additional features that users would like on the platform helps to improve its functionality and value. At the same time, we know too many “fancy” functionalities in software solutions is seen as distractions. To find the balance, seen from the user perspective is useful information for the programmers.*

Based on the list of useful features the score looks like this:

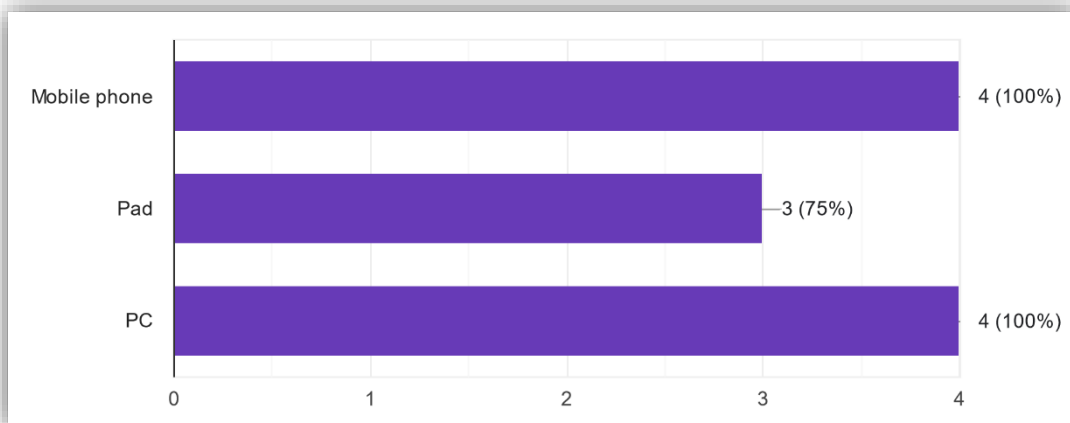


Based on the score the partnership suggests having these extra features:

- Send messages to teacher – students.
- Send messages to teacher – parents.
- Have a message board for information from school and class.
- Tip for how to deal with different risk of dropping out

### How do you see that most teachers at your school prefer to log in and use the platform on

The uses and access of platform needs to fit the daily life of teachers. Based on that, the respondent was asked to consider how they see that most teachers at your school prefer to log in and use the platform on.

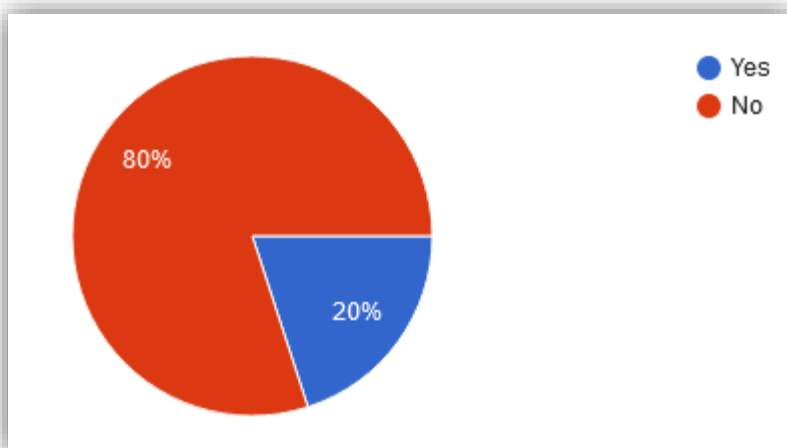


The score indicates that teachers use different devices and the platform need to be built in a responsive way, meeting the demands.

### GDPR considerations

As last question the partners were asked question related to GDPR risk reduction. The more information the platform has and the easier it is to link students to the information, the more challenging is the GDPR handling.

The respondent was asked if there **will there be a problem if the name of your students is prenamed as Student 1, Student 2 etc.** in the platform and you keep a list outside the platform telling which student is whom?



For most responders this would not be a problem, while the no answer argued it will less practical, more complex to keep track of who is who.

### Conclusion user-friendliness and accessibility

The survey results highlight the importance of creating a platform that is both user-friendly and accessible to ensure efficient use by teachers. Regular data updates are essential for accurate risk assessment, but these updates should not overly burden teachers. The platform should balance the frequency of data entry with its benefits, aiming to reduce administrative workload while maintaining accurate and timely information.

Additional features, such as messaging and information boards, should enhance functionality without becoming distractions.

Ensuring the platform is responsive across various devices is crucial to meet the diverse usage preferences of teachers.

GDPR considerations must also be addressed to protect student data while maintaining usability.

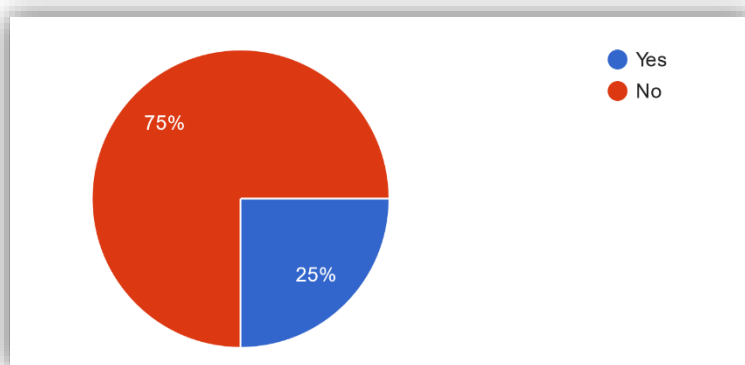
### Notifications and reports

*Effective notifications and reports are vital for timely communication and decision-making. Providing automated notifications and comprehensive reports can help stakeholders stay informed about student progress and potential issues.*

#### Automatically notify parents.

*Automatically notifying parents about a student's risk of dropping out ensures timely intervention and support. However, it's important to balance automated alerts with the need for personal communication from teachers and school staff.*

The respondents were asked if the **system should automatically provide a notification to parents if a student is in danger of dropping out**. 75% thinks it should not, explained with the need to lead such communication as teacher and school, having direct communication with parents.



#### Automatically notify school management/headmaster

*Notifying school management or headmasters about students at risk can facilitate coordinated support and intervention strategies. This feature should be customizable to meet the specific needs of each school.*

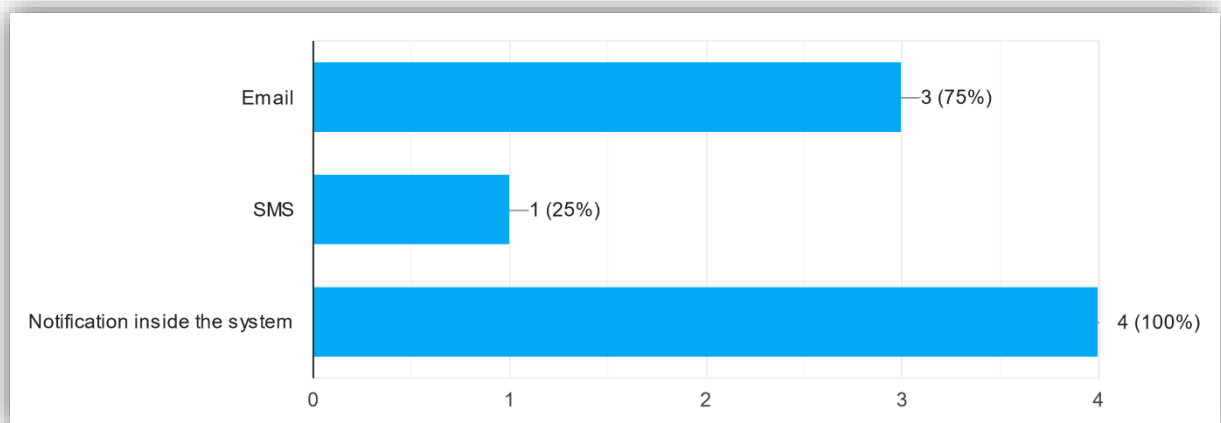


It was asked if the system should automatically notify school management/headmaster if a student is in danger of dropping out. The respondent was divided 50/50 in this decision. Since it's a functionality which seems useful for some, it could be a function possible to turn on for schools having these kind of warning routines.

#### How to receive notification.

*There are many ways to receive notifications today and it's important to find solution not creating extra burden to the involved.*

The respondent was asked **how they would like to be notified**. Based on the feedback it has to be a build in notification solution in the platform, but most also would like to have an email notification, knowing when they need to log in.



#### What kind of reports about status in the class do you prefer to have

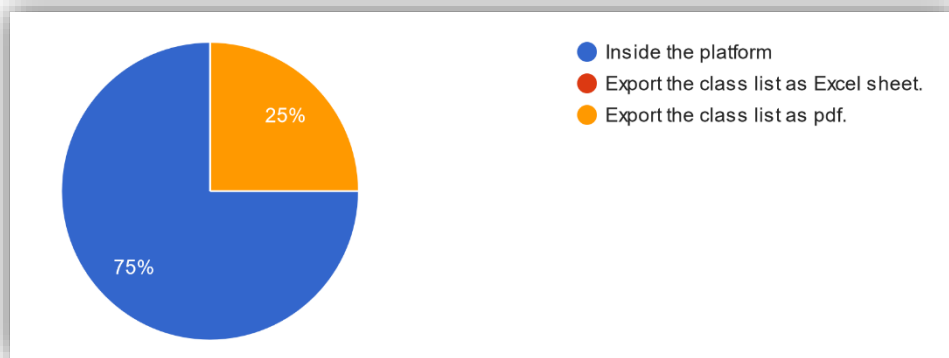
*Time is critical in today's work life with overload of information. We would like the users of platform to easily find the information they request most.*

Based on answers and qualitative feedback, the starting point for teachers should be a list of all students, using colours, for example red high risk of ESL, yellow medium and green low to indicate status. Then each student should be clickable to see further details.

#### How to view the data

*There are several options possible to make for viewing the data collected in the platform. Providing a preferred method for viewing data ensures that users can efficiently access and interpret information. A system-based view minimizes GDPR concerns and centralizes data management for ease of use.*

When asked **the most preferable way to view data**, 75% responded the best way is to view them into the system. A minority preferred to export the class list as a pdf. Exporting the class list as pdf will automatically raise new GDPR concerns, so no doubt having the platform as source for information only will ease the process.



### Conclusion notifications

The survey results highlight the importance of effective notifications and comprehensive reports to facilitate timely communication and decision-making.

While automatic notifications to parents about a student's risk of dropping out could prompt timely intervention, the majority of respondents prefer direct communication led by teachers and school staff.

Notifications to school management should be customizable to meet the specific needs of each institution, as opinions on this feature were divided.

To avoid creating extra burdens, the platform should offer both built-in notifications and email alerts.

Reports should be user-friendly, with a clear visual representation of student risk levels, allowing for easy access to detailed information.

Providing a system-based view of data minimizes GDPR concerns and centralizes data management, ensuring that users can efficiently access and interpret the necessary information.

## Data collection and privacy concerns

Data collection and privacy concerns are critical aspects that must be addressed in the development of the KALIS software platform. As we gather and manage sensitive information about students, it is essential to ensure that our data handling practices comply with legal requirements and protect the privacy of individuals. This chapter is developed based on the conclusions above, using mainly desk research to answer the legal challenges. The chapter outlines the key considerations and guidelines for data collection and privacy, providing essential information for the programmers who will build the platform.

### Importance of addressing data collection and privacy

Adherence to data protection regulations, such as the General Data Protection Regulation (GDPR), is mandatory for legal compliance. Non-compliance can result in severe legal consequences and damage to the institution's reputation. Ensuring robust data privacy measures fosters trust and confidence among users, including students, parents, teachers, and school management.

This trust is a must for the successful adoption and use of the platform. Protecting sensitive data from unauthorized access, breaches, and misuse is mandatory to safeguard the well-being and rights of students, making the implementation of strong security measures a fundamental responsibility.

Ethical handling of data is not only a legal requirement but also a moral obligation, as respecting the privacy and confidentiality of individuals' information is a cornerstone of ethical data management.

### Considerations for programmers

Programmers should focus on data minimization by collecting only the data necessary for the platform's functionality, avoiding excessive or irrelevant information to reduce privacy risks.

Techniques for anonymization and pseudonymization should be implemented wherever possible to reduce the risk of identifying individuals from the data and enhance privacy protection.

The platform should be designed with strict access controls to ensure that only authorized personnel can access sensitive information, utilizing role-based access management to achieve this.

Encryption should be used to protect data both at rest and in transit, ensuring that even if data is intercepted or accessed without authorization, it remains unreadable and secure.

Data collection practices must be transparent, with explicit consent obtained from users before collecting their data, and clear information provided on how their data will be used and stored.

Implementing audit trails to monitor and log access to sensitive data is essential for detecting and responding to any unauthorized access or data breaches.

### General handling

KALIS as Erasmus+ project is to be seen as a temporary organisation allowed to handle personal data, but as for other organisations, GDPR compliance remains essential. The project has different roles, each with different responsibilities in ensuring legal compliance with the General Data Protection Regulation (GDPR). As for all Erasmus+ project two roles are coordinator and partner. In addition, for the task of ESL warning tool platform, one partner also has the role as software developer.

In the description below the responsibilities are outlined, based on the general GDPR roles as data collector and data processor. Since these are the general responsibilities some of them of course will be more important than others in KALIS project.

## Data controller

The data controller is primarily responsible for determining the purpose and means of processing personal data. In KALIS this role would be a collaboration between coordinator (IB) and software developer (Prios).

### Coordinator as Data controller

Their key responsibilities include:

- **Transparency**  
The data controller ensures that everyone whose data is being processed knows exactly what is happening with their information. This means informing them clearly about how their data will be used, who might access it, and for what purpose.
- **Lawfulness**  
Coordinator must make sure that the processing of data has a legal ground in all partner countries.
- **Rights of data subjects**  
The coordinator as data controller is responsible for making sure that individuals can exercise their rights regarding their personal data. This includes allowing people to see the data if they request it, correcting it if it's wrong, and deleting it if they ask for this.
- **Risk assessment**  
For any activities that might pose high risks to individuals' privacy rights, the data controller has to initiate thorough assessments. These are called *Data Protection Impact Assessments* (DPIAs) and help identify and minimize the risks of a data processing activity.
- **Record keeping**  
Ensure project keep detailed records of what personal data is being processed and the activities related to this processing. This helps in maintaining clarity and accountability.
- **Security measures**  
It's crucial that they implement strong measures to safeguard personal data. This involves setting up proper security systems to prevent data breaches and ensure that data is handled securely.



## Software developer as Data controller

While not directly responsible for data processing, software developers play a specific role in ensuring GDPR compliance:

- Privacy by design, meaning building privacy features into software from the outset (e.g., pseudonymization, data minimization).
- Secure coding practices, writing secure code to prevent vulnerabilities that could lead to data breaches.
- Documenting how the software processes personal data.
- Conducting security and privacy testing.
- Collaborating with coordinator and other stakeholders to address privacy requirements.

## Data Processor- Partners

The data processor processes personal data on behalf of the data controller.

Their responsibilities include:

- Processing only as instructed, meaning following the instructions provided by the data controller (IB).
- Security measures, including implementing appropriate technical and organizational measures to protect personal data.
- Ensuring that any subcontractors (sub-processors) or in Erasmus term associated partners, also comply with GDPR.
- Reporting data breaches to the data controller.
- Record keeping, maintaining records of processing activities.
- Assisting with DPIAs, cooperating with the data controller during DPIAs.

### Sources

<https://gdpr.eu/>

[Erasmus+ and your data- Erasmus+ \(europa.eu\)](#)

## National regulations

Even though the GDPR regulations are EU wide, there might be national additional regulation, educational field regulations and even school regulations made by local school authorities. Those must be checked and clear before developing the platform.

### Germany

According to Article 30 of the GDPR, schools must keep a record of the processing activities for which they are responsible. This means that every school must keep a written or electronic record of what personal data is collected, stored and processed when, where and how.

Wherever data is collected or processed, data protection also plays a role. Especially when all this data is collected using digital tools, even more aspects need to be taken into account. *"When information on teaching tasks, grades, illnesses or behavior flows back and forth between teachers and pupils, third parties read it and use it to create profiles. Advertising is here the most harmless purpose,"* warned Thuringia's data protection officer Lutz Hasse in an interview with the school portal.

According to the General Data Protection Regulation (GDPR), the school management is responsible for the processing of all data collected in the school. Every public school in Germany must therefore appoint a data protection officer.

In any case the permission by the individual headmaster of the school and the parents is absolutely essential when it comes to the data processing of their children.

### Bulgaria

In Bulgaria the GDPR regulations are Issued by the Ministry of Education on a School-Level. Local school authorities typically do not have the power to enact regulations that contradict or supersede national or EU law. However, they can implement internal policies and procedures to ensure GDPR compliance such as:

- Data protection policies
- Procedures for handling personal data
- Staff training on data protection

Key considerations for schools

- **Consent:** Obtaining valid and informed consent for processing personal data, especially for minors, is mandatory.
- **Data minimization:** Collect and process only the necessary personal data for the specific purpose.
- **Data security:** Implement appropriate technical and organisational measures to protect personal data.
- **Data subject rights:** Ensure individuals can exercise their rights (access, rectification, erasure, etc.).
- **Data breaches:** Have procedures in place to report and manage data breaches.

### Romania

The entry into force of the Regulation on the protection of personal data and the implementation of the GDPR in schools have seen wide debates, but they have also aroused the curiosity of people to find out who is subject to the Regulation, what protection it gives to people, and what measures can be taken against the violation of its provisions.

The regulation on the protection of personal data applies in Romania including the personal data of students .

The data that the student will provide to school institutions must be protected by certain means. Moreover, schools have started making personal data processing agreements available to students.

## The basis for the processing of students' personal data by schools

In order for the personal data of the students to be processed by the schools, the latter must have a legal basis. If consent or consent is used together with other legal grounds, the order must include two special fields, one for the student's parents and the other for adults.

By way of example, regarding the structure (which may differ from one school institution to another) of an agreement published by a school, it includes a field for the parents/legal guardians of the minor and, separately, a field for the adult student. In the field dedicated to minor students, their consent is expressed for purposes such as:

- collection, storage and processing of personal data and the minor's image (data collection will include data of both the parents and the minor student);
- the use of the minor's image, photo or video, including its use in printed advertising materials such as newspapers, leaflets, flyers, print materials, but also on the online communication channels of the school in question, as well as on other channels that will be mentioned in the agreement.

In the field dedicated to adults, consent is expressed for purposes such as:

- collection, storage, processing of personal data, including the image;
- the use of the personal image, photo or video, including its use in printed advertising materials such as newspapers, leaflets, flyers, print materials, but also on the respective school's online communication channels.

In order to comply with the GDPR, the agreement must be accompanied by an information note explaining to the student how the school processes his personal data.

### Spain

The data protection regulations in Spain are primarily governed by the GDPR, a European regulatory framework in effect since 2016, and the LOPDGDD (Organic Law on Data Protection and Guarantee of Digital Rights), which is the adaptation of the European GDPR to the Spanish legal system, in force since 2018. However, regarding the responsibility for data protection in educational institutions, it depends on the nature of the institution. If the school is public or state-funded, the Educational Administration will be responsible for data protection; however, if the school is private, the institution itself will be responsible for the data.

For any collection of personal data, it is necessary to have legitimate grounds and the explicit consent of the minor's legal guardians. Additionally, it is important to know that the school has a duty to inform all relevant parties (legal guardians, parents, students, school employees, etc.) about all matters related to the processing of their data.

Furthermore, it is essential to conduct a prior risk analysis and, when necessary, a Data Protection Impact Assessment (DPIA) to ensure the security, confidentiality, and integrity of the data being handled.

### Norway

Children have special protection under the GDPR in Norway, and it requires special monitoring and good assessments that are documented at school.

- A risk and vulnerability assessment (RVA) must be carried out before the service is taken into use. It can be demanding to carry out. The data controller (headmaster) must consider any residual risk.
- A data protection impact assessment (DPIA) must be carried out when it is likely that a type of processing is likely to result in a high risk for the data subjects.
- The general rule is *"Personal data shall be limited to what is necessary to fulfil the purpose"*.

- If a school asks for and like to store additional sensitive data about students and their life, they need consensus from parents and a lot of extra regulations will come into effect. It's a kind of extra efforts we normally are not happy to do in a busy school every day.

The national regulations in Norway do not give additional requirements for developing the platform. The project could support schools by providing clear guidelines and tools for conducting necessary assessments like RVA and DPIA. However, the ultimate responsibility for meeting these regulations rests with the individual school.



**For inquiries, contact us.**



<https://kalis-project.eu/>

